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**The Extent, Nature and Effectiveness of
Planned Approaches in New Zealand Schools for
Providing for Gifted and Talented Students**

Report to the Ministry of Education

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**The extent, nature and effectiveness of planned approaches in
New Zealand schools for identifying and providing for gifted
and talented students**

by

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Glossary of Terms

The meanings provided in this glossary relate specifically to their use in the text of this report.

Aroha-ki-te-tāngata	Love and caring for others
Āwhinatanga	Helping and supporting others
Hapū	Subtribe
Hui	Gathering, meeting
Iwi	Tribe
Kaiako	Teacher
Kapahaka	Māori culture/performing arts group
Kaumātua	Respected elder
Koro	Elderly man, grandfather
Kura	School
Kura kaupapa Māori	Māori-medium primary school
Kōhanga reo	Māori-medium early childhood centre
Māia	Courage, bravery
Manaakitanga	Hospitality
Māori	Indigenous people of New Zealand
Mokopuna	Grandchild
Pākehā	New Zealander of Caucasian descent
Pūkeke	Determination
Pukumahi	Industriousness
Rūnanga	Māori Council
Tamariki	Children
Te reo Māori	The Māori language
Tikanga	Customs, protocols, rules, principles
Tūtohutanga	Sensitivity to others
Wairuatanga	Spirituality
Wananga/Whare wanaga	Māori tertiary learning institution
Whakahāhā	To show off, skite
Whakaiti	To make small, reduce
Whakamā	Shy, embarrassed, ashamed
Whakapapa	Genealogy
Whakaritenga mahi	Helping/serving others
Whānau	Extended family
Whanaungatanga	Kinship, relationship

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Introduction to Research

This research is a preliminary investigation of current identification and provisions for gifted and talented students in New Zealand. It is premised on the acknowledgement of a ‘somewhat limited research’ base (Ministry of Education Working Party on Gifted Education, 2001), but driven by the need to identify strengths and gaps in provision (Ministry of Education, 2002), so that future directions in gifted and talented education may be informed by both theory and practice relevant to New Zealand. Hence, the outcomes should guide future initiatives in policy, practice, and research. This research is based upon the core principles of gifted and talented education as outlined in 2002 in the Government’s initiatives for gifted and talented learners:

- Schools should aim to provide all learners with an education matched to their individual learning needs.
- Gifted and talented learners are found in every group within society.
- Māori perspectives and values must be embodied in all aspects of the education of gifted learners.
- The school environment is a powerful catalyst for the demonstration and development of talent.
- Parents, caregivers, and whānau should be given opportunities to be involved in decision-making regarding their children’s education.
- Programmes for gifted and talented students should be based upon sound practice, taking into account research and literature in the field.
- Gifted and talented students should be offered a curriculum rich in depth and breadth, and at a pace commensurate with their abilities.
- Schools should aim to meet the specific social and emotional needs of gifted and talented learners.
- Provision for gifted and talented students should be supported by ongoing high-quality teacher education (p. 3).

Furthermore, a preliminary investigation of the extent, nature and effectiveness of planned provisions for gifted and talented students should enable New Zealand educators to better meet the core principles outlined by the Government, particularly those related to ‘sound practice’ and ‘on-going high quality teacher education.’ The findings of the research will begin to form the basis of our collective understandings of provision, enabling better decision-making in the development of gifted education programmes and the teachers who deliver those. As the Report of the Working Party on Gifted Education stated, “Systematic and comprehensive evaluation is essential to judge programme effectiveness, respond to change and to inform subsequent planning” (2001, p. 21). Also, the Ministry of Education recognises that all teachers are teachers of the gifted and talented, in need of professional development which equips them to cater appropriately for gifted and talented students, and which is “contextually based ... to reflect current policies and practices” (2000, p. 10).

Finally, the Ministry of Education recommends that in the development of school-based provision for gifted and talented students, a ‘gap analysis’ is undertaken as “a starting point, determining ‘where we are at and where we are going’” (2000, p. 9). This same principle must be applied to gifted and talented education at a national level, better enabling New Zealand in its aim to acknowledge, recognise and celebrate the individual abilities and qualities of its most able students (Ministry of Education, 2002).

This research was commissioned by the Ministry of Education to determine key issues in gifted and talented education and gaps in provisions, a need which has been identified in the current Government

policy (Ministry of Education, 2002). The purpose of this study is to inform the Ministry's future policy development in gifted and talented education. This research is seen as a bold, first step towards answering the following questions, as outlined by the Ministry of Education:

1. What does the literature say about identification methods and provisions that increase achievement and improve social outcomes and meet the cognitive, affective, creative and cultural needs of gifted and talented learners?
2. How common is policy or specific schoolwide plans for provisions to meet the needs of gifted and talented learners in New Zealand schools?
3. What types of methods are stated in schoolwide policies or plans as being used to identify gifted learners and their needs?
4. What types of approaches are used in schools to provide for the needs of gifted and talented learners?
5. Are there any patterns (i.e., differences between regions, between high and low decile schools, for different ethnic groups) in the provision of support for gifted and talented learners?
6. What can be learned from the provisions for gifted and talented learners in New Zealand schools that have characteristics associated with effectiveness identified in the literature?

As the Minister of Education stated in the 2002 initiatives, "It is an exciting time for the education of gifted and talented students" (p. 1). By delving into the answers to these research questions, the excitement indeed builds, in the commitment to developing gifted and talented students so that they are able to "flourish economically, culturally, and socially" (ibid, p. 1).

Gifted and talented education in New Zealand differs from that of many other countries in several ways. It is recognised that "giftedness and talent can mean different things to different communities and cultures ... and there is a range of appropriate approaches towards meeting the needs of all such students" (Ministry of Education, 2002, p 2). Furthermore, and perhaps unique to New Zealand, the need for differentiated learning experiences across a continuum of approaches, *beginning* in inclusive classrooms, is seen as essential. And finally, there are distinctive cultural considerations to be taken into account in the planning and delivery of gifted education provisions. To best determine the extent, nature and effectiveness of provision for gifted and talented students, and in doing so, ensuring accordance with the Government's core principles for gifted and talented education, this research is comprised of three key elements:

- **A Review of the Literature** to determine the theory and research which informs effective practice in the identification of and provision for gifted and talented learners from a national and international perspective.
- **A Survey of New Zealand Schools** to determine the extent and nature of planned policy, identification and provision for gifted and talented students.
- **Case Studies** to enable a closer examination of those provisions most promising, in light of theoretically sound practice, as well as practices commonly utilised in New Zealand.

While these could be seen as three separate aims, it is the *combination* of these three components which sheds light upon the effectiveness of identification and provisions for New Zealand's students, pointing the torch towards future initiatives and developments.

Executive Summary

This research, which encompassed a review of the literature, national survey, and case studies, as an investigation of the extent, nature and effectiveness of planned identification and provisions for gifted and talented students in New Zealand schools, provides baseline data which demonstrates progress in meeting the needs of gifted and talented students, but also indicates the need for continued growth and development in this area of education. Both in research and practice, there are strengths in the identification and provisions, as well as areas for continued development. These are outlined in the conclusions:

- There is a paucity of reported national or international research which evaluates the effectiveness of provisions for gifted and talented students in relation to social, cultural, emotional, creative, and intellectual outcomes. Although there is recent growth in New Zealand's literature and research base in gifted and talented education, its dissemination and availability to practitioners is limited.
- There is a growing awareness of the need to provide gifted and talented students in New Zealand schools with an individualised and appropriate education, but this is impeded by a reported lack of professional development, access to resources and support, funding, time, and cultural misunderstandings.
- Reported definitions of giftedness and talent in New Zealand schools are broad and multi-categorical; however, cultural, spiritual, and emotional giftedness are often overlooked. Additionally, many of the reported definitions, identification practices, and provisions do not embody Māori perspectives and values.
- Multiple approaches to identification of giftedness and talent are reported by New Zealand schools; however, there is heavy reliance upon teacher identification and standardised testing across all areas of ability.
- There is a reported preference in New Zealand schools for implementing a combined approach of enrichment and acceleration, but the implementation of these is rather limited, with partiality to within-class provisions and withdrawal or pull-out programmes.
- Gifted and talented students from under-represented groups, especially Māori students and those of other ethnic minority groups, are not being readily identified in New Zealand schools, and culturally appropriate provisions are not being planned, implemented or evaluated.
- There is awareness and recognition of the social and emotional needs of gifted and talented students; however, only isolated examples of provisions specific to these are reported by New Zealand schools. Additionally, some of the reported identification methods and provisions could have potential negative effects upon the social and emotional well-being of gifted and talented students.
- The reported involvement of parents, caregivers, and whānau in the overall organisation and coordination, identification, and provisions for gifted and talented students in New Zealand schools is minimal.
- Schools in New Zealand are cognisant of the need for ongoing schoolwide professional development for all teachers and consider the lack of these opportunities a barrier to identification and provisions. Resources, funding, time and access are reported as barriers to professional development.

Introduction to the Literature Review

The purpose in this review of the literature is two-fold: firstly, it served as a base for the development of the survey and case study questions; but primarily, it has been used as a measure of the effectiveness of identification and provisions for New Zealand's gifted and talented students. The review of the literature was undertaken in response to the research question:

What does the literature say about identification methods and provisions that increase achievement and improve social outcomes and meet the cognitive, affective, creative and cultural needs of gifted and talented learners?

The Process of Review

In discussion with the Ministry of Education and advisory groups, an outline of the review was developed. The major themes of the review which emerged were concepts of giftedness, identification principles and practices, qualitative differentiation, enrichment and acceleration, regular inclusive classrooms, a continuum of school-based provisions outside the classroom, curriculum models, schoolwide policies and plans, and the evaluation of gifted programmes with cultural issues woven throughout. However, during the course of the research, it was decided that cultural issues should not only be addressed throughout the review, but warranted a separate discussion. Other major themes which arose during the research, and have since been included in the review, are teacher education and professional development, issues related to research in gifted education, the 'debate' regarding ability grouping, and programme development. A brief section on identification methods and provisions discussed in the international literature, but seldom addressed in New Zealand, was also added.

In order to effectively manage the review, several broad criteria were developed for the selection and review of materials. The initial criteria were:

- Research-based or theory-based reports (national and international), and descriptive reports of provision (New Zealand-based);
- Relevance to New Zealand's core principles related to identification and provision (i.e., matched to individual needs; inclusive of gender, socioeconomic differences, and culture; bi-cultural/multicultural; school-based catalysts for talent development; parental/whānau involvement; sound practice and theory/research; differentiated; aimed at meeting social and emotional needs; supported by professional development);
- Currency or timeliness (1992-2002, with recognition that some publications of significance may be of an earlier publication date); and
- Overall relevance to the purposes of the review.

During the course of the review, whilst every effort was made to adhere to these criteria, it also became apparent that for adequate coverage of some topics, particularly from a New Zealand perspective, these had to be waived. For example, the decision was made to include unpublished research reports from New Zealand, as well as personal communication with educational providers. In some instances, 'timeliness' also became a factor to be overlooked, for it seems that some of the international discussion and debate which explored educational principles and practices in gifted education, as outlined for this review, took place over a decade ago.

A template was developed and is included in Appendix A. The purpose of the template was to ensure consistency in the reporting of the findings. The template also assisted in keeping the review 'focused,' with each team member reporting key themes, research questions or aims, target population, identification methods, outcomes for students, and so on.

An initial search was undertaken using the Massey University electronic databases and Library catalogue. Additionally, members of the advisory groups were asked to provide assistance, particularly

in securing New Zealand-based references. The World Wide Web was also searched. Ongoing communication between the research team members was also fruitful in locating and securing references. As with any review of the literature, during the course of the review, more references surfaced.

The materials obtained in the review were read, analysed, and discussed by members of the research team, with each member taking responsibility for various aspects of the final report. The team members also read and edited the review in its entirety. An interim report to the Ministry of Education also yielded feedback and additional suggestions.

Outline of the Review

This review of the literature is based upon the premise that there is an interrelationship amongst definitions of giftedness and talent, the associated characteristics or behaviours, identification, provisions, and evaluation (McAlpine, 1996; Ministry of Education, 2000). This guiding principle is depicted in Figure 1 below.

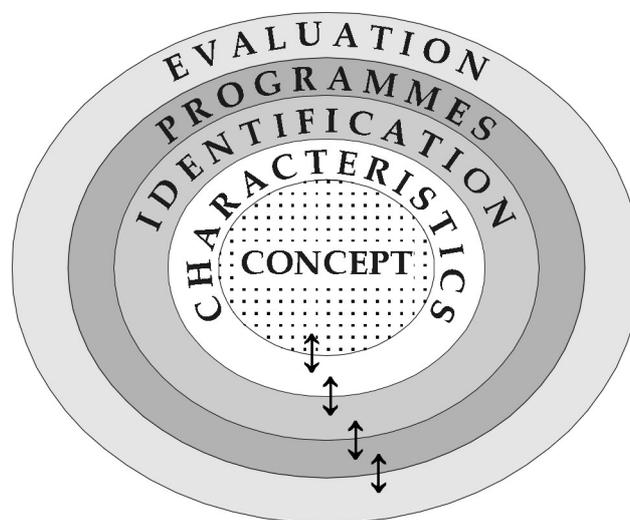


Figure 1. The Interrelationship Between Concept, Characteristics, Identification, Programmes and Evaluation.

Although the primary aim of the review is a discussion of identification and provisions for gifted and talented students, it would be undesirable to explore these without some contextualisation within New Zealand's educational principles and practices. Therefore, the review begins by briefly exploring the definitions and concepts of giftedness and talent, and the behaviours commonly associated with those, from a New Zealand perspective. This is followed by a discussion of identification of giftedness and talent, beginning with an elaboration and explanation of the principles of identification outlined by the Ministry of Education (2000). The many methods of identification are described, including their facilitation and the strengths and weaknesses of each approach. Recommendations for effective identification of giftedness and talent as outlined in the literature are summarised.

Renzulli (2001a) dichotomises between theoretical, or pedagogical, foundations and organisational foundations in gifted education. The former, theory, consists of the principles and derivative experiences designed to accomplish certain types of learning. The second, organisation, has more to do with pragmatic or practical structures such as scheduling, grouping, and so on. This review of the literature aims to discuss both of those issues, beginning with underlying theoretical principles and following with the everyday, practical strategies commonly employed. Therefore, the review of provisions begins by outlining qualitative differentiation, enrichment and acceleration, curriculum models, and ability grouping. This is followed by a discussion of classroom-based and school-based provisions. It begins with an overview of regular classroom programmes, including recommended strategies, and is followed by discussion of school-based provisions. For each strategy discussed, the

national and international theory and research is utilised to provide an explanation, describe the cognitive and affective outcomes for gifted and talented students, outline the potential strengths and weaknesses of the provision, and to make recommendations, as reported in the literature, for effective translation of the theory into practice. Finally, this section of the literature review concludes by considering possible identification and programming strategies which may be of relevance as New Zealand thinks forward and moves ahead in gifted and talented education.

Having an overview of identification and provisions enables readers to consider these in relation to cultural perspectives. The next part of the review addresses the international and national literature related to cultural issues, focusing upon the problems related to identification and provisions and the solutions to those. Evaluation of gifted and talented identification and provisions is addressed in the next sections, followed by schoolwide programme and policy development, including teacher education and professional development.

Research in Gifted and Talented Education

The primary purpose in this review of the literature was to examine the literature in gifted and talented education, focusing upon the nature of identification methods and provisions, the effectiveness of those in relation to cognitive and affective outcomes for students, the strengths of weaknesses of approaches, and recommendations for their use. It is important, however, that this review is read against the backdrop of the potential constraints and limitations of research in gifted and talented education, especially before any generalisations or applications of the findings of this review are made.

The nature of gifted education research. This review of the literature yielded many descriptive reports regarding identification and provisions for gifted and talented students, especially from a New Zealand perspective. Very few empirical studies of research orientations which are qualitative, quantitative, or a combination of the two, and which examine the *effectiveness* in relation to student outcomes, seem to exist in the gifted education literature. Callahan (2001a) confirms this in stating, “The research in gifted education can be characterized as largely descriptive ... The field is sorely lacking in student outcome data” (p. 150). A content analysis of publications in gifted education journals conducted by Hays (1993) demonstrates this: of the 1,773 articles published in *Gifted Child Quarterly*, *Roepers Review*, and *The Journal of the Education of the Gifted* from 1958-1989, only 28.8% were based upon empirical research. A more recent analysis concluded that although there has been growth over the last decade in applied research activities worldwide, there remains a need for an “increase in quality of research designs and measurement techniques” (Heller & Schofield, 2000, p. 135).

This is despite the fact that approximately one new publication a day is produced within the field (Ziegler & Raul, 2000). The resulting plethora of available publications is dominated by reviews of the literature, position papers, proposals for future research, descriptive reports, and critiques. These publications tend to address curriculum studies, programme evaluations, delivery systems, and special provisions for gifted and talented students (Cross, 1994). These contributions are indeed substantial and of great value to educators; however, they do not reflect the spectrum of available research approaches and methodologies (Cross, 1994) and as such, have been characterised as ‘folk wisdom,’ ‘quick fix practices,’ and ‘easy-answer approaches’ (Cohen, 1996). Callahan (2001a) describes gifted education as a field which relies upon “theory, supposition, and belief about what is best for gifted students” (p. 150). Hays (1993) summed up the gifted education literature as ‘journalism’ or ‘advice giving.’

These descriptive reports are useful, but as Callahan (2001a) points out, unless the effectiveness of identification and provisions is evaluated, gifted education will “never make dramatic leaps forward” (p. 150). Not surprisingly, she calls for the evaluation of programmes, describing the documentation of those as ‘minimal.’ However, Delcourt, Loyd, Cornell, and Goldberg (1994) report in regards to research on programme effectiveness:

...although there are many theoretical articles, and articles which describe the curricula or goals of different kinds of gifted programs, there are few studies which have directly examined how students change over time after entering a gifted program. Research on the effects of gifted programs is generally sparse, unsystematic, and far from conclusive (p. 3).

Within New Zealand, this is also the case. It seems the situation has not changed much since 1987 when McAlpine and Reid reported that New Zealand comparative and evaluative research was 'sparse' and its dissemination was to a limited audience. Nearly a decade later, Reid (1996) lamented over this situation, stating, "... there have been a handful of articles written about 'programmes' for gifted children, but these are long on description, unsupported opinion, and unsubstantiated conclusions on outcomes, and they are woefully short on quantitative and/or qualitative evidence of effectiveness" (p. 378). An examination of the 1997-2001 issues of *APEX: The New Zealand Journal for Gifted Education* confirms this. Of the twenty-two published articles during that time period, overwhelmingly the majority raise and discuss important issues related to the identification and provisions for gifted and talented students, but none of these report the results of empirical studies of giftedness. It seems the situation McAlpine and Reid described in 1987 remains true today, and educators should heed their call for "much more, and more rigorous, research on the education of the gifted and talented" (p. 330).

The nature of the literature in gifted education poses two problems, the first to the researchers conducting this review, and the second to practitioners implementing identification procedures and educational provisions for gifted and talented students. Firstly, difficulty arises in conducting a review of the literature with a brief to examine effectiveness in relation to student outcomes. Whilst every effort has been made to source and report research findings related to student outcome data, this review of the literature has also had to be reliant upon descriptive studies, especially in reporting New Zealand-based theory and research. The second problem is one faced by educators, who are encouraged to "be quick to demand evidence of effectiveness before adopting or adapting a practice" (Callahan, 2001a, p. 150). This review of the literature aims to *explain* both the empirical and descriptive research, but it does *not* aim to evaluate those. In other words, an array of identification methods and provisions are presented to the reader as common practices, but none as 'best practices.'

New Zealand perspectives. In 2001, the Minister's Working Party on Gifted Education reported that there was a 'somewhat limited' research base in New Zealand. This call for research in gifted education within New Zealand is not surprising given that writers in the field have consistently identified this need (McAlpine & Reid, 1987; Moltzen, 1996a; Reid, 1996). Although Braggett and Moltzen (2000) report a 'steady increase' in New Zealand-based research, they further report that this has been led by a 'small number of academics,' mainly supporting a growing number of graduate students.

This situation is exemplified in recent Ministry of Education documents (2000, 2001) which are heavily reliant upon overseas research. In the 2000 handbook, *Gifted and Talented Students: Meeting Their Needs in New Zealand Schools*, forty-nine references are cited. Of these, only eleven are New Zealand-based, with six of these being chapters from one edited text (i.e., McAlpine & Moltzen, 1996). Similarly, the Working Party on Gifted Education reported a bibliography of twenty-seven publications, of which ten were New Zealand-based, and several of those historical in nature. This review further demonstrates a dependence upon overseas research, and this is predominately from the United States. Reliance upon American research, however, is not unique to this review. An examination of similar reviews from other countries also demonstrates this (see for example, Freeman, 1998; Gross & Sleaf, 2001).

In conducting a review of the literature examining the effectiveness of identification and provisions, the absence of New Zealand-based research becomes somewhat problematic. No doubt, much can be gained from overseas research, and to ignore the plethora of research could prove akin to 'throwing the baby out with the bathwater.' However, at the same time, care and caution must be taken in making generalisations or applying recommendations, ensuring that those are appropriate and relevant within the context and culture of the New Zealand education system. This review aims to explain the

literature in relation to New Zealand's educational context. Additionally, the review reports both published and unpublished New Zealand research, and in cases where information was not readily available, personal communication was sought and is reported.

Definitions and identification. Given the plethora of theoretical concepts of giftedness, coupled with the recognition of multiple areas of special ability, research related to the effectiveness of identification or provisions must firstly be considered in light of the gifted population under examination. As Ziegler and Raul (2000) state, "the theory defines the data for which this theory could be relevant" (p. 113). In other words, results obtained under one notion of giftedness, or within one sub-population of 'the gifted and talented,' cannot be generalised or compared to results of another study relying upon a different perspective of giftedness.

Similarly, although the field of gifted education has clearly shifted to a much broader conceptualisation of giftedness and talent, it seems that in many cases the identification methods employed by researchers are measures of intelligence or achievement (Ziegler & Raul, 2000). Identification of this nature may be the most simplistic approach, but it does not accurately measure the multi-dimensional, dynamic nature of giftedness and talent. Furthermore, Ziegler and Raul (2000) report that many research studies are reliant upon a single criterion for identification of participants. Even when multiple or different measures of identification are utilised, it is difficult to make generalisations or comparisons across studies.

The underlying conceptions of giftedness, alongside the identification methods employed, create what Ziegler and Raul (2000) refer to as a 'toothbrush concept.' "It seems that everybody has a toothbrush, but nobody wants to use a toothbrush which belongs to somebody else" (p. 114). They see these issues as problematic in gifted education research, concluding that the research field is "more or less fragmented," and so, warning that the "results cannot easily be compared to one another" (p. 131). Therefore, caution must be taken in the interpretation, integration, and application of research findings. Every effort has been taken in this review to explain the definition and identification practices reported in the research studies cited, when that information was available.

Research designs and measures of effectiveness. Slavin (1987, 1991) raises concerns regarding the inadequacy of research designs employed by researchers in gifted and talented education. He states that most studies related to effectiveness, and specifically of enrichment programmes, compare students who were assigned to gifted programmes to those of similar ability who were rejected from the programmes. Many of these studies control for intelligence quotient and prior achievement, but do not take into consideration other factors such as motivation or current achievement. Goldring (1990) also discusses this concern, stating that "one cannot match on all the relevant variables; therefore, matching is usually implemented on those variables that are easiest to measure" (p. 315). However, as Winner states, "Only with random assignment can we be sure that gains experienced by the children ... are due to the program, and not to pre-existing differences between the two groups of children" (1996a, p. 262). As Reid (1996) points out, research of this nature creates ethical dilemmas, and perhaps for that reason, the type of research called for has not been carried out.

Slavin (1988) also discusses the problems related to different approaches to teaching and learning (both content and process orientations) which are employed in gifted programmes and other alternatives, concluding that it is difficult to compare the effects upon students. Allan (1991) claims that the measurements used are possibly too insensitive to measure or pick-up the effects of different approaches. Kulik (1991) discusses the inadequacy of criterion measures used in gifted education research studies, specifically those studies related to ability grouping. In many studies, standardised achievement tests are used to measure academic gains, however, he believes these might not give a true measure of effectiveness. He states that research utilising local tests tends to give way to stronger results, therefore concluding that the effects claimed by many studies may be underestimates. Allan (1991) relays the complaints of many teachers, that too often "tests don't evaluate what they are teaching" (p. 61).

Fielder, Lange and Winebrenner (2002) also discuss this critical issue, concluding that the goals of gifted programmes are often a mismatch with the measures of effectiveness utilised. As they state, “what gifted students learn should be measured by far more comprehensive criteria than increased achievement test scores” (p. 109). Kulik (2003) comments, in relation to ability grouping, that the reported modest gains in achievement are in fact quite remarkable given that most programmes “...do not ordinarily provide more work on the basic skills ... However, the standardised achievement tests used to evaluate the effects of most enrichment programs stress basic skills” (p. 275).

Allan (1991) discusses another reason why studies of effectiveness may give a distorted picture of actual achievement: the ceiling effect, or highest scores attainable for each level. As she states, “The scores of gifted students usually approach the ceiling on standardized achievement tests, making it very difficult to show significant academic improvement on their part” (p. 60). In other words, when gifted and talented students reach the upper ceiling on measures of achievement, the test itself potentially masks their actual degree of achievement gains. She concludes by warning that with research studies of this nature, the ‘real benefits’ could in fact be greater than the method or measurements might show. Goldring (1990) warns of test scores regressing toward the mean, especially if two matched groups are drawn from different populations.

Finally, Slavin (1987, 1988, 1991) repeatedly states that there is systematic bias in gifted education research. This bias is seen as moving in one direction – favouring the gifted and talented. However, Goldring (1990) advises researchers to “... investigate the extent to which those studies are biased, rather than merely discount them ...” (p. 315). In this review issues which might be perceived by opponents as lending themselves toward gifted education biases have been discussed by examining ‘both sides of the coin.’ Additionally, in describing research findings these potential methodological limitations are acknowledged and readers should be cognisant of potential limitations of what is reported.

Making sense of the research. Rogers (2002a) describes five approaches to research upon which practitioners commonly make decisions, as they try to “make sense of the overwhelming body of research that is out there” (p. 103). She explains these as follows:

- *I know this student who...* – applying past successful experiences to current situations, or “anecdotal research, at best.”
- *I found this study* – relying upon one or two research studies to support one’s ‘gut feelings.’
- *Famous person* – applying elements of a researcher’s findings to support a particular practice, which neither adequately nor accurately portray the research.
- *Apples and oranges* – meta-analytic approaches which report average effect sizes across a range of studies.
- *Best-evidence* – taking meta-analysis a step further by categorising studies by instructional strategy, selecting the strongest studies for generalisations.

Rogers (2002a) strongly supports the latter two approaches as the most appropriate for determining effectiveness, and when available these are reported in the review. However, she also warns that both of these approaches, meta-analysis and best-evidence synthesis, carry with them inherent dangers in their design. For example, in some cases of meta-analysis little care may be given to the examination of the quality of individual research, sample sizes, or teaching strategies implemented. Syntheses of best-evidence research can be subjective, with the researcher playing the role of ‘judge and jury.’ She advises educators interested in the outcomes for gifted and talented students to carefully examine studies of this nature, ensuring that the criteria are rigorous, and the studies are inclusive of gifted and talented students. For the purposes of this review of the literature, every effort has been made to ensure that these criteria have been met, and if not, acknowledged, in the reported research. Additionally, by adhering to the previously outlined criteria for the review, every attempt has been made to present the research adequately, accurately, and comprehensively.

DEFINITIONS AND CHARACTERISTICS

There are many theories and definitions which have developed as educators have grappled with the notion of giftedness and talent. As the Working Party on Gifted Education pointed out in their 2001 report, there is not a universally accepted definition. That report also recognised that while all individuals have strengths and abilities, gifted and talented students have *exceptional* abilities. In 2002 the Ministry of Education stated that gifted and talented students "... have certain learning characteristics that give them the potential to achieve outstanding performance" (p. 2). These learning characteristics are described by the Working Party (2001) as being cognitive, creative, and affective. Gifted and talented students may possess one or more of a 'wide range' of special abilities, including strengths, interests, and qualities in their general intellect, academics, culture, creativity, leadership, physical abilities, and visual and performing arts (Ministry of Education, 2000). Finally, there is recognition that giftedness and talent may be recognised and developed in different ways by different communities and cultures (Ministry of Education, 2002).

While there are many definitions of giftedness and talent, within New Zealand, unlike some other countries, there are the above-outlined underlying principles, but no 'official' definition. Rather, there is encouragement for, and expectation that, each individual school will establish a school-based definition of giftedness and talent (Ministry of Education, 2000; 2002). "Schools need to develop multicategorical approaches to giftedness that are flexible enough to include the many characteristics that are typical of gifted and talented learners" (Ministry of Education, 2002, p. 2). The concept of giftedness and talent is dynamic, sensitive to time, place, and culture (McAlpine, 1996; Ministry of Education, 2000). What is valued in one community at a particular point in time and by a specific group of people will vary greatly from another community, time, and people. Giftedness and talent is a living, breathing, ever-changing concept, one which has been, and continues to be, according to Borland (1997a), socially constructed.

Cultural values, beliefs, traditions and attitudes, as well as interpretations, underlie our constructions of giftedness and talent (Ministry of Education, 2000). For example, within New Zealand, Bevan-Brown (1993, 1996) has investigated Māori perspectives of giftedness. Her research has enlightened our understandings of giftedness and talent, raising awareness of the broad and wide-ranging special abilities valued within Māori society. These include special abilities, such as exceptionalism in academics, general intelligence, the arts, leadership, and sport, but also acknowledge Māori knowledge and understanding, service to the Māori community, spiritual and emotional qualities, pride in Māori identity, and mana. Bevan-Brown's research also highlights the cultural value of service to others, sharing one's special abilities and qualities for the good of humanity, the community, or Māori culture. Within Māori culture there is also recognition that a group of people may be gifted and talented; in other words, the dynamics and interactions of a group of people are likely to result in gifted behaviours.

In 2000, the Ministry of Education presented a smorgasbord of national and international definitions of giftedness and talent in *Gifted and Talented Students: Meeting Their Needs in New Zealand Schools*. As Moltzen, Riley, and McAlpine (2001), the Ministry-commissioned writers of the document, report:

We were in no doubt that we could not provide a single definition of giftedness and talent if we were committed to allowing schools to truly develop their own approaches here. Yet if we offered too many options we could add to the existing confusion (p. 11).

Six definitions are presented in the document and an analysis of these demonstrates some recurring elements which should be considered school-wide in the creation, adaptation, or adoption of definitions:

- The recognition of both performance and potential, or promise and fulfilment;

- The acknowledgement that gifted and talented students demonstrate exceptionality in relation to their peers of the same age, culture, or circumstances;
- The acceptance of a multicategorical approach which includes an array of special abilities;
- The recognition of multicultural values, beliefs, attitudes, and customs;
- The need for differentiated educational opportunities for gifted and talented students, including social and emotional support;
- The acceptance that giftedness is evidenced in all societal groups, regardless of culture, ethnicity, socioeconomic status, gender, or disability (learning, physical, or behavioural); and
- The recognition that a student may be gifted in one or more areas.

Multicategorical concepts of giftedness and talent appear to be favoured by New Zealand educators – they are broad, inclusive, and liberal, sitting well with egalitarian philosophies and beliefs. However, as Moltzen et al. (2001) point out, definitions which recognise such a broad array of exceptional abilities create a

...tension between recognising and nurturing exceptional ability across a number of domains, but running the risk of ‘watering down’ the concept of giftedness to such an extent that the special needs of the highly or exceptionally gifted are lost in a milieu of disparate provisions to meet disparate abilities (p. 11).

New Zealand educators should ‘contextualise’ their definitions of giftedness and talent based upon their individual school’s culture and shared understandings. Otherwise, individual schools and the country as a whole could run into the sort of jeopardy described in the United States by Robinson (1999): “If we lack consensus about the very children we are trying to support, we ride off in many directions. And that, in fact, is what – for many reasons – we do” (p. 121).

Behaviours Associated with Giftedness

As the Ministry of Education (2000) states, it is often the *behaviours* of individuals that ‘illustrate’ giftedness and talent. New Zealand Professor Clem Hill summed this up in the title of a 1977 presentation, “Gifted is, as gifted does.” Understanding the characteristics associated with giftedness and talent is critically important in assisting educators in the identification of gifted and talented students (Moltzen et al., 2001), for they paint the picture of special abilities. Common clusters of characteristics are often associated with giftedness, and these are outlined by the Ministry of Education (2000, based upon McAlpine & Reid, 1996), in relation to their learning, creative thinking, motivation, social leadership, and self-determination. Some of these include the ability to quickly grasp concepts and see relationships between them; being skilled in both problem-solving and problem-finding; possessing an advanced sense of humour; recalling a wide range of knowledge; producing unusual insights and ideas; being highly motivated and self-directed; questioning decisions, ideas, and ‘givens’; preferring to work independently; and relating well to older children and adults (Ministry of Education, 2000).

These behaviours give some insight into gifted and talented students, but, it is essential to remember that gifted and talented students are first and foremost individuals. As the Ministry of Education (2000) states, “It is important to recognise that the gifted and talented are not a homogeneous group and that every student possesses a unique blend of traits” (p. 17). This blend of traits may also differ dependent upon the type of special ability. For example, a student with leadership abilities and qualities will demonstrate some different behaviours than students gifted and talented in the arts, mathematics, spirituality, sport, and so on. Moltzen (1996a) outlines typical characteristics associated with different areas of ability and the diversity of associated behaviours is clearly demonstrated. The Ministry of Education (2000) states, “As definitions of giftedness have broadened, so too have categories of characteristics” (p. 17). Therefore, the Ministry recommends schools not only develop their own definitions of giftedness, but also a set of common behaviours which reflect that definition.

It is also important to remember that cultures may interpret behaviours differently. As Bevan-Brown (1996) points out, a Māori interpretation of leadership abilities and qualities acknowledges the “behind-the-scenes” leader, the leader who may never be seen “in the public eye” but who quietly works in the background, “lifting people up” (pp. 95-96). So, if the characteristics adopted by a school, and associated with leadership, only reflect the up-front style of leadership, these children will no doubt be overlooked. Similarly, it is important to remember the qualities and abilities valued within Māori society, constantly seeking to understand how those might be demonstrated.

Finally, educators must be aware of the ‘flipside’ of giftedness: the seemingly positive behaviours which can show themselves in less acceptable ways (Ministry of Education, 2000). For example, a student who has a vast range of general knowledge and ability to quickly learn new ideas may become quite bored and act out in frustration. Some gifted and talented students will ‘hide’ their abilities to fit in or for cultural acceptance; others will rebel against the educational system and underachieve; some others will have abilities masked by learning, physical or behavioural disabilities; and naturally, others will shine as confident, independent, high achieving students (Ministry of Education, 2000).

In sum, gifted and talented students are markedly different from other children. Their social, emotional, intellectual, cultural, and physical abilities and qualities will vary amongst individuals, but as a group, gifted children are ‘out-of-step’ with their peers. The recognition and acknowledgement of these asynchronous behaviours will be partially reliant upon a school’s definition, its scope and inclusiveness. There is an interrelationship between how a school defines giftedness and talent and the related behaviours and characteristics.

IDENTIFICATION

One of the most widely discussed and perplexing aspects of gifted and talented education is identification. As Davis and Rimm (1998) state, “There probably are as many different strategies and policies for identifying gifted and talented students as there are programs” (p. 68). The Ministry of Education (2000) indicates that identification is often ranked ‘number one’ amongst critical issues in the field. It seems that the identification of the gifted and talented sometimes becomes a matter of ‘getting the label right.’ However, identification is not about the label itself, but as the Ministry of Education (2000) encourages, it should be seen as a means to an end. Identification has as its ultimate goal the collection of a wide range of information about a gifted and talented student’s learning, interests, qualities, abilities, strengths, and weaknesses to be used in the formation and implementation of a differentiated educational programme. At the same time, identification is a reflection of one’s conceptualisation of giftedness and talent. In this way, as the Ministry of Education (2000) points out, identification is the ‘mediating link’ between a school’s concept or definition of giftedness and talent and its differentiated educational provisions.

In theory, the principles and purposes in identification, as briefly outlined above and discussed more fully in this section, are sound. However, it is in practice that the issue of identification becomes problematic. Callahan, Hunsaker, Adams, Moore, and Bland (1995) outlined the forces contributing to the dilemmas over identification in the United States, and these are relevant within the New Zealand context. Firstly, confusion over the concept of giftedness and talent underlies perplexities related to identification. Broadened conceptualisations and definitions of giftedness and talent as advocated by the Ministry of Education (2000, 2002) have made the selection of appropriate identification methods more complex and difficult. Additionally, some constructs of giftedness and talent, such as cultural, emotional and spiritual giftedness, may be difficult to define and measure. Often educators rely upon commonly known methods, and in doing so, may fail to match the method to the construct. Related to this problem with conceptions of giftedness and talent are two common misconceptions: ‘the gifted and talented’ are seen as a homogeneous group, similar across individuals; and giftedness and talent is viewed as a static trait (Braggett, 1994). The flow-on effect of these misconceptions is an attempt to find the ‘truly’ gifted students, and the result is often rigid, narrow identification processes. Conversely, it is also plausible that in attempting *not* to exclude students, the identification processes can become so broad, they are not justifiable.

Even when attempts are made to broaden the number and types of identification methods being used, many educators lack specific training in this area. Callahan and her colleagues (1995) highlight the need for teacher education in psychometrics, including interpretation of scores and evaluation of instruments. Certainly if schools are reliant upon formalised methods of assessment, there is a need to understand psychometrics. However, the need for professional development extends beyond formal testing and includes behaviours associated with giftedness, alternative methods of identification, and potentially under-represented groups of gifted and talented students (Ministry of Education, 2000).

Finally, Callahan et al. (1995) discuss a ‘pragmatic force’ – restricted resources – which can push appropriate identification into a sometimes unreachable goal. In this situation, limited financial resources can result in a numbers game, again restricting identification to narrow and rigid means. Even when financial support is available there are concerns regarding other resources, such as the availability of identification tools and methods and time for teacher professional development and involvement in gifted and talented education (Riley, 2003).

This section of the literature review describes the principles underlying the identification of gifted and talented students, and the identification practices commonly used by educators. Both national and international perspectives are reported, and it is hoped that by critically examining this issue, a closer alignment between ‘expert recommendations’ and ‘professional practices’ can be achieved.

Principles of Identification

The Ministry of Education (2000) outlines underlying principles of identifying gifted and talented students. Each of these is described in this section, based upon national and international theory and research. These principles are:

- Embedding identification within a responsive classroom environment, ensuring it is an unobtrusive process;
- Employing multiple methods of identification, which are appropriate to different domains of giftedness and talent;
- Remembering that identification is a means to an end, rather than an end in itself;
- Undertaking early and ongoing identification of giftedness and talent;
- Communicating openly with the school community (teachers, parents, students, Board of Trustees) about the identification of giftedness and talent;
- Utilising a systematic, coordinated, schoolwide team approach (including parents and whānau) to identification; and
- Ensuring the identification of groups of students who may be under-represented or hidden: minority groups, underachievers; students with disabilities or from lower socioeconomic groups.

Responsive environment approach. There are two identification philosophies reported in the New Zealand literature: the formal data gathering approach and the responsive environment approach (Ministry of Education, 2000; McAlpine, 1993; McAlpine, 1996; Taylor, 2001). The first approach involves schoolwide, systematic collection of data from a variety of assessments and rating scales. It is a formalised, objective approach, usually coordinated by a team which may include outside specialists, such as educational psychologists. The second approach relies upon each teacher, as identification becomes embedded in the classroom environment. In this sense, identification is the result of a classroom environment which creates challenges so that students’ special abilities and qualities surface (Ministry of Education, 2000). For example, by offering students opportunities in critical thinking, creative problem solving, or original research, teachers are able to identify students with special abilities (McAlpine, 1996). Bevan-Brown (1996) recommends that for the identification of Māori students with gifts and talents, teachers should create responsive learning environments beyond the

classroom. She further recommends that the responsive learning environment be culturally supportive, relevant, and valuing.

McAlpine (1993, 1996) outlines the advantages of identification which is embedded in a responsive environment, as follows:

1. All teachers are given professional responsibility for the identification of special abilities and qualities.
2. Special provisions or programmes for gifted and talented students become the interest of all teachers, as opposed to that of some teachers.
3. There is opportunity for improvement in the quality of teaching as identification is embedded in day to day learning experiences.
4. Identification and programmes become inextricably linked to one another.

Taylor (2001) adds to these: all students are valued and differences accepted, allowing gifted and talented students to be themselves; different teaching styles and approaches result in opportunities for teachers to observe different behaviours; and parents and caregivers are an integral part of the identification process.

These two approaches might be labelled as conservative and liberal, with one focused mainly upon intensive data collection to identify gifts and talents, and the other focused upon the creation of responsive environments in which gifts and talents naturally arise, are recognised, and further developed. However, it must be understood that a responsive environment approach does *not* negate the use of both objective and subjective tools of identification, such as formal and informal assessment, teacher observations, rating scales, portfolios, and so on (McAlpine, 1996). In fact, McAlpine (1996) suggests that a merging of the two approaches might be desirable.

The downside of identification within a responsive environment is its reliance upon individual teachers. As McAlpine (1996) and the Ministry of Education (2000) point out, teachers with large classes, minimal experience, or negative attitudes may not be able to employ this approach. In addition, the sole reliance on teachers from the majority culture to recognise gifts and talents of students from ethnic minority groups may disadvantage these students (Bevan-Brown, 1993). Yet, the potential problems associated with a more systematic, formal approach include costs, a mismatch between identification and programmes (McAlpine, 1996), the availability of outside 'expertise,' and reliance upon schoolwide coordination. Regardless of the approach taken, "the student should remain central to the process" (McAlpine, 1996, p. 69).

Multi-method approach to identification. Nearly every publication related to the identification of giftedness and talent recommends the use of multiple approaches to identification (Callahan et al., 1995). The Ministry of Education (2000) also endorses this, stating, "Identification should not depend on just one method alone but employ a variety of methods" (p. 27). Moltzen (2000a) contends that although the use of one identification method is common overseas, it is a non-existent practice in New Zealand, with educators having a clear preference for a multi-method approach to identification. In Riley's (2003) survey of rural principals, 67% of responding rural schools indicated the use of two or more identification methods and only 18% reported use of only one method.

A multi-method approach to identification is described by Frasier (1997a) as "the process of obtaining comprehensive information about a student's abilities by gathering and interpreting results" (p. A-4). She outlines three broad types of identification:

1. Standardised measures of aptitude, achievement, and creativity;
2. Observations by teachers, parents, students, and others; and
3. Standardised evaluations of portfolios or performances.

The Ministry of Education (2000) describes the following methods of identification: teacher nomination; rating scales; standardised tests; tests of intelligence or scholastic ability; tests of achievement; teacher-made tests; portfolio assessment; parent nomination; self-nomination; and peer nomination. Each of these is further elaborated upon in this section of the literature review.

The greatest advantage of using multiple methods of identification is the opportunity to identify many different students' gifts and talents. Multi-method identification has the potential to be inclusive, as opposed to exclusive (Davis & Rimm, 1998). Furthermore, because every method of identification has its weaknesses, as well as strengths, by combining a number of approaches these may be counterbalanced. Additionally, the data obtained from different methods may confirm or contradict one another.

In theory, this is a sensible way to identify the gifts and talents in students; but, in practice, it may present difficulties. Evans (1996/97) sums these up as "time, money, bureaucracy, and challenges to ... decision-making" (p. 84). The challenges to decision-making refer to the level of subjectivity required to make sense of the multiple identification data whilst remaining as objective as possible. Feldhusen and Jarwin (2000) suggest the need for research related to defensible ways of combining the data, and practical ways of validating decisions. Frasier (1997a) elucidates the potential difficulties as increased costs, the need for teacher/observer training, higher levels of involvement, the balancing of breadth and depth of coverage, collection of assessment tools, and decision-making regarding the appropriateness, validity and reliability (McAlpine, 1996) of some measures. Finally, it is important that the multiple identification methods utilised are being used to collect data directly related to the concept of giftedness and talent, and to ensure that the information gained from each measure is also inter-related (Davis & Rimm, 1998; McAlpine, 1996). Callahan et al. (1995) state that this is a logical recommendation, but "its implementation is hampered by slow development in the assessment field" (p. 12).

Educators who cast the net widely, gathering information about students' strengths, qualities, interests, and abilities from many different sources, must make decisions of what to do with the information. This requires 'systematic assembly and scrutiny' of all measures of potential and performance (Office for Standards in Education, 2001). McAlpine (1996) describes the use of multiple methods to screen possible candidates for gifted and talented programmes, followed by formal procedures of identification. Although the Ministry of Education (2000) strongly encourages schools to utilise multiple methods of identification, it does not provide insight into how educators might deal with, and make decisions from, the information gathered during the identification process. The literature, however, reports several common approaches to making sense of multiple identification data:

1. As a means of 'screening' potentially gifted and talented students, whereby, the multiple methods become 'multiple hoops' or 'multiple steps' in the identification process (Evans, 1996/97; Callahan et al., 1995);
2. As a means of gathering data, translating it into a point system, collating it in a matrix format, and calculating a total score for which an identification 'cut-off score' is established (Davis & Rimm, 1998; Feldhusen & Jarwin, 2000);
3. As a means of gathering multiple data, translating it into a point system, and setting multiple cut-off points (Feldhusen & Jarwin, 2000); or
4. As a means of collating the data to create a profile of the gifted and talented student's documented special abilities (Frasier, 1997a; Renzulli, 2001a; Rogers, 2002b; Taylor, 2001).

All of these approaches utilise multiple methods of identification based on an "and" factor, whereby educators use approaches in conjunction with one another. However, it is plausible that a fifth approach may be used by schools and that is to rely upon one method *or* another (Riley, 2003). In other words, schools may be employing a variety of identification methods, but not necessarily in

combination. The desirable approach to multi-method identification would be to use measures in juxtaposition with one another, as opposed to separately.

Each of the four previously mentioned strategies for dealing with multiple sources of information as cited in the international literature are however problematic. For example, Evans (1996/97) reports that in the United States when multiple methods are utilised for screening, the bottom-line for decision making is intelligence or achievement testing. She reports that this process nullifies all other data and becomes reliant upon standardised testing as ‘the cornerstone’ of identification. In this way, multi-method identification translates itself into single-method decision-making, or as Renzulli (2003) describes, “... the multiple criteria game ends up being a smoke screen for the same old test based approach...” (no page given). Callahan et al. (1995) believe that in order to avoid this misinterpretation of multi-method approaches, educators should reconceptualise this principle as ‘alternative pathways.’

The second approach, whereby multiple factors are quantified and a total score is calculated, could be conceived as an ‘apples and oranges’ approach, with difficulty arising in combining data from different sources (McAlpine, 1996). As Feldhusen and Jarwin (2000) state, the problem educators are faced with is how to reduce and combine the data in a defensible way. Additionally, as Davis and Rimm (1998) point out, students who excel in a few areas by meeting or exceeding the score-based criteria could produce a mediocre score, and thus be excluded from gifted and talented programmes. Setting multiple cut-off scores also presents dilemmas: the setting of such scores is often arbitrary, based upon other factors such as student numbers (Feldhusen & Jarwin, 2000).

Finally, in creating a profile or portfolio of giftedness and talent, the issue of subjectivity comes to the fore. Someone must translate the information into educational decisions (Frasier, 1997a). Moltzen (2000a) indicates that this is often overcome in New Zealand schools when teachers meet together to discuss the outcomes of the identification process. If the overall purpose in identification is to make the connection between the gifted and talented student and his educational experiences, then a profile or portfolio of ability would most readily facilitate this. “The intent of the use of multiple criteria is to give professionals the most complete picture of the student and to allow many ways for a student to exhibit talent” (Callahan et al., 1995, p. 12).

A good example of a student portfolio is Renzulli’s *Total Talent Portfolio* (2001a). This portfolio is designed to serve as a means for collecting and collating student data from the identification and in relation to their strengths. These strengths include their preferred learning styles, interests, abilities, thinking styles, and ways of expression. Renzulli also recommends that teachers include samples of the student’s exemplary work. He refers to these components as ‘status information’ which coupled with teacher referrals about ‘remarkable responses to learning situations,’ are referred to as ‘action information.’ This combination results in two outcomes: the focus becomes gifted behaviours and gifted services (in both cases rather than gifted students). In New Zealand, Taylor (2001) has devised a similar approach with the focus upon both identification and appropriate provision.

In relation to utilising a multi-method approach to identification, Feldhusen and Jarwin (1993), state, “It is important ... to recognize that this approach does not necessarily guarantee making valid decisions” (p. 238). What is important is not so much how many methods are used, but the contribution each method will make to the identification of giftedness and talent. For example, Chessman (2003) reports that in Australia, although all states and territories are committed philosophically to multiple criteria for identification, for the most part there is heavy reliance on teacher nomination and test performance. In this scenario, there may be advocacy for multiple methods, but the actual use of these is out of sync or imbalanced. Just as important is the nature of the chosen methods which comprise a multi-method approach. For example, Reid (1992) criticises multi-method approaches which overlook cultural differences in the selection and implementation of the various identification tools.

Identification as a means to an end. The purpose in identifying the gifts and talents of students is to create educational opportunities which build upon those. Therefore, this principle refers to the use of

data collected from the identification in the creation of educational provisions. In this way, identification is the ‘mediating link’ between the gifted child and the differentiated programme (Ministry of Education, 2000). Feldhusen and Jarwin (1993) describe the importance of basing identification upon contemporary concepts of giftedness, remembering that the purpose in identification is not to ‘label’ a child as gifted or not-gifted, but to determine appropriate programme eligibility. In this sense, identification must be purposeful (Moltzen, 2000a). It is not a task of simply gathering information in order to categorise a small percentage of students as ‘gifted’ and the majority as ‘un-gifted’ (Feldhusen, 1998).

The purpose of identification should be to create a profile of an individual student’s special interests, abilities, and qualities as the foundation for differentiated learning experiences or opportunities. Therefore, of the previously discussed practices for collating data from multiple methods, common sense would indicate that a profile of an individual’s special abilities and qualities, strengths and weaknesses, would enable this principle to be lived in practice. As the Office for Standards in Education (United Kingdom, 2001) points out, “... identification of gifted and talented pupils is not an end in itself, but is to help schools to address the needs of the most able, and in so doing, it is hoped, to improve the provision for all pupils” (p. 12).

Early and ongoing identification. This principle acknowledges the developmental nature of giftedness and talent, as well as the importance of identifying gifted behaviours early in a child’s education in order to “... prevent wastage of talent, boredom and underachievement” (McAlpine, 1996, p. 82). Clark (1997) and Lee-Corbin and Denicolo (1998) believe that early identification of special abilities, beginning in early childhood, is critical in stimulating children’s motivation to learn. Clarke (2001) states that it is of utmost importance that gifted and talented students are identified when they first enter primary school so that their needs can be appropriately met.

One of the potential problems with early identification lies in the methods educators utilise, especially those which are of an objective, psychometric, or performance-based nature (Colangelo & Fleuridas, 1986). If educators are reliant upon these means of identification, young gifted children will not necessarily come to the fore, because, as Colangelo and Fleuridas (1986) state, “... in young children, we are essentially talking about potential rather than accomplishment” (p. 561). The problems of early identification are magnified in relation to gifted students from minority cultures, especially amongst students who do not speak English. Sisk (2003) suggests that early intervention can be an effective strategy in this circumstance. (This is elaborated on in the section on cultural issues.)

Another interpretation of early identification is in relation to schooling beyond primary years: early identification upon entry into intermediate and secondary schools. A recommended practice in primary school is to obtain as much information via multiple methods prior to the child’s enrolment (Clarke, 2001). This same practice could prove of value in other levels of education.

The overseas literature describes formal identification strategies which take place on a yearly basis (Davis & Rimm, 1998). However, if it is recognised that giftedness may arise from various opportunities, interactions, experiences, and so on (McAlpine, 1993, 1996), then one-off annual identification could prove exclusive. Therefore, it is recommended that identification be an ongoing practice, with educators constantly seeking to identify special gifts and talents of their students. In this way, identification is “a continuous approach of reassessing and re-evaluating student interests and abilities” (McAlpine, 1996, p. 86).

Open communication. This principle is grounded in the importance of ensuring all stakeholders involved in a gifted and talented students’ education “know what is going on” (McAlpine, 1996, p. 67). This includes the students themselves; teachers; parents, caregivers, and whānau; school administrators and the Board of Trustees; and community members. In order to achieve this, schools must develop and document identification policies and procedures which are transparent and clearly communicated to each audience. The Office for Standards in Education in the United Kingdom (2001) recommends that pupils and parents, in particular, are given a clear presentation of the purpose in

identification and the opportunities which will arise as a result. Chessman (2003) states that it is important to ensure a “closer, more systematic approach to generate information flow” (p. 6).

Schoolwide coordinated approaches. It is important that schools employ a team approach to identification which is coordinated on a schoolwide basis (Ministry of Education, 2000). The team would ideally include representation of students, teachers, administrators, parents and whānau, and community members. There are several reasons a team approach is likely to enhance the overall effectiveness of identification: there is a reduction in individual bias (Allan, 2002); consistency within the school (Ministry of Education, 2000); inclusion of parents and whānau, as well as community members, enhances the likelihood of identifying under-represented groups of students (Bevan-Brown, 1993, 1996; Ministry of Education, 2000); contextualisation of identification to reflect the local culture and community (Renzulli & Reis, 1986); and elimination of potential controversy surrounding identification (Davis & Rimm, 1998).

Inclusive of under-represented groups. One of the major concerns in the field of gifted education has been under-representation of special populations amongst the gifted and talented: students of diverse, minority cultures; students who underachieve; students of low socio-economic backgrounds; students with disabilities; and students of both genders. Therefore, it is important that schools utilise identification procedures which will ensure that these potentially ‘hidden’ gifted students are identified and served (Ministry of Education, 2000). By considering the previously discussed principles, there is some assurance that each of these groups of gifted and talented students will be identified. However, another important consideration is the actual identification methods employed. For example, if a school is reliant upon classroom performance and achievement as a measure of giftedness, gifted students who are underachieving will not be identified (Ministry of Education, 2000). Gifted students with learning disabilities, whereby their disability often masks their abilities, will appear average on overall score of tests of achievement or intelligence (Ministry of Education, 2000). Similarly, students from ethnic minority cultures may not reveal their gifts and talents in a classroom environment which is not culturally responsive (Bevan-Brown, 1993).

It is beyond the scope of this review of the literature to examine the recommendations for each potentially under-represented group of gifted and talented students; however, given the cultural diversity of New Zealand, issues related to the identification of minority cultures, and specifically, Māori students, are of utmost importance. This is discussed in the section on cultural issues of this literature review.

Methods of Identification

Teacher observation and nomination. The most commonly reported method of identification is teacher observation and nomination (McAlpine, 1996). Research conducted in the United States in the early 1990s showed that 91% of school districts surveyed relied upon teacher nomination (Davis & Rimm, 1998; McAlpine, 1996). George (1997) also believes teachers are the most likely source for identifying students’ special gifts and talents, and as such, play the most important part in the identification process. He premises this on the basis that, “Obviously, good professional teachers should know their children” (p. 29). Keen’s (2001) findings from an investigation of identification and provisions in the Bay of Plenty, Otago, and Southland indicate that teacher observation is strongly favoured and commonly used. Riley’s (2003) investigation of identification of gifted students in 206 rural schools also confirms the value placed upon teacher observation and nomination in New Zealand. Teacher observation and/or nomination was a method reported by 63% of respondents. Quite often terms like ‘teacher experience and judgement’ were used; and yet, others referred to using checklists; classroom programmes and assessment; and teacher/staff discussions.

However, as the Ministry of Education (2000) reports, although teacher identification of giftedness and talent is the most common means of identification, its effectiveness is the most variable. This is attributed to the formality or informality of teacher nomination coupled with the level of professional development and awareness (Davis & Rimm, 1998). Informal teacher nomination is quite simplistic in nature: teachers are asked to recommend students for a ‘gifted programme.’ Formal teacher nomination, however, encompasses the use of teacher rating scales or checklists, and ideally,

professional development opportunities. As the Ministry of Education (2000) indicates, the likelihood of accurate teacher identification of giftedness and talent rises when teachers are well-informed of the nature and purposes of the programme, and when their 'gut instincts' are supported with objective teacher rating scales or checklists. George (1997) adds to this that teacher identification must also be systematic with clear means of assessing, recording, and communicating the educational needs of gifted and talented students.

Empirical research related to the effectiveness of teacher nomination and reported in the literature is quite dated and was primarily conducted in the United States, with some of the research using intelligence tests' results as the criterion for determining effectiveness. Therefore, it is not reported in this review of the literature. However, the concerns derived from the empirical research are continually and consistently reiterated in the literature and these are discussed.

One of the major issues regarding the potential ineffectiveness of teacher identification of giftedness and talent is teacher bias and stereotyping (Davis & Rimm, 1998; Moltzen, 2000a). These writers describe teacher identification of 'teacher pleasers,' or well-behaved, conforming students, who may or may not be gifted and talented. The danger here is overlooking gifted students who are displaying negative classroom behaviours or underachieving. Moltzen (2000a) contends that this mis-identification is less likely in New Zealand primary schools given teachers' orientations toward individualised learning. However, the lack of pre-service and in-service education specifically related to gifted and talented students is of concern in relation to a teacher's ability to accurately identify all gifted and talented students, including those from typically under-represented groups.

McAlpine (1996) writes that teachers may reflect attitudinal biases in relation to students of different cultures, socioeconomic statuses, or gender. For example, Bevan-Brown (1996) points out the implications of cultural stereotyping and ethnocentricity which, without professional awareness and development, would impinge upon a teacher's accurate identification of Māori gifted and talented students. Lee (1999) observed that teachers in Queensland who were asked to nominate children for mathematics and science enrichment overwhelmingly identified more boys than girls.

Teachers' conceptions of giftedness and talent will no doubt influence their identification of these students. Lee (1999) conducted phenomenographic research which investigated the conceptions of gifted young children held by sixteen early childhood teachers who had successfully nominated children for an enrichment programme at the Queensland University of Technology. The teachers in her study described gifted and talented children in these ways: excellent; having potential; being rare; being noticeable; possessing innate or God-given ability; being motivated; and demonstrating asynchronous development. Lee believes that it is important to understand the behaviours readily identified by teachers, as well as those which may be ignored by teachers, in order to enhance their effectiveness through professional development and shared understandings.

Braggett (1998a) states that many teachers lack confidence in their ability to identify giftedness and talent. He feels that these teachers tend to view giftedness as a 'complete package,' possessed by a small minority of students, which can be identified with accuracy and precision. Braggett's position also demonstrates the relationship between how one defines, and subsequently identifies, giftedness and talent. It also raises the question of teachers' opportunities to develop confidence, based upon building their understandings of the identification of gifted and talented students through professional development and support. Research conducted in the United States concluded that although identification policies were in place, many teachers simply did not know where to go, who to consult, or how to find out about identification of giftedness (Evans, 1996/97).

Another possible interpretation of Braggett's view is in relation to potential versus demonstrated gifts and talents – with those teachers searching for exactness in identification basing their conceptions of giftedness and talent upon performance. In the Report by the Senate Select Committee on the Education of Gifted and Talented Children in Australia (1998) it is reported that the efficiency of teacher identification of gifted children appears to increase with the age of the children. In other

words, teacher identification in young children may be impeded by their lack of ‘gifted performance,’ as would be measured in more objective measures such as school achievement or formalised testing.

Conversely, Moltzen (2000a) contends that as students move through the education system, identification by teachers is somewhat less effective. Because effective identification requires detailed knowledge of individual students, teachers at secondary level are faced with several constraints: the period of time spent with individual students (Moltzen, 2000a); the content specialisation of their teaching; and the numbers of students taught during the course of a day.

Another hurdle for teachers might stem from the egalitarian beliefs of New Zealand society, reflected in the education system. For example, research conducted in Scotland concluded, “Such children may be difficult to categorise without compromising the traditional anti-elitist philosophies of the system and its participants” (Hamilton, 1999, p. 96). Hence, principles regarding an equality of opportunity for students may create a sense of reluctance to label or categorise students as gifted and talented (Riley, 2001).

As with other identification methods, the greatest danger in using teacher nomination is its use in isolation. Teacher identification of giftedness and talent should always be used in conjunction with other methods. As Gross (1999a) states, “Teacher nomination, used alone, is probably the least effective method of identifying gifted children ... and the method most prone to class and cultural bias” (no page given).

Rating Scales. As the literature related to teacher nomination indicates, the likelihood of accuracy is enhanced by the use of teacher rating scales. These scales or checklists focus upon behaviours associated with a student’s gifts and talents. Schools may use published teacher rating scales or develop school-based scales (Davis & Rimm, 1998). However, since published scales are often standardised instruments they are more valid and reliable, thus increasing the effectiveness and objectivity of identification (McAlpine, 1996). A recent review in the United States of the many available scales has been conducted by Jarosewich, Pfeiffer, and Morris (2002). Of these, Renzulli’s *Scales for Rating the Behavioral Characteristics of Superior Students* are the most widely used (Davis & Rimm, 1998).

Within New Zealand, McAlpine and Reid (1996) have developed the *Teacher Observation Scales for Identifying Children with Special Abilities*, and Allan (1999; 2002) has developed *The Giftedness in Early Childhood Scale*. Both of these scales are based on student behaviours requiring focused observations by teachers, and have accompanying information on their development, use, content, and so on. McAlpine and Reid’s scales are designed for senior primary, intermediate, and junior secondary students and include five subscales of characteristics: learning; social leadership; creative thinking; self determination; and motivational. Allan’s subscales are designed for children ages three to five and include cognition and language, approach to learning, creativity, and social competence. Both scales utilise a likert-type rating system and include space for recording anecdotal notes and observations. Neither scale involves a tallying of a child’s total score, so, each subscale can be used independently. The McAlpine and Reid scale records a range of total scores for different aspects of giftedness; Allan’s scale does not provide total scores, but suggests that if 50% or more of the indicators in one area are ‘frequently’ or ‘always,’ a differentiated programme is warranted.

The authors’ recommendations for the effective use of these scales can be applied to any rating scale, and so these are outlined. It is recommended that at least two teachers observe students and record their observations over several time periods. McAlpine (1996) reminds educators that students must be given opportunities to display the behaviours associated with giftedness, and this is unlikely to occur in one class period or school day. Additionally, both scales should be used in conjunction with other methods and supported with professional development. Although Allan (2002) included indicators of behaviour valued within Māori concepts of giftedness and talent, McAlpine and Reid (1996) did not. As McAlpine (1996) urges, there is a need for the development of scales which reflect the special abilities and values of different cultural and ethnic groups within New Zealand. Finally, these two

scales are developed for early childhood and primary school students; thus, there is also a need for an observation scale for New Zealand students at the senior secondary level.

Kolo (1999) reports the results of a research study conducted in Nigeria to examine the effectiveness of scales developed in the United States in relation to Nigerian scales. He concludes that the utilisation of more than one scale ensures overall effectiveness of identification. He also emphasises the importance of ensuring that rating scales are culturally relevant, reflecting the valued and exemplified behaviours and characteristics of a culturally inclusive concept of giftedness. Frasier (1989) concurs with this recommendation, suggesting that the wording of some scales needs to be re-worked to more appropriately reflect cultural diversity.

Gross (1999a) raises concerns regarding the nature of behaviours and characteristics typically found on rating scales, indicating that some of these may overlook students who are underachieving. She states:

...many of the trait lists published both in gifted education texts and as commercial materials focus on the positive characteristics of the motivated achiever and ignore the negative behaviors often displayed by gifted children who are demotivated and underachieving (no page given).

Sturgess (1997) supports this in relation to gifted students with learning disabilities (GLD), in stating, “The normal identification checklists for academically gifted students fail to successfully detect the GLD student who has developed resourceful strategies to avoid being noticed in the classroom” (p. 3). Freeman (1998) believes that some checklists of behaviours are quite misleading, and provides an example of a scale used in Britain which primarily asks teachers to identify ‘signs of emotional distress.’

As Freeman (1998) states, “The best that can be said of checklists is that they may stimulate teachers to think about the identification of the very able: the worst is that potentially high-achieving children who do not fit with the opinions of those who devise the lists will be missed” (p. 12). The bottomline regarding use of teacher rating scales is that they do enhance teachers’ abilities to accurately identify gifted and talented students; however, they must be used with the same regard as all other identification methods. The potential negative outcomes must be regarded and their use balanced with other identification techniques.

Standardised testing. Another commonly reported means of identification is standardised testing (Davis & Rimm, 1998; Ministry of Education, 2000). Standardised tests are tests which have been normed upon a representative sample, with a fixed set of test items and specific administrative and scoring instructions (Ministry of Education, 2000). Norm-referenced tests allow for comparisons between students within a certain population, and sometimes that includes the gifted and talented (Ministry of Education, 2000). However, in relation to gifted and talented students, it is important to remember that standardised tests ‘test the basics’ and as such are designed for the ‘average’ population (Van Tassel-Baska, 1986a). There are two types of standardised tests commonly used in the identification of gifted and talented students: tests of intelligence and tests of achievement. Callahan et al. (1995) provide a comprehensive report of the standardised tests widely used in the United States for the identification of gifted and talented students, as well as a *Scale for the Evaluation of Gifted Identification Instruments* (SEGII). The New Zealand Council for Educational Research makes a range of standardised tests available to New Zealand educators. It is important to recognise that some of these tests have not been normed in New Zealand, and as such care should be given in their interpretation (A. Pinfold, personal communication, October 2, 2003). However, McAlpine (2000a) reports that the most commonly used standardised, norm-referenced tests are the *Test of Scholastic Abilities* (TOSCA) and the *Progressive Achievement Tests* (PAT) series. The use of other available assessment tools for the identification of gifted and talented students, such as the *Assessment Resource Bank* (ARB) items and *Assessment Tools for Learning and Teaching* (asTTle), have not yet been fully reported in the New Zealand literature.

Tests of intelligence. Tests of intelligence are ‘much-maligned’ by New Zealand educators (Moltzen, 2000a) however, they are recommended as part of a multi-method approach to identification (Ministry of Education, 2000; McAlpine, 1996). Moltzen (2000a) reports that though the concerns regarding intelligence testing are indeed valid and legitimate, the result in New Zealand has been one of “throwing out the baby with the bathwater” (p. 355). He reports that few schools appear to utilise intelligence testing. Yet, anecdotal evidence indicates that parents of gifted and talented students, as well as some community-based providers and organisations, do use this as a measure of giftedness and talent. For example, in Riley’s (2003) survey of rural principals, a small number reported parentally-sought assessments of giftedness and talent by educational psychologists; and the Auckland branch of the New Zealand Association for Gifted Children indicates that membership may be requested based upon IQ scores (amongst other factors). Within this context, a discussion of intelligence testing is warranted. However, as this review of the literature demonstrates, more New Zealand-based research is needed to fully understand their legitimacy within gifted education.

Tests of intelligence may be administered to individuals or groups, and they are classified as verbal and non-verbal. Group tests are available for administration by teachers, however, most individualised tests require oral administration by an educational psychologist. Group tests are generally ‘paper and pencil’ exercises. Verbal tests are normally timed, whereas, non-verbal tests are generally un-timed. For these reasons it is not surprising the cost of individual tests is far greater than the relatively cheap group tests.

In New Zealand the most commonly reported group test is actually one of scholastic ability, the *Test of Scholastic Ability* (TOSCA), which until 2000 was produced by the New Zealand Council for Educational Research (Education Review Office, 1998a; McAlpine, 1996; Ministry of Education, 2000; Moltzen, 2000a). The *TOSCA* is not a group ‘intelligence test’ per se, but its scores correlate highly with intelligence tests (Moltzen, 2000a). The *TOSCA* is no longer being produced, but anecdotal reports indicate that it is still being used by some schools. McAlpine (1996) and the Ministry of Education (2000) warn that group tests of this nature are inappropriate for students with reading difficulties and some children from different cultural groups.

The only group or individual test of intelligence which has been re-standardised in New Zealand is the *Standard Progressive Matrices* (sometimes referred to as “Raven’s”), a non-verbal group test (A. Pinfold, personal communication, October 2, 2003). McAlpine (1996) recommends its use for ethnically-diverse students, as well as new immigrants who may speak English as a second language. This is because the test was designed to measure a person’s ability to form perceptual relations and to reason by analogy independent of language and formal schooling. Furthermore, the test is untimed, which may be of advantage to reflective thinkers. Despite these assumptions regarding the appropriateness of non-verbal intelligence tests, such as the *Standard Progressive Matrices*, Bowd (2003), a Canadian researcher, cautions that further research is needed to establish their validity amongst specific cultural minority groups, namely Inuits and First Nations Children. The same could be true in relation to specific cultural groups within New Zealand. These tests are discussed further in the section on cultural issues.

Davis and Rimm (1998) report that an individual test of intelligence is the most accurate for identifying gifted and talented students, recommending the *Weschler Intelligence Scales for Children* and the *Stanford-Binet Intelligence Scale*. The value of individual tests is reaffirmed by research conducted by Tyler-Wood (1991) which concluded:

It should also be noted that significantly more students meet criteria on individual tests as opposed to group tests. Although the individual intelligence tests might be more expensive to administer, it may be appropriate to allow students the opportunity to take an individual test if other factors indicate giftedness (p. 64).

In New Zealand, the *Weschler Intelligence Scales for Children – III* (WISC-III) and the *Stanford-Binet Intelligence Scale - Fourth Edition* are referred to most frequently in the literature (McAlpine, 1996; Ministry of Education, 2000). The *Stanford-Binet* yields four scores: verbal reasoning; quantitative

reasoning; visual/abstract reasoning; and short-term memory, as well as a composite score. The *Weschler Scales* produce verbal, performance (non-verbal), and full-scale scores. The Australasian version of the *Weschler Scales* (1992) is an adaptation of the 1991 third edition and is relevant in the New Zealand context. Each of these tests must be individually administered by a qualified educational psychologist. Both of these tests have undergone several revisions and in doing so, it seems that the outcome has been a downward shift in obtainable scores (Davis & Rimm, 1998), thus making it more difficult to be identified as gifted. Additionally, the ceilings, or upper limits, of both these tests are lower than in earlier editions, making it difficult to distinguish or differentiate students in the upper ranges. Davis and Rimm (1998) recommend use of the older *Stanford-Binet LM*, particularly for the identification of highly gifted and talented students. Similarly, Davis and Rimm (1998) indicate preference for the earlier published *WISC-R*. The difficulty with availability and the potentially outdated nature of questions could make this recommendation irrelevant in the New Zealand context. The question of the cultural appropriateness of IQ tests normed on overseas populations, especially in regard to ethnic minority students, is raised in the New Zealand literature and discussed further in the section on cultural issues.

Achievement tests. Achievement tests are standardised assessments used to measure students' knowledge in given subject areas. The *Progressive Achievement Tests* (PAT) series has been developed in New Zealand and include tests of reading (Reid & Elley, 1991), mathematics (Reid, 1993), and listening comprehension (Reid, Johnston, & Elley, 1994). These multiple-choice tests are administered in many New Zealand primary classrooms in the early part of each academic year. Since these are already used by schools, existing information could be used with regard to gifted and talented student identification. However, it must be remembered that the primary purpose in these tests is to assist teachers in gauging students' basic skills development and understandings.

Issues and concerns related to standardised testing. The use of standardised testing in the identification of gifted and talented students raises a number of important issues which must be considered before their use, some of which have been previously discussed. Given the limitations of all tests, no single measure should be used for the identification of giftedness and talent. That is, no single test or instrument should be used to include a child in or exclude a child from gifted education programmes. Therefore, before discussing the overall issues related to the use of standardised tests, the recommendations of the National Association for Gifted Children (United States) are outlined. Educators responsible for decision-making regarding the selection and use of standardised tests should be able to:

1. Understand measurement principles, including how to evaluate the test's technical claims (e.g., validity and reliability);
2. Know about the particular test used, its appropriate uses, and its limitations, including possible consequences resulting from scores;
3. Administer, score, and interpret results in a professional and responsible manner;
4. Employ procedures necessary to reduce or eliminate bias in test selection, administration, and interpretation;
5. Understand the influence of cultural diversity, linguistic diversity, and socioeconomic disadvantages on test performance; and
6. Weigh the results of tests carefully with other information (NAGC, 2003).

One of the most prevalent issues raised in the literature in relation to the use of standardised tests is their inappropriateness in the identification of gifted and talented students from culturally diverse backgrounds. As Moltzen (2000a) writes, "Clearly the tests reflect a bias towards the dominant white culture and contain items that reflect the values and experiences of the middle-class sector of this cultural group" (p. 355). As Davis and Rimm (1998) point out, culturally different learners on average tend to score about one standard deviation lower on tests of intelligence than their white middle-class peers. Thus, over-reliance on a target score will no doubt lead to under-representation (Gottfredson,

2003). The bias reported in these tests is not only seen in the outcomes for different groups' scores, but also in the ways in which the tests are administered, the language utilised in them, the nature of the questions asked, and so on. (For a more complete discussion see section on cultural issues.) Two solutions are offered in the literature: the use of multiple methods of identification and flexibility in 'cut-off scores' which recognises average group differences (Gottfredson, 2003).

There is also danger in the over-reliance of standardised testing that other groups might be overlooked: students with abilities not measured by the tests; students from financially disadvantaged backgrounds; poor test-takers; reflective thinkers; perfectionists; etc. In fact, common sense indicates that reliance upon one test on one given day disadvantages students who may be feeling unwell, emotionally upset, anxious, tired, or confused (Moltzen, 2000a). Schechter (2003) advises that it is important to remember that any score needs to be viewed as an *estimate* of ability at a particular point in time. While a high score is generally not a fluke, but a strong indication of ability, a low score does not necessarily mean that a student cannot perform at a high level.

However, there are some groups of students who may be advantaged by standardised testing. For example, the Ministry of Education (2000) indicates that the *WISC-R* is a suitable means of identifying gifted students with learning disabilities. The pattern common in these students' results is a discrepancy between their verbal and performance scores, with a significantly higher verbal score. McAlpine (1996) also suggests that students who demonstrate underachievement in their classroom performances may show surprisingly high attainment on standardised tests of ability. Gottfredson (2003) discusses the potential over-representation of students of Asian descent in American schools when standardised testing is heavily relied upon.

Standardised tests give an indication of students' abilities primarily in two areas: verbal and mathematical-logical thinking. It is important to note that standardised tests do give a good indication of a student's abilities in the areas being tested and as such, tend to predict success in school achievement (Callahan et al., 1995; Freeman, 1998; Howe, 1999). However, standardised tests give little indication of a student's abilities in other areas of special ability. For example, a standardised test of achievement would not indicate a student's leadership abilities, cultural qualities, or sporting skills. There are no 'one-size-fits-all' testing instruments (Callahan et al., 1995). Therefore, it is recommended that there be a direct relationship between a school's definition of giftedness and talent and the identification methods utilised. As Callahan et al. (1995) state, "...failing to define ... before selecting an instrument is tantamount to allowing the test-maker to define the construct for the school ..." (p. 27).

Furthermore, Callahan and her colleagues (1995) found that when standardised testing was used in the United States there were many occasions in which achievement test results and intelligence test results were used interchangeably for identifying academic and/or intellectual talents. Most often, educators were using the results of achievement tests as measures of general intellectual ability. They also found that when achievement testing was used to identify academic gifts and talents, educators tended to rely upon the general overall score, as opposed to specific sub-test scores.

Standardised tests which have undergone stringent development ensure greater objectivity, validity, and reliability in decision-making, and therefore are sometimes used to set a 'cut-off' score for the identification of giftedness and talent. For example, McAlpine (1996) reports that schools tend to use scores above the 90th to 95th percentile or stanine nine for decision-making. The danger here relates to the relative ease (Niederer, Irwin, Irwin, & Reilly, 2003) with which decisions can be made, and the potential for overuse and misuse of a single test score (Van Tassel-Baska, 1986a). As Callahan et al. (1995) state, this type of arbitrarily rigid cut-off has been widely criticised mainly because it is an indication of test scores being used inflexibly and in isolation of other measures.

The nature of the questions is often convergent, with 'right' and 'wrong' answers, so they are mainly measures of facts and skills as opposed to conceptual understandings. For gifted and talented students this may present problems, because by nature, these tests very rarely challenge their conceptual knowledge and understandings (McAlpine, 1996). Furthermore, these tests will not effectively identify

students who are divergent or creative thinkers (Davis & Rimm, 1998). Because these tests are usually timed, they may serve as an indicator of a student's processing speed. In fact, they may favour rapid responders and fast thinkers. The gifted and talented student who is a reflective thinker or a perfectionist may not demonstrate her true abilities in a situation where she is under pressure to perform – and quickly (Moltzen, 2000a).

For gifted and talented students, standardised tests have a ceiling effect. In other words, there is only 'so high' a student can reach before he or she is at the top of the test score range for his or her age level. For example, a student who scores in the 99th percentile for his age level may actually be able to perform tasks at a much higher level of difficulty, but the range of test items is inadequate to demonstrate this. As Feldhusen and Jarwin (1993) explain, "Real individual differences at the highest extreme cannot be assessed if the ceiling of the test is not high enough" (p. 241). Van Tassel-Baska (1986a) describes a 'simple, but elegant' solution to the ceiling effect problem: the administration of a more difficult test. This is achieved by using 'above-level' testing, whereby a test normed upon an older group of students is administered to a younger group. As Chessman (2003) states, off-level testing is "a way to pinpoint a student's level of ability" (p. 5). It is usually recommended that the test be at least two to four years above the student's chronological age (Lupkowski-Shoplik, Benbow, Assouline, & Brody, 2003). As Feldhusen and Jarwin (1993) caution it is important in using this approach that percentile norms be translated carefully, remembering that the gifted student's age and maturity would not have been factored into the norm group for whom the percentiles were calculated.

One of the models for off-level testing which is widely reported in the international literature is the Talent Search concept, developed by Julian Stanley (Lupkowski-Shoplik et al., 2003). Talent Searches are conducted annually in the United States, Canada, Australia, and Ireland, involving over 300,000 primary, intermediate and secondary students. The Talent Search closest to the shores of New Zealand is the Australian Primary Talent Search conducted by the University of New South Wales, in association with the Belin-Blank Center at the University of Iowa, and by 2001 over 4,500 Australian students had participated (Gross & Sleaf, 2001). The Talent Search model is a systematic assessment programme which uses tests of aptitude, rather than achievement or intelligence. Students are initially screened based upon achievement tests scores and those students achieving at or above the 95th or 97th percentile are invited to take an above-level test, measuring their aptitude. The power of this assessment programme lies in the precision of the assessment, especially for students of exceptional ability. Although this programme is not available in New Zealand, its potential in the accurate identification of academically talented students may be worthy of exploration and consideration. Callahan and her colleagues (1995) state that standardised testing, whether intelligence tests, aptitude tests, or achievement tests, is useful as *part* of a full identification process. Again, they reiterate that the use of one score is 'flawed.' They conclude that standardised testing is appropriate when the following criteria are met:

1. The definition of giftedness matches the construct measured by the instrument;
2. The score is viewed as a band of scores incorporating standard error of measurement; and
3. The score is part of a full consideration of both cognitive and non-intellective factors contributing to giftedness (p. 14).

Other assessment measures. There are many other possible measures of both norm-referenced and criterion-referenced assessment. For example, in Riley's (2003) survey of rural schools principals, 70% of the 206 respondents indicated some form of assessment in the identification process and these included *PATs*; classroom assessment (based upon teacher-made tests and on-going, daily performance, both formative and summative); *BURT Reading*; *Six-Year Net*; *TOSCA*; Australian Schools Competitions; *PRETOS*; *STAR Reading*; *NZCER Information Skills*; *Ravens Progressive Matrices*; running records; and competitions. McAlpine (1996) and the Ministry of Education (2000) also report tests of creativity can be used; however, both references indicate that caution should be heeded given the low validity of these tests. The test of creativity most commonly referred to is the *Torrance Tests of Creative Thinking*. With any of the formal assessment measures previously

mentioned, it must be recognised that the same concerns related to achievement tests and tests of intelligence would apply to these:

1. Making a match between the construct of giftedness and talent and the assessment measure;
2. Ensuring that assessments are unbiased;
3. Being aware of test limitations such as ceiling effects; and
4. Using the assessment as just one of many means of identification.

The Ministry of Education (2000) recommends teacher-made tests as another option. The benefit of teacher-developed tests would be the context of their development, as well as the ability to assess students in specific curriculum areas (which many standardised tests do not do) (Ministry of Education, 2000). Teacher-made tests may also allow for the development of questions which are open-ended and divergent (Ministry of Education, 2000), as well as measures specific to gifted and talented students. Although the Ministry of Education (2000) points out that teachers can develop local norms, as Callahan et al. (1995) indicate, without such standardisation, locally developed tests may have less reliability and validity than published instruments. As with standardised tests, the potential for cultural bias also exists in teacher-made tests.

Portfolios, performances, and auditions. Giftedness and talent can be manifested in many ways, and for some areas, an individual student's 'best performance' may be a useful form of identification (Ministry of Education, 2000). A student's special skills and abilities may be evidenced in portfolios, auditions, or performances. The Ministry of Education (2000) states that student portfolios provide a 'rich variety' of samples of student achievement and can be monitored over a period of time. McAlpine (1996) believes that students' products and portfolios offer authentic, valid examples of student's abilities. He extends this to include other means of student demonstrations of performance, and these might be competitions, science fairs, art shows, musical performances, debates, and so on. The idea here is to use samples of students' accomplishments in the decision-making process. Moltzen (2000a) contends that it is often desirable to examine students' products and performances both within and outside the context of the classroom.

It is recommended that in the evaluation of student products and performances, more than one person should be involved and that may include an 'outside expert' (Davis & Rimm, 1998; McAlpine, 1996; Moltzen, 2000a). For example, a local artist, scientist, musician, or dancer may assist in the assessment of a student's work. Bevan-Brown (1993, 1996) suggests the involvement of whānau and local iwi in the identification process, particularly in the identification of cultural gifts and talents. The inter-rater reliability is enhanced by having more than one evaluator (Davis & Rimm, 1998; McAlpine, 1996). It is also suggested that a product rating form can assist in enhancing the overall objectivity (Davis & Rimm, 1998). Renzulli and Reis (1997) provide *The Student Product Assessment Form* which can be used for these purposes. This research-based instrument is composed of fifteen items designed to assess both individual aspects, as well as overall excellence of products.

One of the potential risks involved in identification of this nature is its reliance upon student performance and productivity, especially in relation to students who are underachieving. McAlpine (2000a) also points out that the length of time involved could prove difficult, as well as the possible lack of comparability with other students. The lack of a comparative sample is a particular barrier for small, rural schools (Riley, 2003).

Parent, caregiver and whānau nomination. The Ministry of Education (2000) recommends parents, caregivers, and whānau as valuable sources of information in the identification of gifted and talented students. Although familial knowledge may be limited in terms of the school or classroom learning environment, it can be vast in terms of their children's developmental progress and milestones, outside interests and passions, attitudes, and experiences. Davis and Rimm (1998) report that in the United States parent nominations are not used as frequently as they could, or should be. McAlpine (1996) cites 1991 research from the United States in which only 6% of responding schools reported use of

parent nomination. However, of respondents to Riley's (2003) survey of rural schools, 23% indicated their use of parental nomination.

Because parents, caregivers, and whānau have been involved in the life of a gifted student for longer than a school term or school year, they can provide information that may not be available from classroom observations, school records, or test scores (Riley, 1999). Rogers (2002b) outlines the types of information parents can provide: cognitive functioning information in relation to how quickly or well a child learns; learning strength information; personality characteristics; learning preferences; personal interests; enrichment activities, such as travel, clubs, or cultural activities; and books the child has read. Davis and Rimm (1998) add to this list preferred activities when alone, relationships with others, and special problems and/or needs. Parents of young children can provide important information related to their development, for example, if the child began reading at an early age (McAlpine, 1996).

A study undertaken by Freeman (1998) discovered that 10% of children reported to the National Association for Gifted Children (UK) by their parents as being gifted were only of average ability on tests of intelligence and in their school performance. Thus, the accuracy of parent identification was quite high, leading Freeman to state "most of the children presented as gifted were indeed so, as measured by IQ and specific tests of talent, even when the teachers were dismissive of the child's exceptional potential" (p. 14). Similarly, Gross and Sleaf (2001) report that 90% of parents of highly gifted students in a longitudinal study conducted in Australia were aware that their child was gifted by the age of two.

In New Zealand, Allan's (1999) research into the development of her teacher observation scales concluded that parents are reliable in identifying specific gifted behaviours in young children. A recent New Zealand study conducted by Neiderer et al. (2003) found that parents were more likely than teachers to nominate their children as having special mathematical abilities. The result was two-fold: more 'hits' (0.86) and more 'misses' (0.53) in the accuracy of parental identification in relation to their children's results on a test of mathematical problem-solving abilities. A similar phenomenon is reported by Turner and Olzewski-Kubilius (2003), whereby parental identification for Talent Searches is reported as more frequent and less accurate than standardised testing. However, they conclude that the differences in accuracy are so slight the benefits of parental identification outweigh these. They report that 'many more students' are given opportunities when parents are included in the identification process.

Bevan-Brown (1993, 1996) suggests that parents of Māori students may be reluctant to nominate their own children, due to fears of being perceived as whakahihi or boastful and therefore recommends that other whānau members or Kaumātua be invited into the identification process. It is important to recognise that this reluctance does not mean that Māori parents are not proud of their children or that they do not want to see them successfully achieve.

There are several ways in which educators can facilitate parental nominations: parent-teacher interviews; questionnaires; and checklists of behaviours (McAlpine, 1996). As Moltzen (2000a) recommends, teachers should ask for specific information rather than being general and open-ended. Renzulli (2003) supports this, adding that teachers should "use the information for making accommodations that respect individual interests and strengths" (p. 2). Another important factor in facilitating parental nomination is to ensure that the questions asked reflect the school's definition and provisions for gifted and talented students.

Cathcart (1994) has developed an extensive parent nomination form for New Zealand educators. Unlike other parent nomination checklists, Cathcart recommends that a follow-up interview to discuss responses and potentially different interpretations of those be undertaken.

Keen (2001) reports that within the participants in his study, some teachers were "...ambivalent about the 'politics' and bias of parental input into the process of recognising giftedness" (p. 7). The reluctance to utilise family in the identification of giftedness seems to stem from educator assumptions

that ‘all parents think their children are gifted’ and as a result they will no doubt overestimate their child’s abilities. Indeed, this can sometimes be the case, but as Moltzen (2000a) points out, overestimation of abilities is uncommon. Sometimes parents will do the opposite and underestimate, perhaps not even understand, their child’s special abilities. Therefore, as with other forms of identification parent, caregiver, or whānau nomination should be used in combination with other methods.

Peer nomination. Another method of identification is the use of students’ peers to help uncover their individual strengths, abilities, and qualities. The Ministry of Education (2000) suggests this as an effective method, particularly in the identification of special abilities normally seen outside the walls of the classroom. For example, students will be well aware of the Saturday morning sports stars, ‘behind-the-scene’ leaders on the local marae, musical entertainers, and even playground comedians. They will also have some insight into the students with special abilities displayed within the classroom. This is because students tend to “know who’s who” (Davis & Rimm, 1998, p. 79). With this recognition of the special relationships students have amongst each other, it is not surprising that Davis and Rimm (1998) report that peer nomination is used in approximately 25 percent of American schools’ multi-method approaches. Although peer nomination is a recommended practice within New Zealand, this review of the literature yielded only one reference to the frequency of its use. In Riley’s (2003) survey of rural principals only two of the 206 responding schools indicated use of peer nominations.

In New Zealand, Le Sueur (2000) has developed a peer nomination form based upon affective behaviours associated with giftedness and talent which is freely available to schools. Its development followed the steps outlined by Gagné (1989), but the validity, reliability, and overall effectiveness of this instrument have not been determined, and it is not clear how many schools are utilising this tool. McAlpine and Reid (1996) suggest that peer nomination be used in tandem with their *Teacher Observation Scales for Identifying Children with Special Abilities*, and provide an example of how teachers can ensure the two work well together by reflecting the same student behaviours.

The research surrounding the effectiveness of peer nominations is limited and somewhat dated. For example, many writers make reference to a 1989 article by Banbury and Wellington which argues for peer nomination and outlines suggestions for their construction. Also cited is another 1989 study by Gagné which critiques the earlier studies of peer nominations, concluding that these studies were methodologically weak and proposing a plan for more effective research. It seems, however, that few, if any, researchers have answered this call.

Despite the lack of empirical research related to the effectiveness of peer nomination, there are some guidelines available regarding its use. Several writers (Davis & Rimm, 1998; McAlpine, 1996; Ministry of Education, 2000; Moltzen, 2000a) argue that peer nomination is a suitable approach for identifying potentially under-represented groups of gifted and talented students (culturally diverse, students with disabilities, and low socioeconomic groups). Renzulli (2003) has developed *The Alpha Project Peer Nomination Simulation*, which he states is especially effective in the identification of culturally diverse students and ‘street smart’ kids. However, Reid (1992) argues that peer nomination amongst Māori and Pacific Island children is “antithetical to prevailing peer values and codes of conduct” (p. 55). Bevan-Brown’s (1993, 1996) research does not confirm Reid’s findings. She recommends peer nomination as a viable identification of Māori students with special abilities, recommending that it is most successful when the students know and trust the facilitator.

Potential limitations of valid peer nominations may also relate to the age of students. Davis and Rimm (1998) warn that young children may misinterpret the behaviours of their peers; for example, they may mistakenly think ‘fast finishers’ or ‘fast-but-poor work’ are indications of ‘smart’ peers. It is also plausible that older students would tend to name their peer group only. Students may also be more successful at identifying their ‘high performing’ peers, for as Freeman (1998) points out, the likelihood of classmates recognising hidden potential is minimal. Careful facilitation of peer nomination can assist in eliminating these dangers, and should take into account the language and format utilised. The Ministry of Education (2000) also recommends that culturally-relevant behaviours

associated with giftedness and talent be included. Finally, as Le Sueur (2000) reminds, as with any other method of identification, the effectiveness of peer nomination ‘all depends,’ and the true test of its value is reliant upon the other methods with which it is used (Ministry of Education, 2000; Renzulli, 2003).

Self nomination. The Ministry of Education (2000) recommends the use of self nomination as part of a multi-method approach. As Davis and Rimm (1998) state, “Some students have strong artistic, creative, scientific, or other interests and talents, and they want to participate in a special program – but nobody asks them” (p. 81). Allowing students the opportunity to share information about their self-perceived talents and interests, will give insight into areas that other forms of identification may overlook: unique talents and interests; social and ethical concerns; and attitudes, motivation, values, self-esteem and self-concept (Davis & Rimm, 1998; Ministry of Education, 2000). McAlpine (1996) reports that only six percent of schools in the United States utilise this approach. Only three of the 206 respondents to Riley’s (2003) survey of rural principals reported self-nomination.

Self nomination can be facilitated via sign-up lists, student short-response forms and questionnaires, interest inventories, or interviews. Le Sueur (2003) has developed a self-report *Gifted Students’ Needs Analysis* for New Zealand students in Years 1 to 13. The questionnaire includes items such as “I am quick to understand new things in class” and “I like the things I do to be perfect and worry about them when they are not.” The students’ responses are computer analysed and teachers are supplied with recommendations for how to best meet their needs in regular classrooms. The author states that its development is based upon best practices in gifted education. This review of the literature yielded no references related to its use, reliability, or validity.

Freeman (1998) describes “The Sports Approach” whereby students are given some guidance and assistance in making decisions, but essentially they determine the nature and scope of their educational experiences. She uses the analogy of sport based on the premise that just as students decide if they want to join a team or have extra practice and tuition in a sports code, they should be able to make the same sorts of decisions regarding academics. As she states:

This is neither an expensive route, nor does it risk emotional distress to the children by removing them from the company of their friends. It makes use of research-based understanding of the very able, notably the benefit of focusing on a defined area of the pupil’s interest, as well as providing each one with the facilities they need to learn with and make progress (p. 19).

This form of self-identification is one which bases identification upon provision, and so must make allowances for ease of access to many, different programme options.

Individual student behaviours and characteristics, including culture, age, and self-perceptions, are likely to influence the potential effectiveness of self nomination. McAlpine (1996) alerts educators that self nomination may be subject to bias. Some students may have unrealistic self-perceptions of their abilities, and others may be reluctant to put themselves forward. He states this could certainly be the case with many Māori and Pacific Island students. This is supported by Reid (1992), who concludes that for Māori and Pacific Island students, self-identification is an inappropriate method. However, Galu (1998) supports the use of self nomination in a culturally responsive, supportive environment. McAlpine (1996) states that self nomination will have varying degrees of validity as an identification tool dependent upon student age. Renzulli (1987) recommends self-nomination as the only identification strategy appropriate for secondary students. Another factor which will influence self-nomination is the school environment. As Gross and Slep (2001) point out, “Unfortunately, intellectually gifted students are only likely to nominate themselves for inclusion in gifted programs when the class climate or school culture permits them to acknowledge openly that they are gifted” (no page given). As with other identification tools, self nomination should be utilised in conjunction with an array of other methods.

Recommendations for Effective Identification

Based upon the review of the literature, the following recommendations regarding effective identification emerge:

- Adoption of a schoolwide, clearly defined multi-categorical concept of giftedness and talent;
- Use of multiple methods of identification as parts of the puzzle to understanding the gifted and talented student's abilities and qualities and subsequently designing educational programmes to develop and enhance these;
- Matching of the identification methods to the various constructs of giftedness and talent;
- Basing identification upon the special needs of individual gifted and talented students, rather than pragmatic factors;
- Identifying children within the context of a culturally responsive, supportive environment;
- Professional involvement, including inservice education, of all staff in the development and implementation of identification procedures;
- Embedding identification processes in the cultural context of the school, ensuring that the methods utilised are appropriate in the identification of students of diversity within the school population; and
- Constant evaluation of identification methods and procedures, and reporting of effective New Zealand-based practices in the literature.

QUALITATIVE DIFFERENTIATION

Differentiation is a term used by educators to describe teaching and learning experiences tailored to individuals. As George (1997) states, differentiation is the “process of assessing individual needs and responding with appropriate learning experiences” (p. 10). This means that educators must consider the many variances in gifted and talented students: learning styles, rates of learning, activities, interests, expectations, motivation, outcomes, abilities, resources, skills, tasks and parental or family support (George, 1997). As Riley (2000a) states, “In New Zealand, it is essential we add to this list different cultures” (p.1).

Differentiation is defined by Reis, Kaplan, Tomlinson, Westberg, Callahan and Cooper (1998) as “accommodating learning differences in children by identifying students’ strengths and using appropriate strategies to address a variety of abilities, preferences, and styles” (p. 75). They go on to state that this enables whole groups, small groups, and individuals to experience both enriched and accelerated learning experiences. In a recent best evidence synthesis of quality teaching, New Zealand researcher Alton-Lee (2003) concluded that “Learning communities provide environments that facilitate achievement” (p. 88). According to Alton-Lee, the hallmark of achievement-oriented learning communities is an active orientation and focus upon supporting both academic and social outcomes. The way in which differentiation for gifted and talented students is defined would enable these students to be valued, cared for, and supported in the inclusive and cohesive learning communities Alton-Lee calls for.

It is of importance, however, that when educators consider high quality teaching for *all* students, and in doing so address their diverse learning with appropriate teaching, that gifted and talented students are not inadvertently overlooked. George (1990) poses three questions in relation to determining if differentiation is appropriate for gifted and talented students:

1. Would all children want to be involved in such learning experiences?
2. Could all children participate in such learning experiences?
3. Should all children be expected to succeed in such learning experiences?

If all students would, could, and should be involved in the planned differentiated learning experiences, then he contends that these are not designed or tailored to the unique individual strengths, abilities, and so on of gifted and talented students. For gifted and talented students, differentiation eliminates or streamlines curriculum content, processes, and products that they have already mastered and replaces these with stimulating, challenging curricula, based upon individual students' interests, needs, qualities, and abilities (Renzulli & Reis, 1997; Renzulli, 1977).

An examination of the unique skills, abilities, and qualities of gifted and talented students, generally speaking, necessitates recognition that 'one-size-won't-fit-all.' For gifted and talented students, this requires qualitative changes to the content, processes, and products of their learning experiences (Ministry of Education, 2000). To create differentiated activities, Heacox (2002, p. 72) gives a simple formula:

$$\text{Content} + \text{Process} + \text{Product} = \text{Learning Experience}$$

This is supported with the Content Catalysts, Processes, and Product (CCPP) Toolkit, a menu-like approach which encourages teachers to 'move around' a wide array of content, process, and product possibilities.

Content refers to 'what' students are taught and learn; processes refer to 'how' students are taught and learn; and products refer to the outcomes, or ways in which students demonstrate what they have learned. The Ministry of Education (2000) expands upon these ideas as follows:

- Content: the concepts, information, ideas, and facts within the curriculum.
- Process: how new material is presented, what activities students are involved in, and what teaching methods are used.
- Product: tangible or intangible results of student learning, 'real' solution to 'real' problems (p. 36).

"As a natural result of differentiating each of these elements, the learning environment is also transformed" (Ministry of Education, 2000, p. 37). The principles of differentiation for gifted and talented students are shown in the Table 1 (Riley, in press a). This is a synthesis of the research on the 'best practices' of differentiation (Bevan-Brown, 1996; Coleman, 2000; Maker & Nielson, 1995; The United States Curriculum Council of the National Leadership Training Institute on the Gifted & Talented, 1986; Tomlinson, 1999; & Van Tassel-Baska, 1994).

Table 1. Differentiation for Gifted and Talented Students

<p>Content Should Be:</p> <ul style="list-style-type: none">• Abstract, centred around broad-based themes, issues and problems• Integrated, making multidisciplinary connections• In-depth and with breadth• Self-selected based upon student interests and strengths• Planned, comprehensive, related and mutually reinforcing• Culturally inclusive, appropriate and relevant• Advanced in both complexity and sophistication• Gender balanced and inclusive• Enriched with variety, novelty and diversity• Embedded within methods of inquiry, emulating the work of ‘professionals’• Inclusive of moral, ethical and personal dimensions• Explored through the study of the lives of gifted people <p>Processes Should Be:</p> <ul style="list-style-type: none">• Independent and self-directed, yet balanced with recognition of the value of group dynamics• Inclusive of a ‘service’ component, or opportunity to share outcomes for the good of others, like the community or whānau• Stimulating higher levels of thinking (analysis, synthesis and evaluation)• Creative, with the chance to problem-find and problem-solve• Accelerated in both pace and exposure• An integration of basic skills and higher level skills• Open-ended, using discovery or problem-based learning strategies• ‘Real’ – mirroring the roles, skills and expertise of practitioners• Designed to develop research skills; time management, organisational and planning abilities; decision-making processes and personal goal setting• Metacognitive, allowing students to reflect upon their own ways of thinking and learning• Created with the aim of developing self-understanding, specifically in relation to giftedness• Facilitated by mentors, as well as teachers <p>Products Should Be:</p> <ul style="list-style-type: none">• The result of ‘real’ problems, challenging existing ideas and creating new ones• Developed using new and ‘real’ techniques, materials and ideas• Evaluated appropriately and with specific criteria, including self-evaluation• Self-selected• Wide in variety• Designed for an appropriate audience• Transformations of ideas, shifting students from the role of ‘consumers’ to ‘producers’ of knowledge

Used with permission from Riley, T. (in press a). Qualitative differentiation for gifted and talented students. In D. McAlpine, & R. Moltzen (Eds.), *Gifted and talented: New Zealand perspectives* (2nd ed.). Palmerston North: Kanuka Grove Press.

The adaptations made to content, process, and product should be qualitative – not quantitative. Differentiation is not about ‘more of the same,’ but incorporates “well-thought-out, meaningful learning experiences that capitalise on students’ strengths and interests” (Ministry of Education, 2000, p. 36).

Differentiated Content

Content refers to what is taught and learned, the information and knowledge deemed useful, important, timely, and interesting for gifted and talented students (Kaplan, 1986). As Kaplan (1986) states:

The body of understandings identified as relevant to the gifted learner circumscribes the content. Within this body of understandings are the facts, ideas, concepts, generalizations, principles, theories and systems which comprise historical, contemporary and futuristic contributions of persons to the general and specific meaning of the disciplines.

For gifted and talented students the content moves *beyond* the basics to the abstract and complex, delving below the surface of facts and terms to uncover the underlying meaning, more intricate details and connections between ideas. This can be achieved by providing opportunities for multidisciplinary and conceptual study which relies upon broad based themes or issues to centralise, or tie together, the different content areas (Callahan, 2001b; Coleman, 2001; Roberts & Roberts, 2001; Kaplan, 1986, 2001; Riley, 1997; Tomlinson, Kaplan, Renzulli, Purcell, Leppien & Burns, 2002; Renzulli, Leppien, & Hays, 2000; Van Tassel-Baska, 1997; Van-Tassel-Baska & Brown, 2001). This type of content exploration is also supported by Slocumb and Monaco (1986) who state that, “Curriculum must allow for students to discover the bridges between ideas and fields of study and the paths to new learning” (p. 32). Roberts and Roberts (2001) state that using universal or broad-based themes maximise learning, as students begin to understand how learning in one context relates to other content areas or situations. Depth and breadth, as well as complexity and abstractness, are ensured. Kaplan (2001) believes that when content is organised around conceptual themes, it serves “the purpose for investigating, comprehending and summarizing” (p. 153).

In addition, the content should be relevant and meaningful (Callahan, 2001b), hooking the students into learning. Examination of content in light of moral, ethical and personal perspectives should be planned and provided for (Riley, in press c). Additionally, the content should be culturally relevant and appropriate (Bevan-Brown, 1993, 1996; Ministry of Education, 2000). Bevan-Brown (1996) reminds educators of the value for Māori students in developing both “knowledge and pride in their Māoritanga” (p. 107). The Ministry of Education (2000) suggests giving opportunities for the study of important cultural topics, such as the Treaty of Waitangi. Whilst this is valuable for all Māori students, for the gifted and talented student the opportunity should be given for greater depth, breadth, critical analysis, synthesis and evaluation. (Cultural issues are further discussed in a separate section of this review.) Finally, the content should be gender balanced and inclusive. Alton-Lee (2003) discusses the importance of curriculum content which addresses diversity, whether this is cultural, gender, ability, or other differences, in high quality teaching for all students and this is supported in the gifted education literature as outlined above.

Differentiating content is a crucial component of qualitatively different programmes, which must take into account individual differences. It should be based upon students’ strengths, interests, qualities, abilities and needs (Winebrenner, 2000). Hence, opportunities should be given for students to make choices and decisions about what they are learning. This requires content which is enriched with variety and novelty, as well as delivered at an appropriate pace of instruction (Ministry of Education, 2002; Winebrenner, 2000).

Content should be embedded within the methods of inquiry, simulating the knowledge needed by those professionals who study and work within the disciplines. For example, Tomlinson et al. (2002) distinguish between scholars who complete ‘expert-like’ work and practitioners who work at ‘expert-levels’, pointing out that gifted and talented students generally require the latter because of its “greater intellectual demand” (p. 31). In this way, gifted and talented students act as first-hand inquirers and to

do so requires a depth and level of advanced understanding and knowledge (Renzulli & Reis, 1997; Renzulli et al., 2002; Tomlinson et al., 2002). In exploring the disciplines and the methods of inquiry associated with them, it may also be rewarding to study the lives of gifted people (Maker & Nielson, 1995). Kaplan (1986) believes that it is also important that gifted and talented students are given opportunities to develop recognition and appreciation for famous and significant leaders in the disciplines.

Differentiated Processes

Teaching and learning are the two elements working together to comprise process skills. Both teaching and learning should be considered in differentiation, because, as Seney (2001) points out, for many years programmes for gifted students have focused upon the ‘training’ of students to critically think, creatively problem solve or produce knowledge, seemingly forgetting the important role of facilitating the development of those skills in suitable ways. It is important the process skills not be taught in isolation of a meaningful, relevant context (Kaplan, 1986; Riley, in press a; Seney, 2001). Seney (2001) highlights this in stating, “athletic skills ... are not taught separately ... as soon as possible, the skills are put into the game ... This is just as true for the gifted learner and process skills” (p. 160). In other words, the process skills of thinking, communication, research, and personal understanding must always be embedded in differentiated content and resulting in differentiated products.

For gifted and talented students, educators should also consider the provision of independent and self-directed learning, yet balance this with recognition of the value of group dynamics. Heacox (2002) refers to this balance as flexible grouping and provides the following explanatory points:

- *Responsive* to student needs because group composition is determined based upon teacher perceptions or evidence of students’ learning needs. For gifted and talented students, needs may be translated as strengths, interests, and preferences.
- *Fluid* membership, with group members constantly changing as tasks are matched to needs. “Mix things up whenever possible to meet specific needs” (p. 89).
- *Different* activities for different groups.
- *Grouped and regrouped* as appropriate.
- *Occurring as needed*.
- *Based upon individual students*.

From a cultural perspective, allowing opportunities for a balance of individual and group activities is extremely important for Māori learners (Bevan-Brown, 1996). From a gifted perspective, flexible grouping answers the call for opportunities to spend time with like-minded people, or intellectual ‘soulmates.’ Allowances should be made for homogeneous ability grouping of students, particularly for academic outcomes that break the glass ceiling that heterogeneous groups sometimes create (Rogers, 2002b). Maker and Nielson (1995) highlight the importance of teaching students how to interact effectively with a group, stating that “group process and group interaction activities should be an integral part of curricula for gifted students” (p. 126).

Maker and Nielson (1995) and Callahan (2001b) describe another teaching process adjustment: variety. Maker and Nielson (1995) discuss the importance of using an assortment of presentation styles in teaching – demonstrations, discussions, role-play, television, field trips, learning centres, and computer-based instruction. They make these suggestions based on the belief that all students must *not* be doing the same things, in the same ways, all the time. Using an array of pedagogical methodologies becomes “crucial ... for manipulating content information and transforming it into personal knowledge” (p. 164). In differentiating for gifted and talented students, teachers need to also provide open-ended, discovery or problem-based learning, whereby there is no ‘right’ answer (Callahan, 2001b; Coleman, 2000; Dinnocenti, 1998). Facilitating the development of new ideas, rather than simply the consumption of old ideas, requires variety and divergence. Finally, given the rate at which

gifted and talented students master new information, the pace of delivery must be adjusted to better match their abilities (Ministry of Education, 2000, 2002; Winebrenner, 2000).

Coleman (2000) describes the need for sophistication in the differentiation of processes for gifted and talented students and believes this can be achieved through questioning. She describes the importance of not only the level of questions posed by a teacher, and the need for questions which allow students to analyse, synthesise and evaluate their ideas, but also the importance of building teaching and learning programmes based upon the questions posed by gifted and talented students. As she states, "... look for the natural points where questions reaching the sophisticated level could be introduced. Develop a few good questions for exploration, but most of all, encourage your students to ask their own questions--to boldly go where no one has gone before." In Alton-Lee's New Zealand synthesis (2003), she reports that quality teaching acts as a catalyst or facilitator for thoughtful student discourse, if questions are planned to engage students in a sustained conversation focused upon powerful, important ideas.

Critical and creative thinking are probably the two most frequently cited process skills in the education of gifted and talented students (Davis & Rimm, 1998; Kaplan, 1986; Maker & Anuruthwong, 2003; Ministry of Education, 2000; Moltzen, 2000a; Renzulli, 1977). However, as Kaplan (1986) states, "The inclusion of productive thinking skills to the exclusion of other types of skills is artificial since each type of skill provides the reinforcement necessary for the mastery of other types of skills" (p. 188). Creative and critical thinking skills lay the foundation for higher order, advanced learning – analysis, synthesis, evaluation, flexibility, fluency, originality and elaboration of advanced, meaningful content. In both critical and creative thinking, a shift is made from *acquiring* information to *using* it. Furthermore, Maker and Anuruthwong (2003) discuss the importance of encouraging gifted and talented students to consider and make decisions regarding which skills, creative or critical, should be applied to certain learning situations. They state that this development of metacognitive abilities requires teachers to facilitate opportunities for gifted and talented students to monitor their own thinking through reflection.

Dependent upon a student's area of giftedness and talent, the skills of research, library and scientific, basic and advanced, should be taught (Karnes & Bean, 1990). Additionally, in utilising these process skills they should mirror methodologies in a real or professional sense, giving gifted students the 'tools of the trade' (Renzulli et al., 2000; Renzulli & Reis, 1985, 1997, 2000; Tomlinson et al., 2002). New Zealand researcher Alton-Lee (2003) describes the importance of developing authentic skills. She states, "Opportunities for authentic applications through links to real-life contexts in or out-of-school can have significant and sustained impacts on student knowledge, attitudes, and self-esteem" (p. 64). For success in meeting their personalised, differentiated learning goals, students need the skills of organisation, time management, planning, decision-making and goal-setting (Alton-Lee, 2003; Karnes & Bean, 1990). Reflecting upon their own thinking through the development of metacognitive skills will assist gifted students in applying their skills to a variety of different contexts. The purpose in developing these skills is to "allow students to do something with what they know" (Tomlinson et al., 2002, p. 10).

Gifted and talented students also need the chance to communicate their ideas to an appropriate audience. Hence, direct teaching of verbal, nonverbal, and written communication skills cannot be ignored (Kaplan, 1986), for "the greatest ideas and solutions in the world are not worth anything unless they can be effectively communicated" (Seney, 2001, p. 167). Karnes and Bean (1990) outline these skills as speech, group discussion, interview, debate, writing, active listening, and interpretation of non-verbal messages. Sharing information and ideas is the outcome of communication and the audience must be considered, aiming for one which will understand and appreciate the gifted student's abilities.

From a cultural perspective, Bevan-Brown (1996) reminds educators that for Māori students there should be opportunities for sharing outcomes for the good of others, like the community or whānau. Research in the United States indicates, however, that beyond being culturally appropriate, service learning has benefits for all students: it provides students with real-life examples; responsibility for learning rests with students; connections are made between students and the community; and at the

same time, relationships can be built between the community and school (New, 2002). Finally, service learning can be rewarding for students as they develop their own self-understandings and see themselves as an important, valuable part of a wider community. Within gifted education, process skills, which develop personal growth and enhance human relationships, must also be facilitated, and furthermore, by adding a service-oriented dimension, social and leadership skills can be developed.

The final process skill to address in differentiating the curriculum for gifted and talented students is the development of self-understanding and appreciation of their giftedness (Betts, 1985; Tomlinson et al., 2002). The Ministry of Education (2000) states, "In the past, educating gifted and talented students has been dominated by concerns about their learning. More recently, attention has been paid to aspects of their social and emotional development" (p. 22). Alton-Lee (2003) puts forward the belief that many of the past educational provisions for gifted and talented students did not address their social and emotional needs, creating an imbalance in the cognitive and affective outcomes and inhibiting performance. Applying the aforementioned skills of communication, group interaction, research, metacognition, and critical and creative thinking to social and emotional issues will assist students in developing their talents – and living with them.

Differentiated Products

Fostering independence and accountability should be a goal of differentiation and can be further enhanced through product development (Stephens & Karnes, 2001). Products are described by Maker and Nielson (1995) as the tangible or intangible results of learning; they serve as the 'evidence' of learning (Ministry of Education, 2000). The pinnacle of differentiation, student products, is the outcome of integrating advanced level content with appropriate process skills. Stephens (1996) believes that "product development is an essential component in the gifted education program that assists in meeting the complex and advanced needs of gifted students as they become tomorrow's creative problem solvers and thinkers" (cited in Stephens & Karnes, 2001, p. 207). As Coleman (2001) points out, product development should be sophisticated in the sense that its aim should be to transform knowledge. She refers to this as transformational application: the use of knowledge to create new knowledge in an applied form.

If differentiation is rooted in real content and processes, the outcomes should also be 'real.' When educators differentiate for gifted and talented students, the products of their learning expand to a myriad of possibilities; the variety of student-created products is abundant (Stephens & Karnes, 2001). Kettle, Renzulli, and Rizza (2003) describe and provide *My Way ... An Expression Style Instrument*, used for helping students and their teachers understand product preferences. Products can be divided into several categories: written; visual; performance; oral; and multi-categorical (Karnes & Stephens, 2000). An extensive list of product ideas is provided in *The Ultimate Guide for Student Product Development and Evaluation* (Karnes & Stephens, 2000).

There are several critical factors in product differentiation: variety; student choice and self-selection; development grounded in 'real' techniques and methods; appropriate evaluation and audience selection. Teachers should take a leading role in instructing students in the 'how-to-skills,' helping students in developing, planning, organising, designing, communicating, evaluating and celebrating their ideas (Stephens & Karnes, 2001). By teaching product development skills in a resource-rich environment, the aim is not, however for concrete products to become "ends in themselves. Rather, they are viewed as vehicles through which the various abstract products can be developed and applied" (Tomlinson et al., 2002, p. 11).

The development of intangible or abstract products is "more enduring and transferable" (Tomlinson et al., 2002, p. 11). Intangible evidence of learning includes "knowledge, ideas, problem-solving strategies, attitudes, beliefs and values and personal and social development" (p. 11). Ideally, concrete or tangible products lead to these personal gains, the two types of products operating in tandem with one another. This is also the place where being of service, group giftedness and cultural differences are celebrated (Bevan-Brown, 1996). The goal of product differentiation must not be confused with production-line sameness; product differentiation is an opportunity for gifted and talented students to demonstrate and commemorate their unique ways of thinking, learning and feeling.

Learning Environments

Qualitatively differentiating the content, process and products requires dramatic changes in the learning environment, ensuring it is responsive (Clark, 1997) or invitational (Cathcart, 1994). A classroom which invites and responds to individual learning is characterised by a number of factors “determined by both the teacher and physical classroom environment” (Ministry of Education, 2000, p. 37). Maker and Nielson (1995) outline these:

- Learner centred rather than teacher centred;
- Teacher independent rather than teacher dependent, for most tasks, including classroom management;
- Open to new people, materials, and things;
- Complex and filled with resources;
- Open to acceptance rather than judgment, and so “psychologically safe” for risk-taking, creativity and individuality;
- Open to varied groupings;
- Flexible in all aspects of management, especially scheduling; and
- Tolerant of high mobility of movement, both in and out of the classroom.

Hunt and Seney (2001) state that “by using these guidelines, environments are created which provide the comfort, autonomy, and opportunities gifted learners need for optimum growth and development” (p. 45). In New Zealand, Taylor (2001) and Cathcart (1994) have created checklists which teachers can use to reflect upon the responsiveness of learning environments.

Creating an environment suitable for gifted learners incorporates not only ‘physical’ space for growth, but also ‘social-emotional’ space. In New Zealand both the physical and social-emotional spaces need to be appropriate for a range of diverse cultures – taking into account diversity and respecting culturally-specific learning needs (riley, in press c). Clark (1997) refers to this combination as the creation of ‘people space.’ Physically, she describes classrooms that are comfortable, nicely furnished, colourful, and resource rich. Hunt and Seney (2001) add the need for careful physical organisation and consideration of the overall layout of furniture and resources. They state that “in short, the room should be designed as a learning laboratory” (p. 64). Psychologically, the learning environment should allow and encourage gifted and talented students to ‘be themselves,’ to take risks, to build trust and develop self-confidence. A classroom of this nature celebrates diversity and individuality. George (1997) describes this sort of classroom as one with “a comfortable atmosphere – humour, praise, positive enthusiastic attitude on part of the teacher – defined by one colleague as ‘cheerfulness’” (p. 108).

Clark (1997, 2002) refers to a responsive learning environment which is characterised by the physical and psychological/social elements outlined below. She states that:

You will know that the physical environment is responsive when

- 1. There is space for students to simultaneously participate in a variety of activities.*
- 2. Students have access to materials with a range of levels and topics.*
- 3. There is space for the students to engage in a variety of instructional groupings, and flexible grouping is used.*
- 4. There are areas supportive of student self-management.*
- 5. Desks are not individually owned.*

6. *The classroom has a comfortable, inviting ambience supportive of exploration, application, and personal construction of knowledge.*

You will know that the social/emotional environment is responsive when:

1. *The emotional climate is warm and accepting.*
2. *The class operates with clear guidelines decided upon co-operatively.*
3. *Instruction is based on each individual student's needs and interests as assessed by the teacher from the student's interaction with the materials and the concepts.*
4. *Student activities, products, and ideas are reflected around the classroom.*
5. *Student choice is evident in planning, instruction, and products of evaluation.*
6. *Building and practising affective skills are a consistent and valued part of the curriculum and of each teaching day.*
7. *Students and teachers show evidence of shared responsibility for learning.*
8. *Empowering language is evident between teacher and student and among students.*
9. *Students show evidence of becoming independent learners with skills of inquiry and self-evaluation (Clark, 2002, p. 381).*

Cathcart (1994) makes reference to an invitational environment. This is a learning environment, which is also responsive to needs, but at the same time invites students to actively engage in their learning. Choice, variety, and flexibility are highlights of an invitational learning environment. Alton-Lee (2003) found that many behaviours traditionally described as 'on-task' (i.e., providing page frames, drawing headings, and so on) are actually counterproductive to students' learning – an invitational or responsive environment would no doubt curtail this sort of unproductive busywork. Tomlinson (1999) suggests creating healthy classroom environments, which are reliant upon the teacher to facilitate individuality, holistic educational experiences and joy in learning. Winebrenner (2000) reminds educators that responsive learning environments are not classroom-bound, but that learning can also be facilitated in many other places within the community.

As this review of the literature will demonstrate, regardless of the nature of provisions being made to meet the needs of gifted and talented students, the effectiveness of those provisions will be dependent upon the level of differentiation. Whether provisions are of an enriched or accelerated orientation, full-time or part-time, within class or schoolwide, the cognitive and affective outcomes for gifted students will be reliant upon the nature and extent of differentiated learning experiences.

ENRICHMENT AND ACCELERATION

Two common approaches to offering qualitatively differentiated learning opportunities for gifted and talented students are enrichment and acceleration. Enrichment generally refers to 'horizontal' extension of the curriculum, or "learning activities providing depth and breadth to regular teaching according to the child's abilities and needs" (Townsend, 1996, p. 362). On the other hand, acceleration is a 'vertical' extension of the curriculum, and refers to early introduction of content and skills or a quickening of the pace of delivery and exposure (Ministry of Education, 2000; Townsend, 1996). Unfortunately, these two approaches are sometimes seen as competing views, and this is particularly demonstrated in the earlier literature in gifted education (see for example, George, Cohn, & Stanley, 1979). However, it is now widely recognised that the two should be used in tandem with one another, as complementary approaches to a qualitatively differentiated education (Ministry of Education, 2000; Passow, 1996; Schiever & Maker, 2003; Townsend, 1996).

Within the literature, discussions regarding provisions for gifted and talented students often refer to the term 'extension.' However, this term clearly means different things to different people: it is sometimes presented as a third option, with reference made to opportunities for enrichment, acceleration, and extension; and yet, others use the term synonymously with acceleration or enrichment. When extension is offered as an alternative option to acceleration and enrichment, a

distinction is sometimes made between ‘depth’ and ‘breadth,’ with extension allowing for breadth via broadening of experiences and enrichment granting depth of study (Department of Education and Training Government of Western Australia, 2003). And yet, in the Hertfordshire Grid for Learning General Guidance Gifted and Talented (2003), the term extension refers to the use of higher order thinking skills in the regular classroom, whereas enrichment is interpreted as classroom-based opportunities for broadening knowledge. In policy documents in Hong Kong, the term extension seems to be translated as acceleration (Education Department, 2000), but in documents in the Capitol Territory of Australia, extension is used interchangeably with enrichment (Department of Education and Community Services, 2003). This same confusion of terms emerges in New Zealand. For example, a case study school featured on the *Te Kete Ipurangi The Online Learning Centre Gifted and Talented Community* lists ‘extension groups’ as an example of acceleration, and another features extension as an enrichment option.

In order to avoid more confusion and in keeping with the Ministry of Education (2000, 2002) documentation, for the purposes of this review of the literature the terms enrichment and acceleration are utilised. Enrichment is defined as qualitatively differentiated learning experiences by way of both depth and breadth of learning, and which offers challenges ‘in addition to’ and ‘different from’ the ‘regular’ curriculum (Ministry of Education, 2000). Acceleration refers to the practice of exposing students to the curriculum at an earlier age, or increasing the pace of its delivery, again, ensuring differentiated learning opportunities (Ministry of Education, 2000). These definitions incorporate the principles of qualitatively differentiated content, processes, products, and learning environments, on the premise that effectiveness is most reliant upon teaching and learning programmes which are designed to meet the needs of individual students. Additionally, this review is premised on the recognition that rather than viewing enrichment and acceleration as competing approaches it is more useful to consider them as complementary programme components. For ease of understanding and depth of coverage, the review begins by addressing enrichment and acceleration separately and then brings the two together in the final discussion.

Enrichment

The New Zealand literature documents enrichment as the preferred approach to meeting the needs of gifted and talented students (McAlpine, 1993; McAlpine & Reid, 1987; Ministry of Education, 2000; Moltzen, 2000a; Townsend, 1996). However, the concept of enrichment is difficult to describe, and as such, it has been characterised as vague (Townsend, 1996) and ill-defined (McAlpine & Reid, 1987). Enrichment in practice is portrayed as moving along a continuum from ‘happy talk’ or ‘more of the same busy work’ at one end to well-planned, systematic, individualised learning opportunities on the other (McAlpine & Reid, 1987; Moltzen, 2000a). As Townsend (1996) states, “... the extent, type, and strategies involved in the implementation of enrichment are highly varied across teachers and schools” (p. 366). The variations in definitions of enrichment, coupled with those in its implementation, have had potentially negative effects upon gifted education both in theory and in practice. The research to support or refute enrichment is rather limited (Townsend, 1996); and enrichment represents ‘the best and worst’ of special provisions for gifted and talented students (Moltzen, 2000a).

The Ministry of Education (2000) describes enrichment in relation to a broadening of student experiences by way of depth and breadth. These two terms, depth and breadth, refer to a completeness, fullness, or thoroughness in understanding which is gained by digging deeper and stretching wider. This description implies a core or central base of knowledge and skills, and so, another distinguishing characteristic of enrichment is its implementation in addition to or different from the ‘regular’ content, processes, and products associated with the curriculum (Ministry of Education, 2000). In this sense, enrichment stretches students beyond any basic knowledge and skills, building upon their passions and interests (Department of Education, Victoria, 1996). Enrichment perceived in this way also rests upon an assumption that the ‘regular’ curriculum is insufficient in meeting the needs of gifted and talented students (Southern, Jones & Stanley, 1993). Enrichment is therefore described as “a process that extends beyond the bounds” (Southern et al., 1993, p. 390) of a given curriculum. However, it should be noted that these characterisations are based upon curricula developed and delivered in the United States. The New Zealand Curriculum Framework, in theory, advocates much more flexibility in its delivery; yet, in practice, these assumptions might be heeded.

Freeman (1998) conceives enrichment as the deliberate rounding out of the curriculum with ideas and knowledge that enable a student to be aware of the wider context of a subject area. Southern et al. (1993) elaborate that content is enhanced by way of depth, by building upon the curriculum, and novelty, by adding content not normally addressed within the curriculum. They indicate that the content adjustments are primarily made based upon unique student interests and on the assumption that the curriculum “omits large amounts of content, materials, and skills that would be of value to learn” (p. 391).

Davis and Rimm (1998) acknowledge the broadening of content as an aim of enrichment, but also define it to include modifications to teaching and learning strategies. Process skills such as critical thinking, creative problem solving, small group or independent study, and so on are part of the enrichment philosophy, based upon the belief that gifted and talented students should be producers of knowledge, as opposed to consumers of knowledge (Ministry of Education, 2000). As Southern et al. (1993) point out, the inclusion of process skills is designed to assist students in coping with the sheer ‘explosion of knowledge,’ enabling them to master complex, interdisciplinary content.

Enrichment is also provided as a means of being responsive to the social and emotional needs of gifted and talented students (Southern et al., 1993). In this sense, enrichment is conceptualised as a way of developing not only the cognitive abilities of gifted students, but also their unique affective qualities. Enrichment is conceived as student-centred and holistic, with the content and processes of differentiated instruction determined by individual interests and stressing their social and emotional development. Therefore, amongst the goals of enrichment is affective development, including motivation, self-direction, self-understanding, and ethical development (Davis & Rimm, 1998).

The underlying assumptions and beliefs regarding enrichment set the stage for more concrete definitions of the approach which distinguish between different types of enrichment. For example, Renzulli (1977) provides a model for enrichment, *The Enrichment Triad Model*, which distinguishes between three different types. Each of these is interrelated, as opposed to sequential, and reliant upon a responsive, flexible environment for their success (as shown in Figure 2).

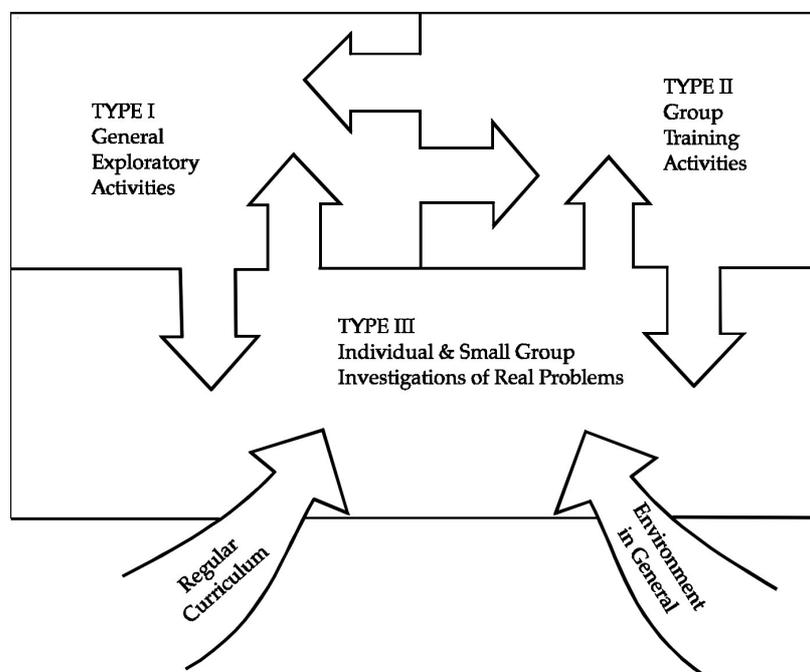


Figure 2. The Enrichment Triad Model.

Type I, or general exploratory activities, and Type II, or group training activities, may be viewed as catalysts for the development of student skills and interests. Type III enrichment, or individual and small group investigations of real problems, is an outgrowth of the aforementioned, reliant upon higher ability levels, creativity, and task commitment. Hence, educators have grown to recognise the

value of Types I and II for all students, and the special creativity, ability and energy required by a smaller set of students (i.e., the gifted and talented) to successfully carry out Type III activities (Davis & Rimm, 1998). (For discussion of the research related to this model, see the section on curriculum models.)

Rogers (2002b) discusses three different types of enrichment, all aimed at broadening and deepening students' experiences. The first of these is 'exposure enrichment,' whereby new ideas, skills, and concepts are introduced, and these should be rooted in and developed from the unique interests of the gifted and talented student. Enrichment of this nature is facilitated by student interest inventories and short-term exposure to many different people, places, things, ideas, and so on. As such, exposure enrichment is appropriate for *all* students. The second type of enrichment Rogers (2002b) describes is 'extension' of the regular curriculum, allowing students to "go more deeply and broadly into the ideas already introduced in that curriculum" (p. 270). She distinguishes this type of enrichment from the third, 'concept development,' an exploration of a concept which underlies or supports the knowledge and skills introduced in the curriculum.

Potential advantages and disadvantages of enrichment. As stated earlier, enrichment is cited as the preferred approach to provision for New Zealand's gifted and talented students. The appeal of enrichment is probably rooted in egalitarian beliefs and principles, resulting in the perception that it is a 'safe option' (Moltzen, 2000a). Although enrichment may be offered across the continuum of approaches, it is sometimes explained as a 'within class' provision (Ministry of Education, 2000; Moltzen, 2000a). This may be another reason for its appeal to New Zealand educators, who prefer to meet the needs of gifted and talented students in regular classrooms (Moltzen, 2000a).

However, within class enrichment, based upon student interests, is good for all students (Rogers, 2002b). In fact, Shore and Delcourt (1996) conclude that enrichment is a provision often offered up to gifted and talented students, but which is appropriate for every learner. Enrichment of this nature includes field trips, guest speakers, inquiry learning, hands-on investigations and projects, school productions and plays, and so on, but as Rogers (2002b) indicates "No distinction is made in how enrichment will be provided for students with differing abilities or needs. Everybody participates" (p. 272). As the Ministry of Education (2000) points out, this can be a disadvantage and "we must examine whether it is an appropriate solution to the learning needs of the gifted and talented" (p. 39).

Passow (1996) distinguishes enrichment for 'all students' from appropriate enrichment for gifted and talented students by posing three important questions:

1. Is this an activity every child *should* be doing?
2. Is this an activity every child *would* like to do?
3. Is this an activity that every child is *capable* of doing? (cited in Rogers, 2002b).

He believes that if the answer to any of these questions is 'yes,' then the enrichment provided is not differentiated or individualised appropriately for gifted and talented students. However, if educators reflect upon these questions in the planning and implementation of curricular enrichment, with the intention of creating experiences which gifted and talented students should, would, and are capable of being involved in, then the criticisms of enrichment as more of the same busy work (Ministry of Education, 2000) could be curtailed.

There are advantages of within class enrichment cited in the literature. For example, these programmes are viewed as being easier to carry out, more likely to be supported by parents, and offering greater flexibility (Ellis & Ellis-Schwabe, 1986, cited in Clark & Zimmerman, 2002). Ellis and Ellis-Schwabe also believe enrichment provides more time for self-motivation, creative interests, and independence. Enrichment also gives opportunities for varied groupings: like-ability; similar interests; and/or same-age (Ministry of Education, 2000). As Townsend (1996) points out, enrichment of this nature is of an inclusive appeal because it sidesteps overt identification and labelling. Enrichment based within the

regular classroom can also alleviate concerns regarding fragmentation and lack of connection with the curriculum, as well as student boredom and intellectual frustration (Ministry of Education, 2000).

In classroom practice, Teare (1997) describes enrichment for gifted and talented students as:

- a higher quality of work than the norm for the age group;
- work covered in more depth;
- a broadening of the learning experience;
- promoting a higher level of thinking;
- the inclusion of additional subject areas and/or activities; and
- the use of supplementary material beyond the normal range of resources (p. 73).

Teare (1997) also acknowledges that these descriptions overlap with acceleration and differentiation.

Moltzen (2000a) supports the notion of within class enrichment, but also acknowledges that in New Zealand it is often combined with a pull-out or withdrawal programme. The previously cited advantages apply to enrichment via this avenue of provision; however, there are also some unique disadvantages. In many cases enrichment of this nature can be seen as an add-on provision that is not sustained because of reduced funds or a lack of strong enough commitment (Tannenbaum, 2000). Tannenbaum feels that enrichment is viewed as a luxury rather than a necessity. In New Zealand, due to inclusive educational philosophies, enrichment programmes may also strive to include as many students as possible in as many outside enrichment programmes as possible (Braggett & Moltzen, 2000), thereby creating part-time enrichment solutions to full-time student needs. This approach can result in experiences that are described as “patchy, one-off ... short in duration and lacking ‘clear goals, adequate substance, and carefully planned teaching strategies’” (Ministry of Education, 2000, p. 39). The lack of ‘adequate substance’ is described by Southern et al. (1993) in reference to the emphasis placed upon process skill development, at the sacrifice of content development. They describe gifted and talented programmes during the 1980s in the United States which bore little relation to academic content nor to the regular curriculum.

Another concern raised in the literature regarding enrichment is the possibility that enrichment may not actually meet the individual needs of gifted students (Ministry of Education, 2000; Moltzen, 2000a; Southern et al., 1993; Townsend, 1996). Southern et al. (1993) describe this as ‘irrelevant enrichment.’ Educators may seek to understand student interests and strengths through the identification process, but fail to recognise those in the enriched provision. As the Ministry of Education (2000) states, “Enrichment may simply be a homogeneous solution, paying little or no attention to the needs of the gifted and talented” (p. 39).

The interpretation of different conceptualisations of enrichment in practice led Stanley and Benbow (1986) to describe four different sorts: busy work; irrelevant academic; cultural; and relevant academic enrichment. Their distinctions between these different types of enrichment demonstrate the continuum upon which the concept operates in its implementation. Busy work often consists of having gifted students do a great deal more of the subject that they have already mastered, but at the same level as the class that they have surpassed. Irrelevant academic enrichment consists of games and activities such as creativity training, and of not providing the type of advanced stimulation the student needs. Cultural enrichment consists of providing certain cultural experiences that go beyond the usual school curriculum, in isolation of meaningful, advanced content. In this case, Stanley and Benbow are using the word ‘cultural’ in its broadest sense, and not referring to ethnically-valued gifts and talents. Relevant academic is viewed as a short-term method in which a student studies academic material in their area of talent. Given the range of interpretations of enrichment, Stanley is a harsh critic and concludes that “Enrichment irrelevant to their special talent, cultural enrichment and busy work do not meet their real needs, that is, assuage their specific mental hunger” (1991, p. 40).

Research related to the effectiveness of enrichment. Within New Zealand, and overseas, many programmes and approaches are labelled ‘enrichment’ so to summarise research on this general practice is difficult. Also, because ideally enrichment and acceleration are used in tandem, it is more useful to examine the effectiveness of individual classroom-based and school-based provisions, which are discussed in the next sections of this literature review.

However, there is one research study which seems to be used as a generalisation of the effectiveness of enrichment (Townsend, 1996). A meta-analytic review by Kulik and Kulik (1992) was conducted to examine the effects of enriched classes for gifted and talented students. In these classes students received richer, more varied educational experiences than would be available to them in the regular curriculum for their age level. Distinctive material and methods were adapted to student ability. Of the twenty-five studies examined by Kulik and Kulik, twenty-two found that gifted and talented students achieved more when taught in the enriched programmes. The reported average effect size was 0.41, which indicates that students in enriched classes had achievement gains of almost half a standard deviation in comparison to their gifted peers who were not in such classes. The researchers were unable to find any study feature (i.e., research methodology) significantly related to this variation in effect size. Some of the studies included in the meta-analysis explored self-concept gains and these were reported as “small or trivial” (p. 76).

There are two important considerations related to these findings. Firstly, the nature of the enriched classes is not fully explained. Were these full-time homogeneous classes or part-time withdrawal programmes? Therefore, it is important to consider these findings in light of the research related to the various delivery models and later discussed in this review of the literature. Secondly, as Kulik (2003) points out, gains in achievement of 0.41 may in fact be an under-representation of actual effectiveness in relation to academic, social and emotional outcomes of the enriched classes. The studies included utilised achievement tests as measures of achievement, and these measures are not completely compatible with the goals of the enriched classes. Kulik and Kulik (1992) report that the students in the enriched classes were spending as much as half their time on enriched material not assessed by standard achievement tests.

Acceleration

Acceleration is an approach to provision which aims to more closely align the individual learning needs of gifted and talented students to the curriculum by way of early introduction to or a quickening of the pace of delivery of content and processes (Ministry of Education, 2000). Acceleration is used to refer to both service delivery (an administrative procedure) and curriculum delivery (a differentiated teaching strategy). The service delivery model refers to early introduction to the curriculum, and, for example, includes early entrance (to school or university), grade skipping, and skipping of classes for either the whole or part of the school day to receive advanced instruction in one or more curriculum areas. Acceleration as a curriculum model involves speeding up the pace at which material is presented. This may occur in regular classes, a resource class or special class. It may also occur as ‘telescoping’ whereby students complete two or more year’s work in one year (Schiever & Maker, 1991). As curriculum delivery, gifted and talented students spend the majority of their school time with same-age peers; whereas, as service delivery, the students are placed with students outside their age range. When this is the case, gifted and talented students who skip a grade or enter school early are likely to be much more conspicuous than those who are accelerated for one subject or complete a unit of work in six or seven weeks as opposed to a full school term.

Van Tassel-Baska (1992a) maintains that “educators and parents have a fallacious conception of what acceleration means” (p. 68). She argues that too often it is considered as an intervention to speed up their progression through school rather than as a reference to the rapid rate of a child’s cognitive development. In this situation, the question has to be asked whether the acceleration of a student is a placement decision rather than a programme decision. According to Van Tassel-Baska (1992a):

- Gifted students should experience learning at a level of challenge, that is, a task level slightly above skill mastery.

- These learners should have opportunity to begin school-based experiences based on readiness and to exit based on proficiency.
- Provision for advanced placement should be based on individual student demonstration of capacity, readiness, and motivation.

Unlike enrichment, acceleration is not viewed as a preferred approach to provision in New Zealand (Townsend, 1996). It seems that the reported lack of its use in New Zealand schools is based upon reservations primarily associated with its perceived negative effects upon students' social and emotional development (Moltzen, 2000a). There is also a reported misunderstanding of acceleration amongst New Zealand educators, whereby it is most commonly thought of as grade or class skipping only, demonstrating little awareness of its various shapes and forms (Easter & Moltzen, 1997; Moltzen, 2000a; Townsend, 1996). The lack of understanding may be proliferated by a misinterpretation of acceleration as often portrayed by the media who feature gifted and talented students who have been radically accelerated. Southern et al. (1993) describe 'radical acceleration' as the most obvious form of acceleration. It includes skipping more than two levels of schooling, entering higher levels of education more than two years early, or extremely rapid instructional pace, such as completing high school level algebra in three intensive weeks.

Though there is research evidence which explains and refutes each of these misunderstandings of acceleration, as Easter and Moltzen (1997) report there is a discrepancy in New Zealand between what the research says and what the majority of educators and parents believe to be true. Moltzen (1995) suggests that the research related to acceleration is simply not widely available or understood by New Zealand educators. The lack of pre-service and in-service education, specific to gifted and talented (Working Party on Gifted Education, 2001), would no doubt contribute to the discrepancy between theory and practice reported by Easter and Moltzen.

Another possible reason for its lack of use in New Zealand schools may be the assumptions upon which acceleration is based. Acceleration is premised on the supposition that the curriculum has clearly defined levels tied to an average pace of instruction and rate of mastery, and though the curriculum itself is perceived as appropriate for gifted and talented students, its delivery is viewed to be in conflict with their natural abilities (Southern et al., 1993). It rests upon the assumption that gifted and talented students, by their very nature, are capable of rapid progress in learning (Southern et al., 1993). The perceived flexibility of the *New Zealand Curriculum Framework* (Ministry of Education, 2000) when placed alongside the belief that New Zealand teachers are 'well-heeled' in individualisation of instruction (Moltzen, 2000a) may negate some of these assumptions.

The use of acceleration seems to vary with countries. Some countries such as Spain and Denmark do not use acceleration at all; others allow it in special circumstances (Freeman, 1998). In Austria programmes are almost exclusively enrichment programmes since the school legislation contains a lowest-age clause for every school grade (Schwizer, 1994). In Britain, it is possible to accelerate within the school and to provide part-time acceleration through higher education institutions. High achieving students' results are available for Britain but according to Freeman (1998) little is known about the sort of schooling and home circumstances that produce such results. In China, programmes for gifted students are provided by purposeful acceleration rather than the addition of enrichment features or access to college-level study before passing an entrance examination. Some students skip the primary grades and work through material independently or with a mentor (Robinson, 1992). The programmes reported by Robinson show how successful an accelerative option can be for young students when there is a match between academic challenge and readiness.

Potential advantages and disadvantages of acceleration. The Ministry of Education (2000) cites numerous advantages and disadvantages of acceleration, and these are reported in the national and international literature. The advantages include mastery of the curriculum, alleviation of behavioural problems and underachievement, mental stimulation, and the opportunity to interact with like minds. The Ministry of Education (2000) further reports that there is no research-based confirmation of perceived negative social and emotional effects. Southern et al. (1993) confirm these advantages but

also add: appropriate recognition of achievement; increased time for careers, and hence, career productivity; the development of appropriate work and study habits; and avoidance of conflict with same age peers who may not share or appreciate similar academic interests and abilities. They also point out that acceleration has the potential to create a “closer match between the student’s level of instruction and level of achievement” (p. 397).

When carefully planned and implemented, acceleration can build upon individual differences. It is most important that individual students are considered in the planning and implementation of acceleration practices (Charlton, Marolf, & Stanley, 2002; Cornell, Callahan, & Loyd, 1991; Vialle, Ashton, Carlton, & Rankin, 2001). Students should be involved in the planning process (Stanley & Benbow, 1986). The success of acceleration programmes may be attributed to four key characteristics:

- planning for each student focuses on individual needs;
- instructional materials closely approximates students’ instructional levels;
- teachers of the gifted monitor students’ progression on a routine basis;
- programme evaluation (Howley, 2002).

Cases are made for students to be considered for more than one year of acceleration. Gross (1992) believes that exceptionally gifted students retained with age peers, or accelerated by only one year are at serious risk of peer rejection and social isolation. The failure to advance a precocious child may result in poor study habits, apathy, lack of motivation, and maladjustment (Feldhusen, Proctor & Black, 2002).

The potential disadvantages of acceleration, as highlighted by the Ministry of Education (2000), include, gaps and insufficiencies in learning; social, cultural, or emotional isolation from peers; feelings of undue pressures, both real and unreal, to perform; and teacher lack of understanding and expertise. The Ministry of Education also makes a very salient point in stating, “If acceleration simply means moving into a higher level with little or no adjustments made to teaching methods or materials, it may not adequately address individual strengths and interests” (2000, p. 38). Easter and Moltzen (1997) also discuss the importance of a qualitatively differentiated accelerated experience, citing research from overseas, which indicated that students who had been moved into a subject-based class at a higher level of school initially experienced a ‘honeymoon period,’ but eventually were dissatisfied with the pace of instruction. Shore and Delcourt (1996) state that though acceleration is widely advocated and implemented, in many cases it “... requires no actual curriculum adaptation or differentiation” (p. 140). In these cases, the ‘full burden’ for differentiation or adaptation rests with the student. Moltzen (1998/99) states, “Acceleration is not a panacea to inappropriate curriculum. If there is no accompanying adjustment to the quality of the programme, gains will be short-lived” (p. 66).

An example of this is in relation to grade skipping, an option that Feldhusen et al. (2002) suggest should be readily available in every school system. However, acceleration in the form of grade skipping can be viewed as a temporary solution to addressing the needs of gifted students; these students should also receive a differentiated curriculum that provides a challenge (Gross, 1992; Kulik & Kulik, 1992). It is an economical way to provide for gifted students and may provide suitable challenges but generally fails to provide a differentiated curriculum (Schiever & Maker, 2003). Therefore, when implemented in this way, grade skipping is viewed as ‘ad-hoc’ and ‘clumsy’ (Shore & Delcourt, 1996).

Acceleration across all subject matters may not necessarily be the appropriate answer for all students. Some disciplines may lend themselves more than others (Lewis, 2002) and so subject skipping can be used with students with specific academic abilities. One acceleration strategy is to use vertical timetabling allowing for accelerated progression in specific subject areas (Vialle et al., 2001). Students from Vialle’s study exposed to this strategy offered mixed views: the work was more challenging and there were opportunities for independent work, although a few commented that it was not any different from their regular class. When there is an emphasis on whole-class instruction and co-operative

learning there seems to be reluctance from teachers for subject skipping (Rimm & Lovance, 1992). Rimm and Lovance (1992) report that students, who are subject skipped only, find it quite a relief when they are whole grade skipped after initially being subject skipped only. It seems that students are more likely to be accelerated in some subjects (such as mathematics and science) than others. For example, art is one area that is viewed as a subject for 'cultural enrichment' instead of as a content area in its own right and a viable subject for acceleration (Clark & Zimmerman, 2002).

Much of the controversy associated with acceleration is linked to teacher beliefs and attitudes. Australian research shows that many teachers believe that the social and emotional needs of students should take precedence over their academic needs (Vialle et al., 2002). This overlooks the reality that the social and emotional wellbeing of students is inextricably related to cognitive needs (Gross, 1993; Southern et al., 1993). Many practitioners express consistently conservative sentiments towards the value of acceleration as an appropriate intervention for gifted young children (Southern, Jones & Fiscus, 1989). Townsend and Patrick (1993) found, in their New Zealand study, that teachers and teacher trainees were moderately positive though relatively conservative in their views about acceleration and expressed greater concern about the social and emotional effects than about the academic effects. It was anticipated that student teachers would be more positive about acceleration because of their exposure to the literature in their course of study, but, in fact, limited attention had been given to the education of gifted and talented students. In spite of the research providing evidence that acceleration can work well, it is met with resistance in practice (Gross, 1999b; Vialle et al., 2001).

Feldhusen et al. (2002) report that many teachers struggle to individualise a programme sufficiently to meet the needs of gifted and talented students. They believe that school policy and programmes may also restrict teachers from using sufficiently high-level instructional material. "Acceleration practices are more difficult for parents and educators to accept because they "disrupt" the flow and expectations that we have about age, grade, and sequence" (Muratori, Colangelo, & Assouline, 2003, p. 219). Part of this flow, which must be considered, is the transition between school levels and school types, and potentially there are barriers to acceleration which must be overcome amongst and between these organisational structures. A school's conception of giftedness and talent can also impinge upon the use of acceleration. As Gross (1999b) states:

A principal who refuses to allow a highly gifted child access to one of many forms of accelerated progression, because the moderately gifted children in the school have not required this, is ignoring the fundamental principle of special education – that the level of a condition dictates the nature of the response (p.100).

Exceptional ability may not be evident unless appropriate challenge is provided. High ability in a subject such as mathematics may be masked by a corresponding lack of ability in recording or presentation skills, in verbalising or in working co-operatively (McClure, 2001). Acceleration, including early entrance to school, grade skipping and subject skipping has been used as a strategy to prevent and reverse underachievement with selected gifted students (Rimm & Lovance, 1992). Although factors such as the academic make-up of the class to which the child could be accelerated as well as the peer group environment are taken into account, the most important criteria relates to the academically challenging environment. There are cases when it might not be appropriate for a gifted underachieving student to be accelerated. For example, students who are unwilling to take risks, have major skill deficits, very difficult behavioural problems or the receiving teacher or classroom environment is unsuitable.

Highly gifted children do not suddenly emerge in late childhood. Gifted young children need to be considered for acceleration programmes. Lewis (2002) suggests that acceleration alone is not enough when providing for highly gifted pre-schoolers. The author suggests that assessment, flexible scheduling and counselling are key components critical for the success of any programme. "Acceleration is no guarantee that children will receive good teaching" (Lewis, 2002, p. 131). "Finding the best teacher for a child, one who epitomizes the art and science of teaching and who has good knowledge of content, may not be easy. It may be more important to find this best teacher than to simply push the child through more advanced material. Parents of highly gifted children often find that they must make educational decisions year by year" (Lewis, 2002, p. 131).

Research related to the effectiveness of acceleration. Given the often less-than-inconspicuous nature of acceleration, unlike enrichment-based provisions, some forms are much more readily identifiable. For example, early entrance to a level of schooling and grade-skipping are clearly seen as accelerative options. These options have been explored in the research primarily as ‘acceleration-only’ approaches, and from those, literature spanning several decades has developed. It should be noted, that these emanate primarily from America where teaching is reported as less differentiated than other countries (Freeman, 1998, 2001); however, the research context has not prevented New Zealand educators from making broad generalisations regarding the research-based evidence of the effectiveness of acceleration (Easter & Moltzen, 1997; McAlpine & Reid, 1987; Ministry of Education, 2000; Moltzen, 2000a; Townsend, 1996). It is also very important to understand that although the literature reports many generic research findings regarding the practice of acceleration, the type of provision and its use in combination with enrichment would impact upon the effectiveness of acceleration in practice.

Many national and international commentators report that the research regarding acceleration is overwhelmingly positive; however, these findings must be considered against the backdrop of the reported limitations of research examining acceleration:

- The results of research studies which measure effectiveness of different approaches are often over-generalised, with a tendency by researchers not to make any distinctions between different types of acceleration (Southern et al., 1993).
- Students unlikely to succeed in accelerated programmes select themselves out and so studies focus on successful students (Stanley & Benbow, 1986; Olszewski-Kubilius, 1995).
- Sample sizes are usually and inevitably small (Olszewski-Kubilius, 1995). Most studies have investigated groups of students, as opposed to individuals (Easter & Moltzen, 1997).
- Many of the studies of early entrance programmes have been conducted by the creators of the programmes; this may cause concerns about bias (Cramond, 1996).
- The majority of the research has focused on academic adjustment to the exclusion of social and emotional adjustment (Cornell et al., 1991).
- Students who drop out of acceleration programmes are critical subjects who are not included in research data because they are often unwilling or unavailable to participate in a study (Cornell et al., 1991).

Julian Stanley, one of the leading researchers and proponents of acceleration, developed the Study of Mathematically Precocious Youth (SMPY) in 1972. The original goal of SMPY was simply to identify students who before age 13 reason exceptionally well mathematically and to “help them find the special, supplemental, accelerative opportunities they sorely need in order to move ahead faster and better in mathematics and related subjects” (Stanley, 1991, p36). Many students enrolled in SMPY because “they were starved for mathematics at the proper pace and level and rejoiced in the opportunity to take it straight rather than being ‘enriched’ with mathematical puzzles, social studies discussions, trips to museums, critical thinking training not closely tied to mathematics” (Stanley, 1991, p. 37).

Since the early 1970s, this programme has expanded to include verbal and scientific reasoning abilities in the assessment and a variety of programme opportunities. Lupkowski-Shoplak et al. (2003) report that the programme serves over 300,000 students in the United States, Australia, Ireland, and Canada. This is one of the most widely cited programmes of acceleration. It includes a fifty-year longitudinal study of over 5,000 mathematically and/or verbally gifted students, and in addition, a voluminous amount of other research studies conducted by other university-based programmes. Hence, whilst the studies reported make reference to ‘SMPY students’ this does not refer to a single study of the effects of acceleration upon a single group of students. Despite the diversity of research studies conducted,

Swiatek (2002) concludes that the SMPY studies “clearly show that students who choose to accelerate do not suffer academically as a result of this decision, but that they gain speed in their educational provision” (p. 143).

Many studies have shown support for the academic benefits of acceleration (see for example Brody & Benbow, 1987; Gross, 1992; Kulik & Kulik, 1991, 1992; Southern & Jones, 1991; Swiatek, 2002; Van Tassel-Baska, 1992a). The Kulik and Kulik meta-analysis of accelerated classes is one such study (1992). This research examined 23 studies in which achievement of students in accelerated classes was compared to achievement of students in non-accelerated classes. In every study, the gifted students in the accelerated classes outperformed their peers in non-accelerated classes; however, it is important to note that these studies reported the results for groups of students, as opposed to individuals. The effect size was significant, with accelerated students achieving approximately one standard deviation higher than their same-age non-accelerated peers. As with Kulik and Kulik’s (1992) findings regarding enriched classes, it is unclear the exact nature of the accelerated provisions examined.

One of the concerns expressed in the literature is that students who are accelerated will have gaps in the development of basic skills (Southern & Jones, 1991). The accelerated students studied by SMPY do not support the belief that acceleration will lead to gaps or weaknesses (Swiatek, 2002). In fact, their strong performance at academic levels attests to their understanding of previous material (Swiatek & Benbow, 1991). Students who were accelerated in mathematics retained enthusiasm for their subject and indicated plans to major in mathematics or science (Kolitch & Brody, 1992).

Recommendations from Vialle et al.’s (2001) study was that accelerated students should be placed with the more talented students in the grade so that the pace of work was more appropriate, and secondly, that the teachers should use a problem-based, student-centred approach rather than a teacher-centred approach. Students prefer assignments that give them choice, more enrichment, essentially a qualitatively different curriculum to match their interests and learning styles. Mathematically gifted females in Gavin and Reis’s (2003) study also report the need for a learning environment that encourages creative thinking, risk taking, alternative assessments, and choice whenever possible to maximize student learning and interest.

One of the objections put forward by critics of acceleration is that it places unrealistic demands on students, reducing the amount of time for social activities and other extra-curricula activities (Southern & Jones, 1991). The research findings suggest that students who are accelerated do not suffer any long-term social or emotional consequences as a result of this experience (Southern & Jones, 1991; Van Tassel-Baska 1992a; Vialle et al., 2001). The students in Vialle et al.’s (2001) study reported increased feelings of fulfilment and self-confidence as a result of acceleration. Each of the students reported that they were happier socially and emotionally after their acceleration. They also commented on the high expectations placed on them in their accelerated class with most feeling that the experience gave them more confidence in their own abilities and that this related to their academic abilities. Acceleration appeared to have little or no effect on students’ attitudes toward school, participation in school activities, popularity, or adjustment (Kulik & Kulik, 1992).

Hoekman, McCormick and Gross (1999) examined the effectiveness of a variety of accelerated educational interventions in terms of self-reported satisfaction of gifted students’ affective and motivational needs. They concluded that if students are intrinsically motivated they are more likely to function effectively in school, with higher achievement, better perceptions of competence and lower academic anxiety. Conversely, Freeman (2001) reported that some accelerated students suffer socially and emotionally as a result of acceleration. In her study, she found that students of similar academic ability who were not accelerated were more involved in the non-academic aspects of schooling and seemed happier, in comparison to those who were accelerated. She states that for some highly gifted accelerates, the “normal growing-up problems had been exacerbated by being accelerated in school” (p. 188).

The findings regarding self-esteem are less clear-cut. In some studies self-esteem scores are slightly lower among accelerated students (Swiatek & Benbow, 1991) but the difference in this area is

relatively small. Stanley and Benbow (1986) found that participants in SMPY had enhanced feelings of self-worth and accomplishment, reduced egotism and arrogance and increased zest for learning and life and a better attitude toward education and other activities. Conversely, Gross (1992) reports that in her studies, the majority of exceptionally gifted students retained in regular classrooms, experience difficulty in establishing positive social relationships with their classmates. Some of these students have extremely low levels of self esteem. In contrast those who had been accelerated:

...are able to work and socialize with other children who share, or can at least empathize with, their interests, their delight in intellectual inquiry, and their ways of viewing the world. These children are confident in their relationships with classmates. They are enjoying the social pleasures of childhood while, at the same time, experiencing the intellectual satisfaction of challenging academic work (Gross, 1992, p. 97).

In cases of grade skipping physical maturation may influence a child's self-confidence (Schiever & Maker, 2003).

Gifted students may experience an inordinate amount of stress (Brown, 1993). This may come from outsiders where an expectation is placed on them to excel in all areas. Gifted and talented students can present a unique set of problems; this is when counsellors and mentors can play a critical role in helping develop skills that enable them to work towards their own solutions. Supportive adults and peers are an important factor in the emotional well being of accelerates (Noble, Robinson, & Gunderson, 1993; Vialle et al., 2001). Gifted students should have access to an understanding adult to investigate career goals, discuss personal problems and air issues of importance (Lewis, 2002). Adults and teachers can help students accept their own abilities; like-minded peers make them feel less isolated in their academic pursuits. Inclusion in accelerated programmes does not negatively affect students' friendship bases, students report that they are more likely to mix with others of similar ability and interests (Anthony, Rawlins, Riley, & Winsley, 2002). Olszewski-Kubilius (1995) found that accelerated students initially formed friendships with other accelerated students but later their friendship circle widened to include both same age and older non-accelerated students.

Findings from the studies of SMPY students do not support concern that accelerated students may work too hard and experience 'burn out' (Swiatek, 2002). The accelerates in the SMPY studies did not appear to slow their college education, take time off before pursuing graduate studies or plan to curtail their educational pursuits (Swiatek & Benbow, 1991). Accelerated students as a group are involved in about the same number of extracurricular activities as non-accelerated students (Swiatek & Benbow, 1991). For SMPY students, acceleration did not affect social integrations or self-acceptance and identity and it also did not relate to social and emotional difficulties (Richardson & Benbow, 1990). The 247 mathematically gifted students in Parker's (1996) study were found to be superior on emotional adjustment when compared to their peers. Parents' concerns that intellectual excellence will predispose their gifted children towards adjustment problems are not well founded.

Enrichment and Acceleration: A Merged Approach

As the literature review demonstrates, there are potential advantages and disadvantages of both enrichment and acceleration. Examination of the research literature reveals that when carefully planned and systematically individualised, acceleration contributes to academic achievement; there are no identifiable negative effects on social or emotional development. However, much of the research cited has been generalised, paying little heed to the different administrative or classroom-based approaches to acceleration. It seems that the most important factor related to the effectiveness of acceleration is recognition that it is not appropriate for all students, but when carefully considered it is appropriate for some. On the other hand, the research also shows support for enrichment, although this is mainly descriptive in nature and rather limited due to the inherent difficulties in generalising its effectiveness across the array of provisions. Enrichment is also recognised by many educators as appropriate for all children, and herein lies a danger for gifted and talented students for whom enrichment may just become 'more of the same,' albeit with a bit more 'fluff.'

Perhaps in the historical debate over enrichment and acceleration, a false dichotomy between the two approaches has developed. As Daurio (1979) stated, “Confusion over definitions of enrichment and acceleration often blinds educators to the communality of both interventions, that is the desire to improve the quality of education for bright children and adolescents” (p.13). This seems to have hindered collective understandings of each approach, and created an unfortunate situation whereby the two are seen as antithetical (Southern et al., 1993). As Southern et al. (1993) state, “... even that they could be set in opposition is naïve” (p. 400). They clearly overlap in both theory and practice: acceleration creates enrichment and enrichment is derived from acceleration (Passow, 1996). In this sense, Passow (1996) conceptualised ‘acceleration vis-à-vis-enrichment.’

Therefore, it is not surprising that the Ministry of Education (2000) recommends these approaches be used in tandem. In the Ministry of Education (2002) principles, the terms pace, depth, and breadth are used – and these are code, so to speak, for a combined approach of enrichment and acceleration. “Combining or integrating enrichment and acceleration for gifted students is not a radical nor revolutionary idea” (Schiever & Maker, 2003, p. 167). Schiever and Maker (2003) used the concept of catastrophe theory to support a case for the necessity for including both acceleration and enrichment in curricula for gifted and talented students. The framework focuses on three critical factors: content, process, and product and how they must be both accelerated and enriched.

Any provisions which are labelled as *either* enrichment or acceleration must be qualitatively differentiated. As Southern et al. (1993) point out, simply picking up the pace by offering an accelerated programme of academic monotony or demands for basic facts and skills, with no room for depth and breadth, would be nonsensical. At the same time, an enriched programme which did not allow students to move at a quickened pace, rapidly acquiring and using their knowledge and skills, would most likely be considered trivial, even boring. Therefore, the key elements of each approach must be combined, ensuring a tempo, depth, and breadth matched to the individual learning, social and emotional needs, strengths, and interests of gifted and talented students. Sisk (1979) warned of the dangers of enrichment alone as well as the dangers of inadequately planned and unbridled acceleration. “Where acceleration and enrichment are concerned, the answer to programming for gifted and talented clearly is not an either/or proposition” (p. 237).

Using the two approaches in tandem requires decision-making for individual students. Should educators accelerate first and then enrich? Or enrich and then accelerate? Van Tassel-Baska (2000) believes that since acceleration is based upon matching instruction to cognitive needs, then it should be the first step, serving as a platform for enrichment. However, the Excellence in Schools (2001) guidelines in the United Kingdom recommend enrichment as a first option, followed by acceleration. Passow (1996) recommended that the decision to use enrichment and acceleration as complementary approaches should be made based upon answering two questions in relation to individual students and the curriculum:

1. When is it more appropriate to alter the tempo or pace of instruction?
2. When is it more appropriate to alter the breadth and depth of experience?

Chessman (2003) also raises the importance of teacher expertise and time in combining enrichment and acceleration.

The issues raised many years ago by Hollingworth (1886-1939), a founder in the field of gifted education, are the same issues we continue to debate today: *How do we identify the gifted? Should they be taught in the regular classroom? Should they be accelerated and/or enriched?* (Klein, 2000). Sisk (1979) answers with:

Optimum education for the gifted and talented should blend enrichment and acceleration for an emphasis on excellence in education. Perhaps a new word such as ‘exceleration’ needs to be coined. A rapprochement between acceleration and enrichment may well be the solution (p. 237).

Both enrichment and acceleration can help meet the needs of gifted and talented students who should be exposed to more complex and abstract concepts through enrichment, as well as proceed at a pace that is more rapid than the average learner. Therefore, New Zealand educators need to consider the complementary nature of the two and the individualised needs of gifted and talented students, in order to ensure that the educational experiences, across a continuum of provisions, are qualitatively differentiated, enriched, and accelerated. In doing so, educators in this country might avoid the debate in the United States which Callahan (2001a) described as needlessly recurring and impeding progress.

CURRICULUM DEVELOPMENT AND MODELS

Borland (1997b) states that of

...all of the other issues that occupy much of our time – issues associated with identification and assessment, with the virtues and liabilities of pull-out programs, self-contained classes and the like – are derivative of and attendant upon the issue of curriculum (p. 1).

His statement is posited on the belief that successful, long-term educational programmes for gifted and talented students require well-planned, comprehensive, and coherent frameworks of differentiated goals and objectives. Curriculum is defined most simply as, “a set of planned experiences for a targeted population” (Van Tassel-Baska, 1994, p. xvi) and these experiences broadly contain all the elements of a student’s education. It is a coherent structure with defined goals and purposes, attainable outcomes and a prescribed time frame for learning (Van Tassel-Baska, 1992b). As well as being coherent in nature, a curriculum should also be comprehensive. These two components, being coherent and comprehensive, are achieved through the development of a scope and sequence. Additionally, to meet the curriculum goals and objectives, units of instruction should be developed. As Van Tassel-Baska states, “Curriculum experiences for gifted learners need to be carefully planned, written down, and implemented in order to maximise their potential effect” (1988, p. xiv).

If curriculum experiences are not carefully planned and assessed, there is a risk of providing indefensible, unsustainable, inappropriate, and fragmented education for gifted and talented students (Ministry of Education, 2000). “Planning curriculum also means that gifted and talented students’ needs aren’t accidentally met but are consciously addressed” (Ministry of Education, 2000, p. 46). Furthermore, without a planned, written, comprehensive, and coherent set of goals and objectives, any provision made for exceptional students, yet masquerading itself as curriculum, is vulnerable to being labelled as trivial (Borland, 1997b).

Curriculum for gifted and talented students should, on the Ministry of Education’s (2000) recommendation, consider cognitive, social, cultural, physical, and emotional needs. It should also be challenging, linked to the curriculum framework, substantive, and assessable (Van Tassel-Baska, 1992b). To establish that baseline of information, the New Zealand Curriculum Framework (Ministry of Education, 1993) must be considered in relation to the needs of gifted and talented students. The relationship between the basic or core curriculum and the interests, qualities, and abilities of gifted and talented students needs examination, for curriculum should have as its purpose a closer alignment between individual learners and the teaching and learning activities in which they are engaged. Researchers in the United States report that the gap between most curricula and the needs of gifted and talented students is widening and as the crevice increases, so too do the special needs of gifted students (Purcell, Burns, Tomlinson, Imbeau, & Martin, 2002). Finally, and perhaps most importantly, there is a belief that “all learners should be provided curriculum opportunities that allow them to attain optimum levels of learning” (Van Tassel-Baska, 1997, p. 126).

The New Zealand Curriculum Framework

The belief, that all learners should have opportunities for maximum growth and development through an education matched to their individual needs, is espoused in New Zealand and ‘delivered’ via the *New Zealand Curriculum Framework* (Ministry of Education, 1993). The curriculum document states:

The New Zealand Curriculum recognises that all students should have the opportunity to undertake study in essential areas of learning and to develop essential skills. Such learning will enable them to develop their potential, to continue learning throughout life, and to participate effectively and productively in New Zealand's democratic society and in a competitive world economy (1993, p. 3).

The aims of the Curriculum are to raise achievement levels for all students and to ensure quality teaching and learning of world-class standard through the provision of a coherent framework for learning and assessment. The Curriculum is designed to offer all students a broad and balanced coherent education which is dictated in response to their individual learning needs. The Curriculum states that it will "...recognise, respect, and respond to the educational needs, experiences, interests, and values of all students ... students with different *abilities* and disabilities ..." (italics added, 1993, p. 7).

The Curriculum incorporates principles, which give direction to all teaching and learning; essential skills; attitudes and values; and essential learning areas. These are each interrelated and cumulate in national curriculum statements of "clear learning outcomes against which students' achievement can be assessed" (1993, p. 5). The essential skills are those of communication, numeracy, information, problem-solving, self-management and competitive, social and co-operative, physical, and work and study. These skills are to be developed in the context of the essential learning areas: Health and Physical Well-being; The Arts; Social Studies; Technology; Science; Mathematics; and Language and Languages. Gifted and talented students are acknowledged, albeit implicitly, in the explanation of the essential skills: "The curriculum will challenge all students to succeed to the best of their *ability*. Individual students will develop the essential skills to *different degrees* and to *different rates*" (italics added, 1993, p. 17).

Gifted and talented students are acknowledged in the national curriculum statements for each of the essential learning areas. The national curriculum statements spell out the knowledge, understanding, skills, attitudes, and values by specifying achievement objectives in a number of levels (usually 8) to indicate how students may progress through schooling from Years 1 to 13. These statements are outlined by the Ministry of Education on the *Te Kete Ipurangi The Online Learning Centre* gifted and talented community, and each one contains direct reference, or in some cases, implicit allusions, to meeting the needs of gifted and talented students.

Two recent international reviews of the New Zealand Curriculum Framework, commissioned by the Ministry of Education as part of the Curriculum Stocktake, highlighted the inconsistencies in the curriculum statements in relation to gifted and talented students – and even these findings are not in agreement. Le Métais (2002) reported that specific examples of appropriate strategies are lacking in the Health and Physical Education, Science, Social Studies, and Technology statements. Her review concluded that the 'extension' activities in the English curriculum allows for gifted and talented students to readily progress, but fails to systematically include examples of literary texts appropriate for gifted students (nor any other students). Le Métais highly praised the Development Band in the Mathematics statement as an 'outstanding exception' to other curriculum documents in its coherence and range of suggested teaching strategies. She concluded that these strategies could be equally applied to all learning areas. The Science statement was considered appropriate for gifted students, but she raises concerns that the call for active and collaborative learning specific to gifted and talented students may undermine their use with all students.

In Ferguson's (2002) review, she recommended that strategies specific to meeting the needs of gifted and talented students be incorporated into the Language and Languages and Science curriculum statements. However, in relation to the Science curriculum, Ferguson reported that "the clear progression in achievement objectives ... facilitates the development of multi-level learning experiences so that students with a range of abilities can be challenged and achieve at different levels of cognition" (no page given). She recommended that specific examples of how teachers could differentiate for students 'outside the average' be developed. She felt that the Mathematics curriculum

is not explicit in its mention of gifted and talented students, but that they were catered for somewhat through the Development Band activities. The Ministry of Education (1992), however, states:

The intention of the development band is to encourage teachers to offer broader, richer, and more challenging mathematical experiences to faster students. Work from the development band should allow better students to investigate whole new topics which would not otherwise be studied and to work at a higher conceptual level. Talented students should have their interest in mathematical ideas further stimulated and their understanding of the nature of mathematics deepened (p.19).

Finally, Ferguson reported that the Health and Physical Education curriculum statement gives teachers useful advice about meeting student's individual needs, as does The Arts curriculum. The other curriculum statements were condemned by Ferguson for their lack of inclusiveness of gifted and talented students.

As Le Métails (2002) states, "The curriculum (in New Zealand or elsewhere), in itself, cannot secure effective practice, although it can support, stimulate or conversely inhibit it" (no page given). So what happens in the implementation of the curriculum statements? An analysis of the results of two recent studies which investigated teachers' experiences in its implementation shed some light upon this question in relation to gifted and talented students. McGee, Jones, Bishop, Cowie, Hill, Miller, Harlow, Oliver, Tiakiwai, and MacKenzie (2001), who conducted a Ministry of Education commissioned review of the implementation of the Mathematics and Technology curricula, concluded that teachers acknowledged the need to differentiate programmes for gifted and talented students but were faced with a lack of resources which inhibited their ability to do so. The teachers in this study explicitly felt that staffing numbers were insufficient. In another Ministry of Education commissioned review of the implementation of the English, Languages, Science, and Social Studies curricula, McGee, Jones, Cowie, Hill, Miller, Harlow, and MacKenzie (2003) concluded the following:

- Teachers felt that the English curriculum recognised the need for gifted and talented students to be challenged and in doing so made provision for 'adequate and appropriate' educational opportunities. The teachers reported that withdrawal programmes and streaming had been useful.
- The teachers reported barriers in the delivery of the Science curriculum: limited time; class size; resources; and space.
- Less than 20% of teachers felt that there were resource issues which impeded their effectiveness in delivering the Social Studies curriculum to gifted and talented students.

Both Ferguson (2002) and Le Métails (2002) called for more specific strategies appropriate for gifted and talented students for the implementation of the curriculum. Ferguson (2002) commended the inclusive principles which underlie the curriculum, but questioned how easily those could be transferred into practice. She states, "The achievement of such principles as schools actually implement this aspect of the curriculum is very difficult and requires significant advice and assistance" (no page given). Le Métails (2002) summed up the curriculum as 'minimum standards for all' which would restrict student's pursuits of excellence. She felt 'common curricula' would "... limit the opportunities (given or taken) to develop the gifted and talented ..." (no page given).

As the Ministry of Education states, "The statements are sufficiently broad and flexible enough to allow for local interpretation and elaboration. Such flexibility will empower schools and teachers to design programmes which are relevant to the learning needs of their students and communities" (1993, p. 23). However, this statement does raise concerns regarding the capabilities of schools to implement the curriculum in ways which are appropriate for meeting the individual needs of gifted learners. Whilst flexibility is indeed enabling, the onus remains upon individual schools to implement the New Zealand Curriculum Framework. This is illuminated in a statement made in the recent Curriculum

Stocktake Report to the Minister of Education – “National curriculum policy, therefore, can only promote or inhibit achievement, rather than directly influence it” (no page given).

As George (2003) states, in relation to the implementation of the National Curriculum in England:

Traditionally mainstream teachers, through no fault of their own, have not been very good at it (meeting the diverse and challenging needs of gifted and talented students). Large classes, heavy work loads and an inevitable concern for the needs of the less able have often meant that gifted and talented children are largely ignored, on the assumption that they'd cope anyway (p. vii).

Many factors will influence the implementation of the New Zealand Curriculum Framework for gifted and talented students. However, this review of the literature yielded no studies related specifically to its implementation for gifted and talented students, nor its effectiveness in meeting their cognitive and affective needs.

A study similar to one conducted in Britain by Koshy and Casey (1998) could be useful to New Zealand educators. Their study examined teachers' perceptions of the effectiveness of the National Curriculum introduced in 1989 to all state schools in England and Wales, and which is guided by four principles: breadth, balance, relevance, and differentiation. This review found that although the National Curriculum offered a framework which ensured 'entitlement to all students,' it was not particularly helpful in the identification of gifted and talented students, but by way of assessment only offered confirmation of 'what they already knew.' In regard to provisions for gifted and talented students, Koshy and Casey report that: "Differentiation has become a key word in curriculum planning, but it seems that the British teacher also needs support with curriculum planning in the context of higher ability pupils" (p. 260). As an outcome of their research, the Brunel Abel Children's Education centre is examining and developing ways to build upon the National Curriculum. Given the recent reviews of the curriculum, similar initiatives in New Zealand could prove beneficial.

Although in New Zealand the Curriculum Framework (Ministry of Education, 1993) guides all teaching and learning, curriculum models for designing programmes for gifted and talented students can be implemented in collaboration with it. In this sense, models specific to gifted and talented students which can serve as a framework for the development of programmes are recommended by the Ministry of Education (2000). These models have a number of distinguishing features. These include: a clear purpose; systematic guidelines for developing and designing specific learning experiences; transferability across disciplines and age levels, as well as school and programme structures; underlying assumptions regarding the nature and nurturance of giftedness and talent; and finally, a body of research surrounding its development, implementation, and effectiveness (Maker & Nielson, 1995; Van Tassel-Baska & Brown, 2001). Other criteria to be considered in the selection and implementation of a model include the ease of translation from theory to practice, the quality and availability of supporting curriculum resources, teacher receptivity leading to teacher-developed curricula, sustainability and inclusion of professional development support (Van Tassel-Baska & Brown, 2001). Each model's comprehensiveness, flexibility or adaptability, practicality, and validity (Maker & Nielson, 1995) are also important factors.

Purcell et al. (2002) have devised a rubric for analysing and evaluating curricular units for the National Association of Gifted Children (US). The key features of the rubric outline the components of an effective curricular approach: clarity of objectives; nature of objectives; evaluation components; learning activities; instructional strategies; assignments and student products; resources; alignment among curricular components; nature of differentiation; opportunities for talent development; evidence of effectiveness; and ease of use by other educators. The writers indicate that the rubric can be used for several purposes, including the process of adopting or adapting a curriculum model.

The Ministry of Education (2000) recommends several suitable curriculum models for New Zealand schools, stating that "The goal in selecting and adapting models is to create educational programmes that enhance the strengths and abilities of gifted and talented students and that reflect the school's

definition and identification procedures” (p. 47). Furthermore, it is suggested that schools may adopt a model or take a more ‘eclectic’ approach by adapting several models (Ministry of Education, 2000). Boswell (personal communication, November 27, 2003) reports that some gifted and talented advisers delivering professional development to schools found that curriculum models were not being used as frameworks for programmes. They therefore introduced a range of the overseas models so that schools could adapt them. Through modifying an existing model or creating a new one the schools have developed schoolwide, differentiated learning models suited to their needs.

Three models, which have been used in New Zealand schools, are described: Bloom’s Taxonomy (Bloom, 1956); the Enrichment Triad Model (Renzulli, 1977); and the Autonomous Learner Model (Betts, 1985). Riley (1996; in press b) offers descriptive information about at least seven more suitable curricular frameworks; however, it is beyond the scope of this review of the literature to give in-depth coverage of these models.

One model especially designed for senior secondary school students is not mentioned in the Ministry of Education handbook (2000) – The International Baccalaureate (IB) Diploma Program. Although this is not a ‘gifted programme’ per se the school culture it creates is conducive to gifted and talented learners (Tookey, 1999/00). This internationally developed curriculum takes elements from the educational systems of many countries and intertwines these with the knowledge, critical thinking skills, and international awareness needed for living in a global community. The curriculum has five major areas of study: literature; a world language; the social sciences and humanities; the experimental sciences; and humanities. Students who complete this comprehensive, two-year curriculum are admitted into universities in 115 countries, including some which are considered highly selective. The International Baccalaureate Organization also offers a Primary Years Program and Middle Years Program, both of which focus upon the inter-relatedness of curricular areas.

Currently, over 1,290 schools in 115 countries utilise this programme, and in New Zealand approximately six schools do so (3 private, 2 integrated, 1 state; 5 diploma, 1 primary) (International Baccalaureate Organization, 2003). The International Baccalaureate Organization provides schools with:

- Detailed curriculum guidelines for each programme and subject area;
- Teacher training workshops;
- Online access to 3,000 education resources, subject area experts, and discussion sessions with teachers at IB schools throughout the world;
- External assessment of Diploma Programme students’ work; and
- Procedures for school-based (internal) assessment of student work.

In New Zealand, the *REACH* model, a model for teaching and ‘working with’ gifted and talented students, has been developed by Cathcart (1994). The name *REACH* stands for ‘Responding to Exceptionally Able Children’ and is described in the book, *They’re Not Bringing My Brain Out* (Cathcart, 1994). The model is premised on the belief that gifted and talented students should have an education based upon their specific learning needs, and within an invitational learning environment. The teaching model elaborates upon four key concepts:

1. Generating a high level of interest in learning;
2. Developing the ‘tools of thought’;
3. Developing intellectual and creative potential; and
4. Fostering emotional, social, and ethical development (Cathcart, 1994, p. 39).

The model reflects many of the principles of qualitative differentiation, and the supporting book provides a planning framework and activities for its implementation. Riley (2000b) describes it as a planning model.

REACH was designed as a ‘teaching model’ for gifted students. It has been adopted by the Australian International School in Jakarta, Indonesia in the development of an ‘enrichment and extension programme’ (AIS, 2003). It is also utilised by the One Day School (Brown, 2001). There is some evidence that indicates the model may be interpreted by some schools as a curriculum model (Tauranga Intermediate School, 2003). The review of literature yielded descriptive reports of the model, but as yet, no research related to its effectiveness in enhancing affective and cognitive outcomes for gifted and talented students has been reported.

Outcomes for Students

Curriculum models ascribe to an enriched *or* accelerated view of instructional delivery, and Van Tassel-Baska (2000) reports that there is a clear preference for enrichment-oriented curricular approaches which enjoy “widespread popularity and are used in schools extensively” (p. 355). Paradoxically, she indicates that the most successful models, in relation to academic outcomes for students, are those developed from the principles of acceleration. She calls for further studies of curriculum intervention in order for educators to better understand the effectiveness of different models in enhancing cognitive and affective outcomes for gifted students. For the purposes of this review of the literature, the research related to curriculum models which has been conducted is reported. However, despite the many models available for curriculum development and the Ministry of Education’s (2000) recommendation that these be utilised, within New Zealand there is a paucity of research related to curriculum for the gifted and its effects upon affective, cognitive and cultural development.

An international perspective. The two most researched models for curriculum development are the Talent Identification Model developed by Stanley (1991) and the Schoolwide Enrichment Model (1985) developed by Renzulli and Reis. Other models which have a research base to support positive outcomes for gifted students are the Purdue Three-Stage Enrichment Model developed by Feldhusen and Kolloff (1978) and the Integrated Curriculum Model developed by Van Tassel-Baska (1986b). The Autonomous Learner Model, developed by Betts (1985) is positively viewed by educators in the United States and other countries, including New Zealand, and it remains one of the most widely recognised models (Van Tassel-Baska & Brown, 2001); however, to date there is no research evidence to support the effectiveness of this model (Van Tassel-Baska, 2000; Van Tassel-Baska & Brown, 2001).

The Talent Identification Model is an outgrowth of The Study of Mathematically Precocious Youth and the research regarding its effectiveness has primarily focused upon the benefits of acceleration for gifted students. These are reported in the previous section on acceleration in this literature review. The model offers a smorgasbord of accelerative opportunities for gifted and talented students, including early entry, dual enrolment, special classes, curriculum compression, and grade skipping. Lupkowski-Shoplik et al. (2003) report that the model provides gifted and talented students an appropriate education, and as a result, the research findings of over thirty years have been overwhelmingly positive in light of academic achievement. As they state, “when differences are found, they favour accelerates over non-accelerates irrespective of the mode of acceleration” (p. 214). Affective gains are also reported: students have viewed their experiences positively, especially the recognition of their abilities and opportunity to have contact with intellectual peers (Lupkowski-Shoplik et al., 2003). Within New Zealand, acceleration has not been viewed in the positive light of enrichment (Ministry of Education, 2000); however, the research supporting this model is overwhelmingly convincing (Van Tassel-Baska, 2000).

The Schoolwide Enrichment Model (Renzulli & Reis, 1985) is recognised as the “single most popular programming model and for good reasons” (Davis & Rimm, 1998, p. 150). It developed from practice and research related to the Enrichment Triad Model (Renzulli, 1977). Research surrounding the continuing development of the Schoolwide Enrichment Model is generally positive, with gains shown

in teacher attitudes, student productivity and suitability for the identification and servicing of typically underserved students, that is, underachievers and those with learning disabilities (Van Tassel-Baska & Brown, 2001). These studies, and others, provide educators with a platform of practical know-how from which the model can be implemented in a wide variety of settings and age groups (Renzulli & Reis, 2002). Renzulli and Reis (2003) summarise the research regarding the effectiveness of this model. In relation to cognitive and affective outcomes, they report the following:

- Students who participated in Type III small group or independent projects had increased self-efficacy.
- Creative production increased for students involved in an enrichment programme, with identified students producing over twice as many projects as those in a comparison group. These projects also demonstrated diversity and sophistication.
- Students who received Type II process skill training were 64% more likely to conduct Type III small group or independent projects than those in a comparison group.
- Gifted students who participated in programmes using the Schoolwide Enrichment Model felt positive acceptance by their peers.

Research has also been conducted which demonstrates enhanced self-concept for gifted students with learning disabilities and the reversal of underachievement (Renzulli & Reis, 2003). Small scale longitudinal studies have demonstrated that though involvement in Type III independent and small group activities did not impact greatly upon students' career goals and aspiration, they did act as a training catalyst for later productivity (Van Tassel-Baska, 2000).

Research related to the Purdue Three-Stage Enrichment Model developed by Feldhusen and Kolloff (1978) demonstrates gains in creative thinking and self-concept (Van Tassel-Baska & Brown, 2001). Moon, Feldhusen, and Dillon (1994) conducted a study to investigate the long-term effects of a pull-out programme which used the Purdue Three-Stage Model as a framework. Gifted and talented students perceived benefits by way of enhanced creative and critical-thinking skills, problem solving skills, and motivation to pursue their own goals, and, furthermore, that these attitudes and skills were transferable to other learning situations.

The Integrated Curriculum Model, developed by Van Tassel-Baska (1986b), has been implemented via the creation of instructional units. The research supporting the effectiveness of these curriculum units is strong, with reported gains in science and literacy process skills and student motivational response (Van Tassel-Baska & Brown, 2001).

A national perspective. Rawlinson (1996) reports findings from a New Zealand study which utilised elements of four enrichment models to develop a within-class programme for primary-aged gifted and talented students. These models were Renzulli's Enrichment Triad, Treffinger's Model for Increasing Self-Direction, Betts' Autonomous Learner Model, and Feldhusen's Three Stage Enrichment Model. Her results indicated that all children who participated showed significant gains in their academic self-concept. Additionally, females and students of Pacific Island descent demonstrated gains in both academic self-concept and behaviours associated with giftedness and talent.

Potential Strengths

- Utilisation of a curriculum model assists in the development of measurable programme goals and objectives, two key ingredients to measuring programme effectiveness (Reid, 1996).
- Professional development and teaching resources support many curriculum models, some of which are readily available in New Zealand (Riley, in press b).
- Utilisation of a curriculum model better ensures 'tightly knit,' rather than fragmented or piecemeal, provisions for gifted students (Brighton, 2001).

- The establishment of learning goals and objectives allows for better alignment of assessment so that pre- and post-instructional gains can be measured (Purcell et al., 2002).
- Models can support the development of differentiated learning activities (Purcell et al., 2002).
- Planning, writing down, and implementing curricular goals and objectives potentially maximises their positive effects (Van Tassel-Baska, 2000).
- “When an organized, thoughtful curriculum plan is in place and when that curriculum is supported by an articulate, informed educational leadership, the probability of capturing the interest and energy of our ablest young thinkers is markedly enhanced” (Van Tassel-Baska, 2000, p. 345).

Potential Weaknesses

- There may be hidden and real costs associated with professional development and support, as well as materials and resources (Riley, in press b).
- If a model is ‘purely’ enrichment-oriented or acceleration-oriented, it will not be effective in the desired merging of the two approaches as recommended by the Ministry of Education (2000).
- Models may be difficult to implement due to the complexity of total school reorganisation, the need for specialist teachers and a schoolwide commitment (Ellis, 2000).
- The fidelity of implementing some of the models developed overseas could prove questionable given the lack of professional development available to New Zealand educators and the educational context for which they have been designed (Riley, in press b).
- Some models may lack the ‘balance’ necessary for meeting not only cognitive needs of gifted students, but also social/emotional and cultural needs (Van Tassel-Baska, 2000).
- It should be noted that most of the research related to the effectiveness of curriculum models has been conducted by the developers of the models and/or their graduate students.

Recommendations

- Educators should evaluate the curriculum model(s) in relation to their school’s context (Purcell et al., 2002).
- Educators may adapt or adopt a variety of models, taking an eclectic approach to curriculum development and implementation (Rawlinson, 1996; Riley, 1996).
- The implementation of models specific to gifted and talented education should be used within the context set by the New Zealand Curriculum Framework, ensuring that the principles of gifted education are adhered to.

ABILITY GROUPING

One of the most controversial issues in education is ability grouping, described by Winner (1996a) as a “heated controversy” in which:

Each side fervently believes it is in the right, and that the other is morally wrong. Each side believes that it cares about the interests of all children, while the other side cares only about the interests of some (p. 240).

The debate centres around whether or not students should be homogeneously grouped (by ability) or heterogeneously grouped (mixed ability). Van Tassel-Baska (1992a, p. 68) describes the ability grouping debate as a “lightning rod issue,” and according to Shields (2002), it is one which has plagued educators in the United States since 1867 when ability grouping was first implemented. In the

United States, the issues over ability grouping were most recently discussed in the literature in the early 1990s, with the advent of the Regular Education Initiatives, or inclusive education movement. Rogers (2002a) expressed the view that the elimination of ability grouping in the United States “hit the gifted education movement very hard” (p. 103), with the debate diverting a much-needed focus from meeting the needs of gifted and talented students to a philosophical argument of emotional heat and intensity. As Callahan (2001a) reports, these movements became “arguments for dismantling existing programs for gifted students” (p. 150).

Although this review of the literature yielded minimal New Zealand-based references regarding this issue, the egalitarian principles and inclusive education practices underlying the education system could spark a similar debate, especially given the current initiatives in gifted and talented education. Gross and Sleep (2001) stated in a recent review of the literature for Australia, a country which also has not yet reached the level of the ability grouping debate undertaken by American educators; “it is vital that Australia avoids a similar erosion of the few exemplary grouping programs” (no page given). If the purpose in education is to create opportunities for achievement and realisation of potential for *all* New Zealand students, then the rationale behind gifted education initiatives is to better serve a minority of students, who have perhaps been underserved in New Zealand. A tension for both practitioners and researchers in New Zealand could arise between achievement of the goals of equity and excellence as we strive towards better meeting the needs of our gifted and talented students, and so, it is reasonable to view the overseas debate – there is no need to reinvent the wheel, or re-argue the case!

The Heart of the Debate

Basically, the arguments for and against ability grouping centre around concerns regarding the most appropriate ways of meeting the academic, social, and emotional needs of *all* students versus those of gifted and talented students. The debate is largely philosophical, and the opinions contradictory (Goldring, 1990). It is also grounded, on both sides, in arguments of morality and justice, equality and democracy (Shields, 2002).

The controversy surrounding ability grouping is fuelled by the many different uses and interpretations of the term itself. As Kulik (2003) states, “The term ability grouping means different things to different people” (p. 269). For example, Gamoran (1992) describes ability grouping as grouping for some subjects based on school performance. Van Tassel-Baska (1992a) defines the term as an “organizational mechanism by which students at proximate ability levels within a school curriculum are put together for instruction” (p. 68). Kulik (2003) defines ability grouping in a broad sense, applying it to any programme which assigns students to groups or classes based upon ability. Kulik (1991) contends that ability grouping “comes in a variety of forms and is done for a variety of reasons” (p. 67). Thus, ability grouping may be within-class or between-classes, full-time or part-time. Based upon this broad interpretation of ability grouping, one can conclude that *all* provisions for gifted and talented students are a form of homogeneous ability grouping. As such, ability grouping becomes a ‘blanket term’ covering the continuum of provisions for gifted and talented students.

The debate over ability grouping stems in part from these different interpretations of the same term; however, often there is also a confusion of terms, with ability grouping used interchangeably with tracking or streaming. The danger here is that any discussion of tracking or streaming can suddenly become one of ability grouping, with anti-tracking or streaming equated with anti-ability grouping (Fiedler, Lange, & Winebrenner, 2002). Oakes states, “... those terms are used very sloppily ... so I don’t find it very useful to distinguish between the two” (O’Neil, 1992, p. 18). However, in order to understand the controversy, from the perspective of educators in gifted and talented, the terms ability grouping and tracking or streaming must be clearly differentiated. Gamoran (1992) defines tracking or streaming as ‘programmatic divisions’ separating students for all subjects. Kulik (2003) describes tracking as a practice utilised at secondary level whereby students are placed in college preparatory, vocational, and general tracks. Tracking or streaming is a practice which is often viewed as rigid, with students placed in separate, inflexible groups, based upon their performance (Kulik, 2003); whereas, ability grouping “does not imply permanently locking students out of settings that are appropriately

challenging for them” (Fielder et al., 2002, p. 108). As Van Tassel-Baska (1992a) states ability grouping is not about allowing learners “to stagnate in age-grade lock-step classrooms” (p. 70).

As a result of the various meanings and interpretations of ability grouping, coupled with confusion over the differences between ability grouping and tracking or streaming, educators have tended to take either a ‘black’ or ‘white’ view of the appropriateness of ability grouping, with their feet firmly planted on one side of the fence or the other. Opponents of ability grouping tend to believe that its drawbacks outweigh any potential positive effects; proponents of ability grouping feel strongly that despite the pros and cons, to eliminate ability grouping is an injustice to gifted and talented students. It is important that educators understand both sides of the ability grouping controversy and these are briefly outlined below.

A Summary of the Arguments Against Ability Grouping

Kulik (2003), a proponent of ability grouping, states that those opposed to ability grouping generally view such practices as undemocratic forms of segregation which must be eliminated in the name of equality of opportunity. Slavin (1991) describes ability grouping as “anti-democratic” and “anti-egalitarian.” Raywid (1990) believes that in a democratic society resources should be allocated in an equal fashion, with those initiatives of most pressing need or resulting in the most enormous benefits worthy of expenditure. In an interview, Oakes contends that ability grouping creates a hierarchy in schools, resulting in a school culture in which students take on board the values associated with their placement in the top, bottom, or middle group (O’Neil, 1992). The flow-on effect of this hierarchy may lead to teacher competition to ‘teach the best,’ with more competent teachers gaining ‘the privilege’ to work with top-performing students (Gamoran, 1992). Some argue that gifted and talented students are already advantaged by their natural abilities and that they “will do well no matter where they are” (Slavin, 1991, p. 70).

Ability grouping is further described by opponents as ‘racist and classist,’ with under-representation of diverse cultures and lower socioeconomic groups (O’Neil, 1992). From a cultural perspective, Bevan-Brown (2000a) signals concerns regarding ability grouping and Māori students. She bases some of these on the international literature which signals the under-representation of students from minority cultures. However, she also highlights the situation whereby Māori gifted and talented secondary students are left with a dilemma of ‘either/or’ choices: being in a top-stream class *or* bilingual class. Bevan-Brown’s major issues with ability grouping are as an organisational strategy which creates forced choices for Māori students and the dangerous stereotyping and low expectations which may prevent Māori students from ever being identified and placed in the ‘top’ group. As she states, her bone of contention is with “... any scheduling, administrative procedure, teacher action or the like that results in a Māori student being disadvantaged because of their participation in cultural activities” (2000a, no page given).

Opponents of ability grouping often cite the negative effects upon students *other than* the gifted (Raywid, 1990). These include loss of academic leadership; inexperienced teachers; and low expectations of teachers which result in a ‘self-fulfilling prophecy’ for lower-ability students (Gamoran, 1992; O’Neil, 1992; Slavin, 1991). Writers describe inequality in outcomes for students, with high-ability students gaining more and low-ability students losing out (Gamoran, 1992), claiming that the law of averages indicates that these gains and losses would equate to ‘zero-effects’ and so overall student achievement is not enhanced (Gamoran, 1992). Unequal instruction is described, with a slower pace for lower ability students and less time on instruction due to interruptions and behaviour problems in low-ability groups (Gamoran, 1992; O’Neil, 1992). Oakes claims that in many schools in the United States, students with behavioural problems are most likely to be placed in the lowest ‘track’ (O’Neil, 1992). Furthermore, opponents to ability grouping often cite inequalities in the nature and number of learning experiences in critical thinking, problem solving, challenge, hands-on learning, and the like that gifted and talented students receive in like-ability instruction (Allan, 1991; O’Neil, 1992). As Raywid (1990) states, “... these are advantages which every child could gain from – not just the gifted” (p. 68).

In relation to gifted students themselves, opponents of ability grouping argue that, for example, gifted and talented students are seen as being able to help other children by teaching and setting an example. Winner (1996a), an advocate of ability grouping, believes this to be a strategy which is perceived by some as having academic benefits, by giving opportunities to consolidate their learning, and social benefits, by helping them interact with students of all levels of ability. She reports that opponents often argue that grouping students will result in arrogance and elitism amongst the gifted and talented students, and so, gifted and talented students are seen as needing opportunities to appreciate diversity within society, which mixed-ability grouping provides (Rogers, 2002a).

A Summary of the Arguments in Support of Ability Grouping

Proponents of ability grouping also argue points of equity, with Winner (1996a) stating that the elimination of ability grouping is “caving in to a simplistic egalitarian agenda” (p. 242). Rogers (2002a) believes that the elimination of ability grouping is not in fact democratic, but egalitarianism at its worse. Fiedler et al. (2002) argue that equality in education does not require all students having the same experiences, on the assumption that heterogeneous grouping often results in fewer opportunities for individualised, differentiated instruction. They state that a democratic position promises equal opportunity for the actualisation of potential, describing the inequity in denying gifted and talented students an appropriate education. Feldhusen and Moon (1992) believe that heterogeneity is inherently unjust in its potential to treat ‘unequals’ equally. Rogers (2002a) and Fiedler et al. (2002) describe another injustice, which might be called ‘The Ned Kelly Effect’: taking from the rich to give to the poor. These writers see little justice in eliminating opportunities at the expense of gifted and talented students for the benefit of all others.

To every concern raised by opponents of ability grouping, it seems advocates have a response. For example, in regards to under-representation of culturally diverse students and those from lower socio-economic groups, Winner (1996a) claims that elimination of ability grouping will have the most detrimental effects upon students of minority cultures and lower income families, because their parents have no options apart from what the public school system offers. Fiedler et al. (2002) point to problems with identification, rather than ability grouping, stating that “Eliminating ability grouping because of inequitable identification procedures is tantamount to throwing out the baby with the bath water” (p. 5). Educators of gifted and talented students readily recognise the potential negative, even inequitable, outcomes for other students, acknowledging the need to address these concerns (Rogers, 2002a).

The assumption that the presence of gifted students advantages all others is also questioned. Fiedler and her colleagues (2002) cite research which indicates that students model their behaviour on others of similar ability, as opposed to those of far greater ability. In fact, they raise concerns regarding the effects to self-perceived competence and capabilities of students of lower ability who are placed in heterogeneous groups with gifted and talented students. Allan (1991) supports this view, in fact, she questions the notion that lower ability students will look up to those with special abilities. As she states, “students gain most from watching someone of similar ability ‘cope’” (p. 64). Van Tassel-Baska (1992a) points out that the benefits for gifted and talented students of ‘serving those less fortunate’ are not clear. Feldhusen (1986) reports that when gifted and talented students are not present, other students get a chance to be the top performers – a new cream rises. Shore and Delcourt (1996) conclude, “there is emerging evidence that other children are not necessarily advantaged by the presence of gifted children in their classrooms nor disadvantaged by their absence” (p. 152).

Proponents of grouping by ability also point to negative effects upon gifted and talented students if grouping is abandoned. Winner (1996a) believes that elimination of ability groups will set a ‘lower’ standard – mediocrity – and this will have negative effects upon gifted students. Goldring (1990) feels that students not ability grouped risk rejection by peers in heterogeneous grouping situations, the development of behavioural problems and manifestation of underachievement. Fielder et al. (2002) raise concerns that gifted and talented students who are a ‘minority of one’ in a mixed-ability setting may feel odd, or even arrogant. They warn that by not ability grouping gifted and talented students an air of snobbery might be created, increasing the possibilities of elitism. Rogers (2002a) and Feldhusen

(1986) believe that if grouping is abandoned then a conceivable result could be ‘substantial declines’ in the levels of achievement and positive schooling attitudes of gifted students.

The final argument put forward by proponents of ability grouping relates to the body of research which supports this approach. As Van Tassel-Baska (1992a) states, “To suggest there is evidence to support the elimination of ability grouping gifted students is to ignore the existing body of research” (p. 70). Kulik (1991) raises concerns over the ‘blanket condemnation’ of ability grouping, based upon his view that research results related to this practice are often misinterpreted. He believes that the research findings are all too often ‘twisted’ to fit personal and political philosophies. Allan (1991) highlights another issue related to some of the research on ability grouping: the systematic omission of gifted and talented students and/or programmes designed for meeting their needs.

Although it is essential that each form of ability grouping be examined separately, there is a general response given by advocates of homogeneous ability grouping. Firstly, achievement levels for gifted and talented students are enhanced by some forms of ability grouping (Van Tassel-Baska, 1992a). Furthermore, Kulik and Kulik (1992) point out that there are clear and consistent academic benefits, especially for gifted students. They go on to report that students in low ability groups are not harmed academically, and in fact make academic gains. However, ability grouping that does not entail differentiated instruction, based upon students’ levels of readiness, does not result in these academic gains (Van Tassel-Baska, 1992a). Allan (1991) found no evidence of academic harm to any students as a result of ability grouping.

Secondly, Kulik and Kulik (1992) report that effects of ability grouping on self-concept are slightly positive for lower ability students and slightly negative for gifted and talented students; however, they believe this is simply the result of gifted students being less satisfied when taught with their intellectual peers. Fiedler et al. (2002) contend that in order to develop “a realistic appraisal of their own ability, students need to measure themselves with appropriate yardsticks” (p. 109). In regards to attitudes toward learning, Kulik and Kulik’s (1991, 1992) research also indicates that grouping by ability produces positive effects for all learners.

Kulik and Kulik (1992) state that schools “... would be harmed by the elimination of programs that tailor instruction to the aptitude, achievement, and interests of groups with special educational needs” (p. 76). This sentiment is echoed throughout the gifted education literature, as reported in this review.

Regardless of its shape or form, if ability grouping is to be effective for gifted and talented students, the following recommendations must be considered:

- Ability grouping should be viewed as a fundamental approach to providing for gifted and talented students, not simply an organisational framework. As a basic provision, grouping must include qualitatively differentiated instruction (Van Tassel-Baska, 1992a).
- Ability grouping should be flexible (Van Tassel-Baska, 1992a). Rigid, inflexible grouping should be eliminated (Gamoran, 1992).
- Ability grouping should be employed across all areas of the curriculum, giving gifted and talented students opportunities for interaction with like-minded peers (Van Tassel-Baska, 1992a).
- Grouping by ability should allow opportunities for both small group and independent learning (Van Tassel-Baska, 1992a).

Ability Grouping Across the Continuum of Provisions

One of the purposes in this literature review is to examine the effectiveness of provisions in relation to affective and cognitive outcomes for *gifted and talented students*. Given that ability grouping can take many shapes and forms, one can conclude that *any* provision for gifted and talented students will entail homogeneous ability grouping. Each type of provision, whether within-class or school-based,

full-time or part-time, differs in its structure, outcomes, and potential strengths and weaknesses, and so, the effects must be examined separately. As Slavin (1991) points out, “different ability grouping practices have different achievement effects” (p. 68). Acknowledging this, Allan (1991) states that it is essential to examine the research related to ability grouping “according to type of grouping rather than as one amorphous whole” (p. 62). Thus, rather than simply stop here with a description of the overall effectiveness of, and general debate about, ability grouping, this review of the literature aims to examine its effectiveness in relation to outcomes for gifted and talented students as it is employed across the variety of provisions.

A CONTINUUM OF APPROACHES TO PROVISIONS

The Ministry of Education (2000) recommends that schools provide a continuum of approaches for the education of gifted and talented students. These approaches should be qualitatively differentiated, enriched and accelerated, and always developed to match the individual learning needs of gifted and talented students. There is no ‘one-size-fits-all’ solution to provisions for gifted and talented students, just as there are no two gifted and talented learners of the same cognitive, affective, or cultural ‘size or shape.’ Having a smorgasbord of opportunities allows for choice, flexibility, and variety (Freeman, 2001) in the ways schools decide to best meet the needs of gifted and talented students, enabling a close match between each individual student’s abilities and their educational opportunities. A word of warning, however, should be heeded: such flexibility could result in inconsistent and scattered approaches or such a vast menu of approaches that difficulty arises in deciding just what to provide (Robinson, 1999). As with definitions and identification, these decisions must be made within each individual school, contextualised within the school culture. Figure 3 below is an adaptation of the continuum of provisions presented in the Ministry of Education’s handbook (2000).

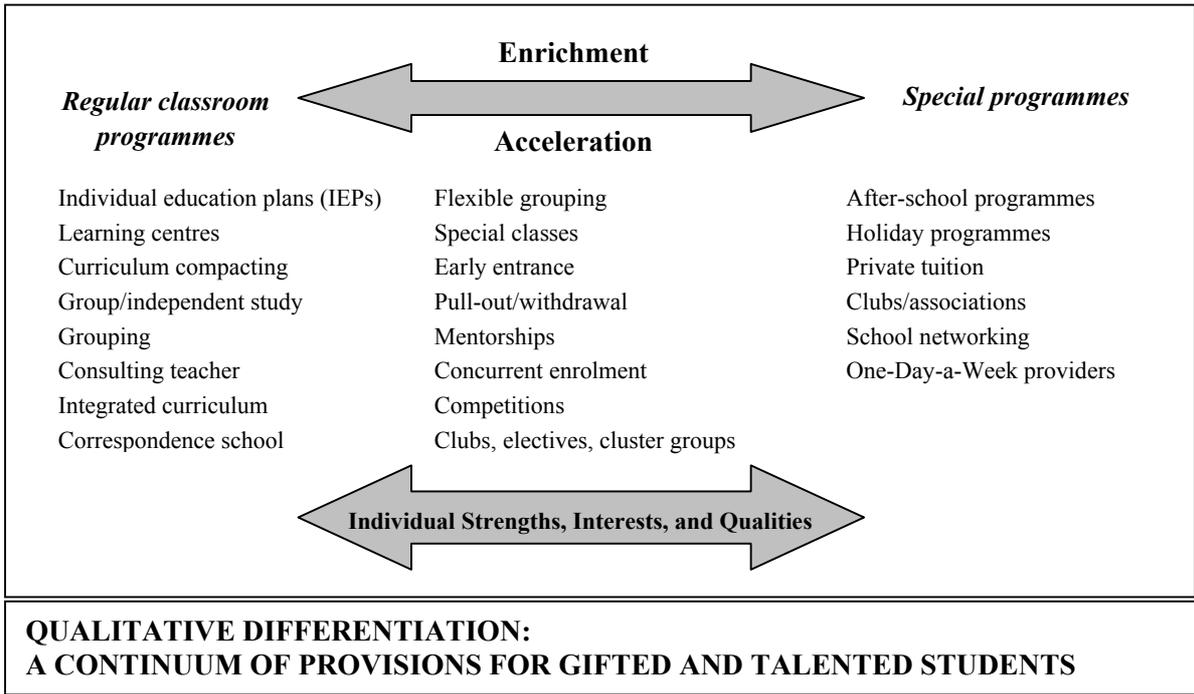


Figure 3. A Continuum of Provisions for Gifted and Talented Students.

This section of the review of the literature examines these approaches. It begins with an overview of regular classroom programmes, including recommended strategies, and is followed by discussion of school-based provisions. For each strategy discussed, the national and international theory and research is utilised to provide an explanation, describe the cognitive and affective outcomes for gifted and talented students, outline the potential strengths and weaknesses of the provision, and to make recommendations for effective translation of the theory into practice.

EDUCATING GIFTED AND TALENTED STUDENTS IN INCLUSIVE REGULAR CLASSROOMS

As previously discussed, a continuum of approaches to provisions is recommended for gifted and talented students. These are described later in this review of the literature, and as it will show many of these approaches are theoretically-sound, research-driven, practically-plausible approaches. But, when reading between the lines, it becomes clear that they are often ‘part-time solutions to full-time problems.’ The skills, abilities, strengths, and interests of gifted and talented students, just like those of all individuals, are present twenty-four hours a day, seven days a week. Exploring ideas in a resource room, working alongside a mentor, preparing for a competition, or being accelerated for one subject, for *part* of one’s education, does not address these ever-present special abilities.

Even when special provisions are in place, gifted and talented students continue to spend the majority of their education in heterogeneous, mixed-ability classrooms. Gifted and talented students in this country are mostly educated in regular classrooms in regular schools (Ministry of Education, 2000). This reflects New Zealand’s current philosophy of inclusive education, but has historically long been the case in this country (see for example, McAlpine & Moltzen, 1996). The decision to educate gifted children first and foremost in inclusive classrooms is “premised on the belief that their needs should be met within mainstream classroom programmes” (Education Review Office, 1998a, p.12). It is the preferred provision in most New Zealand schools (Moltzen, 2000a).

However, overseas, and particularly in the United States, for many gifted and talented students this has not necessarily been the case. And so, when inclusive educational principles came to the fore, specialists in gifted and talented education, who have long advocated for special provisions for gifted and talented students, with many of these outside mainstreamed classrooms, reacted in several ways. Firstly, there has been the emergence of a philosophy that many gifted education principles and practices, particularly those associated with differentiation, are applicable for all students (George, 1997; Heacox, 2002; Renzulli, 1999; Tomlinson, 1999; 2001). Secondly, the ways in which teachers can understand and address the needs of gifted and talented students within regular classrooms have been articulated (Smutny, Walker, & Meckstroth, 1997; Winebrenner, 2001). Finally, arguments were put forward by educators of the gifted and talented that these students could not be well-served in inclusive classrooms (Benson & Brodsky, 1996; Cramond & Brodsky, 1996; Culross, 1997; Feldhusen & Moon, 1992; Martin, 1996; Shields, 1995; 1996; 2002; Tomlinson, 1995) – and naturally, those arguments have been met with opposition (Oakes, 1985; Sapon-Shevin, 1994/95; 1996; Slavin, 1987; 1992).

Despite the unresolved controversy as to whether gifted students belong in inclusive classrooms, the fact remains that the philosophy of inclusion has laid the foundation for most education systems worldwide. It is not the purpose of this section in the literature review to argue whether or not the needs of gifted students are being met in the regular classroom or whether or not this is where they should be in the first place. Rather, the purpose is to discuss the principles of differentiation as they apply to gifted and talented students in inclusive classrooms. This philosophy calls for differentiated, individualised learning opportunities for all students, in classrooms which respect diversity and difference. As Renzulli (1999) states:

...respect for the abilities, interests, and learning styles of all students, would: (1) guard against charges of elitism and undemocratic practice, (2) provide a flexible vehicle for developing the talents of students who might otherwise go unrecognized, and (3) allow us to continue to serve our highest achieving students. In other words, a consistent democratic philosophy of education for all students legitimizes differentiation for all students (no page given).

The principles of differentiation are indeed important considerations for all students, including gifted and talented students. However, recognition that one-size-doesn’t-fit-all, and responding to that with ‘differentiation for all,’ is *only* of value to gifted and talented students when their uniqueness is put into the formula. Otherwise, there is a danger that this philosophy could negate the need for other provisions for gifted and talented students – and this should not be the case. As Renzulli (1999) states,

in regard to the Schoolwide Enrichment Model, “I would be extremely disappointed if someone said, ‘We don’t have a gifted program because we use Schoolwide Enrichment’” (no page given). Delisle (2000) takes this a step further with his belief that educators have made an erroneous assumption that “what is good for the gifted is good for all learners” (p. 1) and he raises fears that ‘differentiation for all,’ even with the best of intentions, may quickly be interpreted as the old one-size-fits-all solution. “Everyone benefits somewhat, but the gifted child benefits somewhat less than others in the classroom” (Delisle, 2000, p. 2). Without examining the unique needs of gifted and talented learners and providing appropriate educational interventions for meeting those, “‘differentiation for all’ may masquerade itself as the panacea for meeting their potential – but it will clearly be a façade” (Riley, in press a). As New Zealand educator, Le Sueur (1996) warns, “while a responsive classroom environment provides an opportunity for many children to manifest their abilities naturally, it is erroneous to suggest that this is sufficient on its own” (p.162).

The New Zealand Ministry of Education (2000) recognises that regular education can be tailored to meet the needs of gifted and talented students through careful planning and instruction, flexibility, and resourcefulness (p. 40). The Ministry further contends that:

New Zealand classrooms are particularly suited for gifted and talented students when teachers make conscious decisions to implement The New Zealand Curriculum Framework as intended - based on the assessed learning needs of students and with the flexibility to adapt instruction to individual needs (Ministry of Education, 2000, p. 40).

For Fraser (1996) this means taking a flexible approach to the ways in which the curriculum is interpreted, as well as recognising the cultural and environmental influences that have contributed to the learner’s ability” (p. 314). Cathcart (1994) also argues the need for flexible as well as comprehensive planning, which will require teachers to draw on a range of strategies because no one technique is going to meet all the needs of gifted and talented students.

Eyre (1997) asserts that the needs of gifted and talented students can be met in regular schools with successful educational outcomes. Her book explores classroom provision issues for primary and secondary schools and aims to help teachers of able children in ordinary schools take a differentiated approach to classroom planning by looking at ways in which enriched and accelerated planning can be developed as part of general planning. Other writers also provide teacher friendly advice for implementing learning strategies for gifted students in the regular classroom (see for example Heacox, 2002; Smutny, Walker, & Meckstroth, 1997; Tomlinson, 1999, 2001; and Winebrenner, 2001). Challenging the myths about gifted education and implementing new assessment and creative teaching strategies enables regular classrooms to appropriately address the needs of all learners, including gifted learners (Callahan, 2001b).

Regular class teachers are expected to serve a wide range of abilities and needs, and the practical implications of this mean that when a student is identified as gifted and talented, the teacher is expected to know in what ways the student is gifted and how to appropriately meet his or her needs (Cramond, 1995). However, the major finding of an often-cited national survey of American teachers found that most teachers made only minor modifications to meet the needs of these learners (Archambault, Westberg, Brown, Hallmark, Emmons, & Zhang, 1993a). The survey of 2,341 teachers of third and fourth grade students (approximately ages 8-10) utilized a survey instrument called the Classroom Practices Questionnaire (CPQ) to obtain background information on the teachers, their classroom and their school districts as well as their perceptions of their teaching behaviour related to gifted and average students in their classes. Other relevant findings included:

- Teachers who reported provisions for the gifted were likely to assign advanced readings, independent projects, enrichment worksheets, and reports of various kinds.
- Some classroom teachers reported the elimination of material that students have mastered, the provision of more advanced level work, student choice in allocation of their classroom time,

and exposure to higher level thinking skills, however, these modifications were not widely reported.

- The survey also revealed that the regular classroom services provided to gifted students in schools with school-based provisions bore little difference to those schools which did not make special school-based provisions.

Archambault et al. (1993a) concluded with the following recommendations:

1. The continuation of an array of gifted and talented programmes, in which students have opportunities to interact with like-minded peers and specialists teachers.
2. Concentrated efforts to assist teachers in the development of appropriate curricular materials for gifted students, as well as professional development to assist in identification and teaching.
3. More differentiated opportunities within regular classrooms for gifted and talented students.
4. A redefinition of the role of gifted education specialists, which encompasses their need to support regular classroom teachers.

Similar research conducted by Cohen (1997), and again in the United States, indicated that gifted and talented students in heterogeneous regular classrooms were unchallenged and not being instructed at levels commensurate with their abilities. Another study conducted in the United States concluded that based upon observations in 46 classrooms, gifted and talented students were asked to complete the same tasks and activities as their average ability peers 84% of their instructional time (Westberg, Archambault, Dobyns, & Salvin, 1993).

Research studies conducted in the United States have also shown that professional development does enhance teachers' abilities to appropriately differentiate the curriculum in regular classrooms. In one study, for example, 90% of teachers given training in differentiated instruction were able to compact the curriculum for their gifted and talented students (Reis et al., 1993). In another study, Westberg and Archambault (1995) similarly demonstrated that with professional development many teachers can and do differentiate for high ability learners in their classrooms.

Whether these findings and recommendations are applicable in the context of New Zealand could be questioned given the different educational context; however, one finding would ring true. The study reports that the majority of respondents had no formal training in gifted and talented education. Similarly, this would be the case in New Zealand, where paradoxically, given the inclusive educational philosophy and belief that 'all teachers are teachers of the gifted and talented, there is limited teacher education at pre- or in-service levels (Ministry of Education, 2000, 2002; Working Party on Gifted Education, 2001).

An appropriate educational environment for these students requires a positive teacher attitude towards gifted children (Kennedy, 1995), plus a commitment to professional development. Besides teacher commitment to professional development, schools must also be committed to assisting their teachers in developing classrooms responsive to the needs of gifted and talented students through collaborative support as well as intensive and sustained professional development (Purcell & Leppien, 1998; Kirschenbaum, Armstrong & Landrum, 1999; Tomlinson, 1995). Le Sueur (2002) states that:

schools where the teachers understand the characteristics common to the gifted and talented, provide challenging curriculum experiences so that these abilities and potentials can be developed, and supplement observations with a balance of information from other sources, are well placed to recognise and meet the needs of these students (p. 18).

Taking an action research approach, Strang (2001) examined how New Zealand teachers in the regular classroom cater for their gifted and talented students. Her findings suggest that with ongoing,

meaningful professional development, teachers are able to effectively cater for this group of learners in the regular class.

An Australian study (Knight & Becker, 2000) extends earlier American studies (Feldhusen, 1997; Van Tassel-Baska, 1997) in regard to regular class provisions for gifted and talented students. Whereas the American studies report from teacher perspectives, the study by Knight and Becker documents student perceptions of their academic and emotional needs, with the aim of informing regular class teachers how best to cater for their gifted and talented students. In all of these studies it was found that lack of challenge in the classroom caused the gifted students to lose motivation and self-esteem. It seems clear then, that underachievement occurs when teachers do not differentiate the curriculum for their gifted students, thus the challenge must come for schools to provide an environment that caters for all its students (Knight & Becker, 2000). According to Eyre (1997) “differentiation is recognising individual differences and trying to find institutional strategies which take account of them” (p.38). Therefore schools need a workable system which is flexible enough to accommodate individual need (Eyre, 1997).

Ho (2002) conducted a small qualitative study that compared the behaviour, interaction and school perceptions of three gifted and talented primary school children in two different New Zealand classroom settings – a heterogeneous regular school classroom and a homogeneous classroom in a one-day school for gifted children. While the study found possible benefits of homogenous grouping for gifted and talented children, it seems too that class size may have been a contributing factor, with the smaller class size in the homogeneous class having a more positive impact on student achievement than in the regular school class where the number of students was almost doubled.

Keen (2003) reports on a study that was conducted over a two year period, involving gifted and talented students, their parents and educators from 68 centres and schools in three different regions of New Zealand. While the majority of gifted students in this study accepted classroom programmes, albeit unenthusiastically, as “providing the necessary bread and butter of their learning,” some students also desired “jam on the bread” through greater flexibility of classroom approach, and greater opportunities for open-ended challenge (p. 16). Keen cautions that “New Zealand’s educational system, multicultural in its ideals, faces challenges in recognising and fostering giftedness in diverse socio-economic and ethnic settings” (p. 4).

Furthermore the findings from Phase Four of Keen’s (2002a) New Zealand study suggest effective outcomes for students will only occur when there is a whole-school ethos and commitment to gifted education. To achieve this, the following factors must be present:

- Leadership (the principal sets the tone and direction for the school);
- Good staff communication and professional development (majority of the staff must support gifted initiatives);
- Gifted education must be timetabled and budgeted for; and
- A coordinator is required, along with a gifted and talented committee to support the implementation of gifted policy initiatives.

Moltzen’s (2000a) recommended principles and practices for gifted and talented students are worth noting, given that he developed them in accordance with accepted New Zealand classroom practice:

1. Use a learner-centred approach to providing for special abilities;
2. Offer programmes that are both qualitatively and quantitatively different;
3. Ensure programme coordination;
4. Provide opportunities for choice, the pursuit of individual interest areas and independent work;

5. Ensure the student is equipped and supported in these independent activities;
6. Include open-ended activities, opportunities for problem-finding and creative problem-solving, and for higher-level thinking;
7. Include within the programme opportunities for students to work together with others of like ability and/or interest; and
8. Expose students to moral and ethical issues and issues of social responsibility (pp. 364-365).

Potential Strengths

- In an inclusive classroom, several strategies for differentiating the curriculum for gifted students work well, for example: the use of advanced content, higher level questioning skills, curriculum compacting, independent study, tiered assignments, and flexible grouping (Reis, Westberg, Kulikowich, & Purcell, 1998).
- When given the opportunity to work with a curriculum that challenges them, gifted students develop a sense of accomplishment and achievement (Ryan & Geake, 2003).
- A differentiated curriculum that encompasses advanced academic rigour and pace allows gifted and talented students to work more in tune with their learning styles, according to their readiness and ability (Ryan & Geake, 2003).
- In a regular inclusive classroom, teachers have the choice and flexibility to decide which lessons lend themselves to heterogeneous cooperative learning groups and which to homogeneous cooperative learning groups and then based on their professional decisions can place the students accordingly (Fiedler et al., 2002).

Potential Weaknesses

- Educating gifted and talented students in the regular classroom depends on the attitude and ability of the mainstream teacher to create a challenging learning environment to ensure that the highest quality learning and teaching across the curriculum enables the special abilities of children to be manifested (McAlpine, 1996, p. 69).
- Potentially the practice of ‘teaching to the middle’ could prevail or a standard “one size fits all” curriculum be delivered (Tomlinson, 1995; Delisle, 1999).
- Teachers need to be alert to the difficulties related to pace and to the management of teacher time.
- Changing the regular classroom environment to meet the needs of gifted and talented learners is not an easy task. It involves many factors, such as, strong leadership, quality professional development, follow-up support, and collaboration among teachers, administrators and the community (Johnsen, Haensley, Ryser, & Ford, 2002).
- Some students can get frustrated if the nature of learning in a regular mixed ability classroom becomes repetitive (Keen, 2001).
- Difficulty could arise in guarding against teacher subjectivity, cultural and gender stereotyping, and ethnocentricity, in the identification of gifted and talented students in regular classrooms (Bevan-Brown, 1993; McAlpine, 1996).
- Possibly the “one size fits all, be it in shoes or in academic options, pinches everyone where it hurts and impedes the forward progress of those whose pace is different in speed or style” (Delisle, 1999, p. 83).

Recommendations for Effective Practice

- Teachers need to create a classroom climate which expects excellence from all pupils and where student's achievements are valued and rewarded (Eyre, 1997).
- Teachers should resist giving more work to early finishers. Instead they should use curriculum compacting strategies; assign different work which is more abstract, more complex and goes deeper and wider (Kennedy, 1995).
- Provision should be made for supplementary materials which extend, not merely reinforce the curriculum; inter-disciplinary units; and learning centres that encourage higher level thinking such as analysis, synthesis and critical thinking (Kennedy, 1995).
- Content should reflect broad-based themes, problems or concepts across the curriculum; processes that develop independent, critical and higher level thinking skills in both cognitive and affective domains; and products that encourage students to redefine or challenge existing ideas or allow them to use techniques, materials and knowledge in innovative ways (Le Sueur, 2002).
- Learning should be encouraged for its own sake by de-emphasising grades and other extrinsic rewards (Kennedy, 1995).
- Opportunities need to be provided for independent investigations in areas of interest (Kennedy, 1995).
- Intellectual and academic risk taking needs to be encouraged (Kennedy, 1995).
- A physical and emotional learning environment that recognises multiple intelligences and accommodates a variety of learning styles should be provided (Le Sueur, 2002)
- Consultation and collaboration between regular classroom teachers and gifted education specialists should be encouraged (Hughes & Murawski, 2001; Purcell & Leppien, 1998; Kirschenbaum, Armstrong, & Landrum, 1999).
- For differentiation in regular classrooms to work, there must be a serious commitment of time, energy, and funds, which is coupled with administrative coordination and organisation (Callahan, 2001a).
- A culturally responsive valuing environment must be provided in order for gifted and talented students from ethnic minority groups to be effectively provided for in the regular classroom (Bevan-Brown, 1993, 1994, 1996, 2000a, 2002, 2003; Cathcart, 1994; Cathcart & Pou, 1992; Doidge, 1990; Jenkins, 2002; McKenzie, 2001; Milne, 1993; Niwa, 1998/99; Reid, 1992).

The remainder of this section will focus on specific approaches recommended in the research literature as effective strategies for catering for gifted and talented students in today's regular, inclusive classrooms. These include Individual Education Plans/Individual Programme Plans (IEP/IPP), curriculum compacting, cooperative learning, small-group or independent study, integrated curricula, and learning centres.

INDIVIDUAL EDUCATION PLANS/INDIVIDUAL PROGRAMME PLANS (IEP/IPP)

The term 'Individual Education Plan' is widely used, particularly in special education, but often in different ways by different people. The New Zealand Ministry of Education (1998, p. 2) describe it in a number of ways. These include:

- The complete cycle of assessment, planning, provision, and evaluation;
- The meeting at which the individual needs of a student are discussed;
- A plan for an individual student; and

- A documented programme for an individual student.

Furthermore, the abbreviated term, IEP, is used to mean individual education plan, individual education process, or individual education programme. This confusion can complicate any discussion of the use of IEPs and it is important that meanings are clarified, particularly when reviewing the literature in this field.

In the special education literature, the term IEP is predominately used. In gifted education, the terms IEPs, 'Individual Programme Planning' (IPP) (Boatman, Davis & Benbow, 2003; Smith & Tickles, 2003) and 'Individualised Programme Planning Model' (IPPM) (Treffinger, 1986) are referred to synonymously. In this section of the literature review, both IEP and IPP will be used interchangeably to discuss individualised planning for gifted and talented students that involves a team of people assessing and planning differentiated provisions.

An International Perspective

The concept of individualised programme planning has its origins in special education, and in particular, with meeting the needs of students with disabilities. IEPs originated in the United States of America (Public Law 94-142, the *Education for all Handicapped Children Act*, 1975) and it is this model that has been adopted by many other countries, including New Zealand, as a means of meeting the special needs of students with disabilities. It is from this special education model that IEPs evolved to be used with gifted and talented learners. For example, Cramond (1995) suggested that, similar to the way students with special educational needs are supported with individualised education plans, so should gifted and talented students. She believed IEPs would ensure that gifted and talented students receive similar levels of support, allowing regular and special education teachers to work together to provide an appropriate education based upon their abilities and needs.

In terms of the IEP as a tool for meeting the needs of gifted and talented learners, there are mixed messages in the New Zealand literature. For example, the Ministry of Education's official IEP guidelines (Ministry of Education, 1998) do not mention gifted and talented learners in relation to the use of IEPs. However, the use of IEPs is suggested in the Ministry of Education guidelines for meeting the needs of gifted and talented learners (Ministry of Education, 2000), as a strategy for transforming the regular classroom into an appropriate learning environment for gifted and talented learners. The Education Review Office (1998a) also suggests the IEP as an in-class intervention that can be used to meet the needs of students with special abilities.

As IEPs have most often been associated with meeting the needs of students with learning and behaviour difficulties, much of the available literature is in relation to this. The relevancy of this to gifted education can be argued; however, there are some areas where useful links can be made between gifted and special education. The principles upon which individual education programmes/plans are based and the rationale for their use are two such examples. When discussing the use of IEPs for students with disabilities, Moltzen (2000b) outlines a number of principles upon which they are based. These are:

- Partnership between schools, parents and other professionals;
- A team approach where those who have something to contribute to the well-being of the student work together;
- Assessment, which provides the basis of what to teach, how to teach it and how effective the teaching was;
- Programme individualisation where a programme is developed to meet the individual needs of the learner (not to be confused with individual, one-on-one teaching); and
- Accountability in terms of people in the team and resources.

These principles are supported in the gifted education literature. Van Tassel-Baska, (1992c) points out that the model of an IEP for students with special abilities is nearly identical as that for disabled students. Van Tassel-Baska (1992c) describes an IEP as a

...system for curricular planning that offers a structure to ensure that personalized programmes are developed and revised annually with input from parents, teachers, related service personnel and students themselves where appropriate. The document includes descriptions of current functioning, reasonable expectations for achievement over the coming year, and specific strategies for evaluation (p. 248).

Smith and Tickles (2003) concur, suggesting that an IPP should include short-term objectives, strategies and learning activities, and indicators of success and evaluation. They further suggest that the IPP process should involve parents, teachers, and students working in collaboration to address the needs of the gifted and talented student.

The concept of individual education or programme planning can be viewed from a broader perspective. For example, Boatman et al. (2003) see it as one part of a model of best practice for working with gifted learners. They suggest that the content of an IPP may include:

- Courses to be completed during each semester (or term);
- Enrichment opportunities that are available in the school;
- Extracurricular activities which will supplement school experiences;
- Community-based experiences such as mentoring programmes;
- Correspondence courses; and
- Academic courses completed at local tertiary institutions.

Feldhusen and Moon (1995) also advocate the use of individual learning plans from this broad perspective (which they describe as macro level plans). Macro level plans encourage gifted and talented students to set and carry out their own goals and allow for the utilisation of resources at school, home, and in the community.

Most of the literature supporting the use of IEPs for gifted and talented learners is based on the same rationale for their use with learners with disabilities. These include the benefits of working in partnership, a team approach (in particular regular teachers and teachers of the gifted and talented), accountability, and programme individualisation. However, there is some literature in this area specific to gifted education. For example, Fetzer (2000) believes that IEPs are the best way to ensure that the needs of gifted and talented students are met. This is because the IEP provides written documentation of present skills, goals and objectives, and specific services that may be needed, as well as evaluation procedures used to determine if goals and objectives have been met. Boatman et al. (2003) see the team approach as a major advantage of the IPP. Davis and Rimm (1998) highlight the usefulness of IEPs in structuring individual work, particularly in regular class settings. Smith and Tickles (2003) point out the advantages related to providing an appropriate programme in the following way: “The dividends (of IPP use) pay off in having a document that student, parent and teachers can rely upon in their attempt to provide continuity, consistency and challenge in the provision of a programme commensurate with an individual’s needs” (p. 2).

The use of the IEP/IPP to facilitate curriculum compacting (which is a strategy explained further in this section of the review) has been highlighted in the literature. For example, Feldhusen and Moon (1995) believe that individual learning plans can provide help to guide teachers on how to compact the existing curriculum. They suggest that through the team approach, support personnel can meet with students and teachers to identify the areas of the curriculum to be compacted and make suggestions for appropriate acceleration and enrichment.

There are some suggestions that IEPs are most useful for students who are highly gifted. For example, Heacox (2002) suggests that for some extremely gifted learners where compacting or advancing assignments have not proven adequate in meeting their needs, IEPs are most useful. Heacox suggests that these plans should delineate which learning goals have already been met, which still need to be addressed, and how the student will work her way through the school curriculum at an appropriate pace and at a sufficient depth. The key to the success of these plans is personalisation and the student being involved in their development.

Silverman (1995) concurs, advocating the use of IEPs for highly gifted and talented students, stating that “individualization is a fundamental principle for serving this population” (p. 228). She outlines the advantages of IEPs for highly gifted students as assurance of collaboration amongst staff and the provision of the assessment of the student’s strengths and needs. According to Silverman, the student, parents, teachers, school counsellor, psychologist, support personnel, and school administrators should all be involved in collaboratively planning the IEP.

A National Perspective

While there is a small amount of New Zealand literature supporting the use of some form of individual planning for gifted and talented learners, there is even less empirical evidence as to the extent of its use. What little research there is suggests that it is a tool that is not in common usage. Keen (personal communication, October 13, 2003) reports that apart from one or two exceptions, it is not a practice that is common in New Zealand schools for meeting the needs of gifted and talented learners.

However, a number of researchers working in the field of gifted and talented education in New Zealand make recommendations for the use of some form of individual planning. For example, Holden (1996) suggests that IEPs provide a system of coordination, where all the people involved in supporting the young gifted and talented learner can come together and work in partnership. Similarly, Cathcart (1994) suggests that an IEP may be useful when grouping of gifted students is not possible, for example in a small rural school. Cathcart (1994) points out that IEPs for gifted and talented students should:

- Ensure that the student is taught independent learning skills;
- Provide adequate and regular one-on-one time with the students and their teacher;
- Ensure that the student has access to appropriate resources;
- Create a working situation (i.e., will not be distracted by others but will not be isolated from them either);
- Help the student to develop clear objectives, appropriate time frames, and relevant evaluation criteria;
- Keep parents informed and involved; and
- Negotiate funding from appropriate school budgets.

Taylor (2001) has developed an ‘individual profile’ and recommends its use for gifted and talented students. The profile includes information about an individual’s general learning characteristics, multiple intelligences, specific abilities, interests, task commitment, and creativity as derived from the identification process, which is also documented. Using this information, the form also includes a statement of the student’s learning needs and suggested provisions (what, when, and where) for meeting those. Taylor recommends that the use of an individual profile is particularly relevant if:

- The student requires a variety of different learning environments;
- The student is underachieving or has unusual learning styles; or
- The student’s parents are dissatisfied with the school’s provisions and require more detailed information and explanation.

In one of the few published empirical studies into the use of IEPs for students with special needs in New Zealand, Thomson and Rowan (1995) sampled 36 schools from one Ministry of Education district. They examined 159 IEP forms and conducted focus group interviews and questionnaires with parents and teachers. Thomson and Rowan (1995) reported that parents and teachers both rated IEPs as useful for developing:

- Communication between parents and teachers;
- Teamwork and support; and
- A focus on identification of students' needs.

In general, parents did not like the IEP meetings as they were unsure of their role, felt there were too many people attending, and believed that both teachers and parents had too little training in the process. Parents in this study believed that there should be more training for teachers, students should be involved more often, meetings should be more culturally sensitive, privacy should be recognised more, and professionals should be more welcoming. Teachers identified the time that it takes to develop an IEP as a major disadvantage.

While generally supporting the use of IEPs to meet exceptional student's needs, Moltzen (2000b) points out a number of disadvantages or drawbacks associated with them. First because of the 'individual' nature of the plan, this can cause teachers and other professionals to focus on exclusionary or separate practices. Moltzen (2000b) also warns that there is a tendency for IEPs to be viewed as a stand-alone, separate entity where there are few links between what is prescribed in the IEP and other aspects of the learner's education that do not need to be delivered by way of the IEP. Van Tassel-Baska (1992c) concurs, stating that the IEP may divert sufficient attention from other curricular components for gifted students. Educators of gifted and talented students who may be contemplating the use of IEPs should take heed of these potential disadvantages, and work to avoid those in their implementation.

In a New Zealand study of perceptions and practices in relation to gifted education, Keen (2003) found that parents and caregivers of gifted and talented learners wanted a closer partnership with centres and schools in relation to both identification and provisions for their children. The IEP is one way that this could be facilitated.

Potential Strengths

- Focuses attention on the needs of the gifted learner (Davis & Rimm, 1998; Feldhusen & Moon, 1995; Fetzer, 2000; Heacox, 2002; Holden, 1996; Silverman, 1995; Thomson & Rowan, 1995).
- Encourages a partnership between schools, parents and professionals (Boatman et al., 2003; Moltzen, 2000b; Silverman, 1995).
- Incorporates a team approach utilising the strengths of a range of people (Boatman et al., 2003; Moltzen, 2000b; Thomson & Rowan, 1995).
- Facilitates curriculum compacting (Feldhusen & Moon, 1995; Heacox, 2002).
- Involves the gifted student in understanding their abilities and setting goals.
- Involves parents and fulfils partnership obligations of the 1989 New Zealand Education Act.
- Individually tailors school programmes to meet the needs of gifted and talented learners (Van Tassel-Baska, 1992c).
- Can be useful at transition points where students are moving from class level to class level or from school to school (Smith & Tickles, 2003).

Potential Weaknesses

- Time consuming (Smith & Tickles, 2003; Thomson & Rowan, 1995).
- The magnitude of the IEP may divert sufficient attention from curricular components (Van Tassel-Baska, 1992c).
- Because the emphasis is on individualisation, teachers may be left without a comprehensive framework for thinking about curriculum (Laycock & Korinek, 1989, cited in Van Tassel-Baska, 1992c).
- Parents can feel unsure of their role and a lesser partner in the team (Thomson & Rowan, 1995).
- Teachers need training in the use of IEPs/PPs for gifted and talented students (Thomson & Rowan, 1995).
- The focus on the individual may discourage inclusionary practices, instead promoting programmes that have little relation to the activities of the regular class (Moltzen, 2000b).
- The individual focus of IEPs may not be culturally appropriate for some gifted and talented students from ethnic minority groups.

Recommendations for Effective Practice

The IEP may be one tool in meeting the needs of gifted and talented students in New Zealand schools, particularly those students described as 'highly gifted.' The advantages appear to outweigh any disadvantages associated with their use; however, care would need to be taken to ensure that the difficulties associated with them (as reported in both the gifted education literature and the special education literature) are addressed.

CURRICULUM COMPACTING

Curriculum compacting is a technique devised by Sally Reis and her colleagues from the National Research Center on the Gifted and Talented at the University of Connecticut as an integral component of the Schoolwide Enrichment Model (Renzulli & Reis, 1985; 1997; 2000; 2002). The idea for curriculum compacting grew from evidence that gifted and talented students spent much time working on material they had already mastered, that teachers were making minor or nonexistent adaptations to the curriculum for gifted students (Reis et al., 1998), and that there was a lack of any systematic method to make adaptations to the curriculum for students who were achieving well above average levels (Reis & Renzulli, 2003). Curriculum compacting is a technique where teachers identify what the students already know and, rather than asking them to engage in previously mastered learning, replacement strategies are provided that allow the student more meaningful and productive use of their time (enrichment and/or acceleration). Curriculum compacting involves three steps. These are:

1. Defining the goals and outcomes of a specific unit or lesson of instruction;
2. Determining and documenting which learners have already mastered most or all of the specified learning outcomes; and
3. Providing replacement strategies for material already mastered through the use of instructional options (Reis & Renzulli, 2003).

Curriculum compacting is facilitated for gifted and talented students with the use of The Compactor (Reis & Renzulli, 2003). This form documents the curriculum areas to be considered for compacting, the procedures for compacting the material, and the acceleration and/or enrichment activities to be used to replace the material that the student has already mastered.

As Riley (in press c) states, nearly every article written about regular classroom practices for gifted and talented learners has some reference to curriculum compacting as an effective technique. This is

perhaps because, as identified in the United States by Reis and Renzulli (2003), “a major problem facing our schools is the lack of curriculum differentiation and academic challenge for many of the most able students” (p.1). For example, Reis and Renzulli cite American research which indicates that 78% to 88% of fifth and sixth grade (approximately ages 10-12) *average* readers were found to be able to pass pre-tests on basic comprehension skills before engaging in instruction (Taylor & Frye, 1988, cited in Reis & Renzulli, 2003, p. 1). Also, the literature reports that gifted and talented students will soon give up demonstrating to the teacher what they can do if they are going to then be asked to do extra work, or more of the same work (Winebrenner, 2001).

Outcomes for Students

While there is much written about curriculum compacting as an effective technique for meeting the needs of gifted and talented students in regular classes, there are few empirical studies examining the outcomes for students. However, of those studies that do, the results indicate that the practice of curriculum compacting can have positive outcomes for gifted and talented students.

An international perspective. In a study of approximately 430 American classroom teachers, Reis, Westberg, Kulikowich, Caillard, Hebert, Plucker, Purcell, Rogers, and Smist (1993) investigated the effects of curriculum compacting on students’ achievement, attitudes toward learning, and content area preferences. The study included a control group of gifted and talented students who received no compacting as well as treatment groups whose curriculum was compacted. Results showed that when teachers had been given training in the use of curriculum compacting for gifted and talented students, they were able to eliminate 40-50% of traditional classroom material in one or more of the following curriculum areas: language arts; social studies; science; and mathematics. When teachers eliminated this percentage of the regular curriculum, there were no differences in the out-of-level post achievement test results between the treatment and control groups in the areas of mathematical computation, reading, social studies, and spelling. In the areas of science and mathematics, however, the treatment group scored significantly higher on post-tests than did the control group.

In terms of the attitudes of the students participating in the curriculum compacting study, Reis et al. (1993) found that when students’ curriculum was compacted in mathematics, they were more likely to be interested in mathematics and express favourable attitudes towards learning in mathematics than those students in the control group who did not have their curriculum compacted.

When teachers are involved in curriculum compacting they may require support and assistance in locating additional appropriate resources and materials to substitute the regular work with appropriately challenging work (Reis et al., 1993). Other research in the area of curriculum compacting indicates that this is the most difficult task in the compacting process (Reis & Purcell, 1993 cited in Reis & Westberg, 1994). This points to the need for teacher professional development and support. In the Reis et al. study (1993), there was a direct link between staff development and successful curriculum compacting. The more professional development staff received on curriculum compacting, the more successful they were in implementing this strategy.

Reis and Renzulli (2003) report that curriculum compacting, and in particular the curriculum compacting form, does take energy and time, particularly when teachers first start using it. However, as teachers become familiar with the process, they report teachers’ beliefs that it saves them time in the long term. Other benefits reported by Reis and Renzulli (2003) are that while teachers may initially use the curriculum compacting form for a small number of gifted and talented students in their class, they found they were able to use it with a much wider range of their students.

While curriculum compacting is an effective strategy for meeting the needs of gifted and talented students in regular classes, Troxclair (2000) warns that it should not be used as the only strategy nor used as a total package. Teachers in regular classrooms need to use a variety of differentiating techniques and use them in ways that benefit their students and programmes.

Winebrenner (2003) suggests that teachers may not be convinced of the need to compact the curriculum and provide differentiation until they recognise the value of challenge. While teachers must

always be concerned to protect students' self esteem, they need to realise that self esteem is enhanced when success comes about through tasks that are challenging (Rimm, 1986). Simply providing students with high grades or positive feedback for work that students find easy does not enhance gifted students' self esteem. Curriculum compacting is one way that teachers can facilitate this challenge. Curriculum compacting has also been found to be an effective tool for students with double exceptionality, that is students who have learning difficulties in some areas and gifts and talents in another (Winebrenner, 2003).

A national perspective. Research into the use of curriculum compacting in New Zealand schools is scarce and given what is known about the effect of context on learning outcomes, it would appear to be an area of research in New Zealand gifted education that needs further investigation. For example, much of the research comes from the United States and educational provisions there are often centred around textbooks. Therefore, American research into curriculum compacting places a major emphasis on this. This is not the case in New Zealand; however, the Ministry of Education (2000) suggests the use of curriculum compacting as a strategy for transforming the regular classroom into an appropriate learning environment for gifted and talented students.

Despite the lack of New Zealand specific research, there are some references to this practice in New Zealand schools. For example, Macleod (1996) when writing on education provisions for gifted and talented students in New Zealand secondary schools refers to the method of curriculum compacting as a very useful tool that enables students to more quickly reach achievement levels beyond those that are expected of average students. Macleod points out that rather than having students just 'marking time' by doing 'more of the same,' curriculum compacting allows students opportunities for acceleration and/or enrichment.

Potential Strengths

- Eliminates previously mastered material giving students opportunities for acceleration and enrichment (Ministry of Education, 2000; Reis & Renzulli, 2003; Winebrenner, 2001).
- Reduces boredom and frustration for students (Winebrenner, 2001).
- Enhances the self-esteem of gifted and talented students (Rimm, 1986).
- Focuses teachers' attention on identifying prior knowledge and providing appropriate learning experiences (Reis & Renzulli, 2003; Reis et al., 1993).
- Curriculum compacting can be carried out by regular class teachers (Reis et al., 1993).

Potential Weaknesses

- Teachers require training and professional development in the use of curriculum compacting (Reis et al., 1993).
- It should not be used as the only strategy for meeting the needs of gifted and talented students in the regular class (Troxclair, 2000).
- Requires resources to be available to the teacher to plan for acceleration and enrichment (Reis et al., 1993).

Recommendations for Effective Practice

- Curriculum compacting should lead to appropriate differentiated educational experiences for gifted and talented students (Reis et al., 1993; Troxclair, 2000).
- The training of teachers is a vital tool for successful curriculum compacting (Reis, et al., 1993).
- Curriculum compacting is a useful strategy for students who are gifted in one area and have learning difficulties in another (Winebrenner, 2003).

COOPERATIVE LEARNING

Cooperative learning is an educational practice that has been rigorously discussed and debated over the last ten to twenty years. While it has been generally accepted in the mainstream as a successful teaching and learning strategy (Slavin, 1999), within the area of gifted education, this is not the case. In fact, it has been suggested that the most outspoken critics of cooperative learning have been those educators involved in gifted education (Ramsay & Richards, 1997). This debate has centred around the efficacy of cooperative learning for gifted students, and in particular, whether cooperative learning helps or hinders the academic and social progress of students with gifts and talents.

There are many forms of cooperative learning, but all share some common principles. Cooperative learning involves students working together in groups to achieve a common goal (Johnson & Johnson, 1999). Students help each other to master the goals and are responsible for each others' learning as well as their own (Slavin, 1999). Cooperative learning is based on five principles. These are: (1) positive interdependence where each member of the team is reliant on the other to achieve the goal/s; (2) individual accountability which involves each student's performance being checked; (3) face to face interaction where students encourage, support and assist each other to achieve the goal/s; (4) social skills, which are required for the success of cooperative group work; and (5) group processing where group members discuss and evaluate how well they achieved their goals and worked together as a team (Johnson & Johnson, 1999).

Some, for example, Sapon-Shevin and Schniedewind (1993) would argue that cooperative learning is more than just a teaching strategy, it is about to responding and respecting diversity and difference, and in doing so, learning to work and interact successfully with people of all races, religions, socio-economic groups and abilities. It has been argued that these are vital skills if students are to take a worthwhile and productive place in today's society.

Outcomes for Students

As reported by a number of researchers in the field, there are still no definitive answers as to the benefits or otherwise of cooperative learning for gifted and talented students. For example, Barron (2000) reports that the findings of many of the studies into the effects of cooperative learning on gifted and talented learners are mixed with both positive and negative outcomes. Barron points out that these mixed findings are often based around different curriculum areas and suggests that the context plays an important part in determining the success or failure of collaborative or individual learning situations. Similarly, Neber, Finsterwald, and Urban (2001) report issues associated with weak methodology in studies of cooperative learning for gifted and talented students. In a meta-analysis of twelve published studies on this topic they concluded that there were few methodologically sound studies available as many researchers did not consider important variables such as the simplicity of materials and the processes and activities of the learners (for example, the interactions of the students). However, despite this, a number of studies do point to some benefits of cooperative collaborative group work for gifted learners. In summarising their meta-analysis of research studies into the use of cooperative learning for gifted and talented students, Neber et al. (2001) concluded that cooperative learning can result in small to medium positive effects on learning achievements of high-achieving and gifted students in the primary and middle school years.

An international perspective. In a study of academically talented sixth grade students, Barron (2000) compared the achievement in mathematics problem solving between students who worked collaboratively and students who worked individually. When it came to general planning, students who worked in teams scored higher than students who worked individually. In terms of sub-problem planning, students who worked in teams scored significantly higher than students who worked individually. Similarly with solutions, students who worked in teams scored higher than students who worked individually. To see if these positive effects were transferred when the students worked individually Barron repeated the problem solving tests with all students working individually. In both the general planning and the solution measure, those students who had originally worked collaboratively achieved significantly higher than those who had originally worked individually.

Similar findings were reported by Johnson and Johnson (1993) in a study comparing high ability science students working in cooperative groups and high ability science students working individually. Johnson and Johnson (1993) found that the achievement of the students in the cooperative groups was higher on both higher-level reasoning and recall than those students who worked individually. They also found that the students who worked in the cooperative groups demonstrated higher academic self-esteem and a better cohesion in the cooperative groups.

In a study of gifted learners working in cooperative learning groups, Elmore and Zenus (1994) found the lower achieving gifted students appeared to benefit most academically from the social and emotional skill emphasis. When gains in mathematics scores were compared after the cooperative learning, the top achievers and the middle level of achievers made similar mean gains (2.27). However, it was the group of lower achievers who made the most gain (6.8).

The issue of cooperative learning for gifted and talented students is further complicated by the issue of homogeneous and heterogeneous cooperative learning groups. The question of whether there is any advantage for gifted learners working collaboratively in either homogeneous or heterogeneous groups has been reported on in the literature.

Neber et al.'s (2001) meta-analysis found that high achievers (which they differentiated from 'gifted learners') had better academic outcomes if they learnt in homogeneous groups with other high achieving learners. On the other hand, gifted students were academically advantaged if they learnt in heterogeneously composed mixed ability groups.

In a study comparing heterogeneous and homogeneous grouped gifted students in the area of reading, Melser (1999) found that both the homogeneous and heterogeneous grouped gifted students improved in reading achievement. The homogeneous group had an average increase of 2.64 points and the heterogeneous group an average increase of two points. Melser also compared the effects of homogeneous and heterogeneous cooperative learning grouping on the self-esteem of gifted students. The students working cooperatively in heterogeneous groups had an increase in self-esteem of 1.57 points while those gifted students working cooperatively within homogeneous groups had a decrease in self-esteem of 2.42 points. Homogeneous grouping for cooperative learning appeared to have a detrimental effect on the self-esteem of the gifted students.

It should also be noted that while there are some studies investigating cooperative learning for gifted students in specific curriculum areas (as reported above), there is little or no research regarding which curriculum areas may or may not be more suited to cooperative learning for gifted students.

The voice of gifted and talented students themselves should not be overlooked when considering the use of a particular strategy or philosophy. This is also true of the parents of gifted and talented students. The gifted students in Coleman and Gallagher's (1995a) study reported enthusiasm for cooperative learning, but only in homogeneous groups. When working in these groups, they reported enjoyment and no drawbacks. However, when working cooperatively in heterogeneous groups, the students identified a number of concerns. These included having to do all the work, receiving a lower grade than they might have done if not working in a heterogeneous group, doing work that was boring and easy and having to act as the teacher. They also identified their unease about appearing too intelligent. Despite these misgivings, the gifted students in the study did take some satisfaction from working in cooperative heterogeneous groups. They preferred cooperative learning to other traditional methods of learning. The motivation to work hard in a cooperative group was evident as the students did not want to let down their group members. They concluded that cooperative learning was successful if homogeneously grouped, but heterogeneous settings were still viewed as beneficial. In this study, the benefits seemed to outweigh the negatives.

Ramsay and Richards (1997), in a study of over 800 both gifted and non gifted students into the effects of cooperative learning on the academic attitudes of gifted students, found that gifted students held relatively negative attitudes toward cooperative learning. Their main concerns were centred

around the pacing of lessons and the over learning that occurred in cooperative learning situations. Gifted students reported frustration with these aspects. However, these negative attitudes did not translate into negative attitudes towards their subjects. They also found that boys were more positive toward cooperative learning than girls.

In a study of gifted learners working in cooperative learning groups, Elmore and Zenus (1994) found that it was the students at the high and low ability levels that had the most difficulty adjusting to the cooperative groups. Moderate achievers were most happy with the programme. Ellet (1993) reported that gifted students often feel negative when they have to work in age-peer cooperative groups as the level of interest and understanding of the group is at a level below that of the gifted student. Cross (2002) believes that cooperative learning for gifted students is not used to achieve optimal academic development, but rather to achieve social goals and that gifted students often feel that they have to carry the group, or do the work of the teacher.

The question of what factors may encourage successful cooperative learning for gifted and talented learners was considered by Coleman and Gallagher (1995a). They investigated five school sites identified by experts in the field of cooperative learning to have programmes where the best cooperative learning programmes were running alongside top quality gifted education programmes. Their study identified six factors as being important to the success of cooperative learning programmes for gifted students. These were:

1. Leadership of teachers.
2. Staff development from experts in cooperative learning.
3. Staff development from in-house cooperative learning master teachers who could provide staff development and on-going support.
4. The level of enthusiasm of the students.
5. The level of enthusiasm of the teachers for the use of cooperative learning.
6. The use of cooperative learning classes grouped by ability and/or performance (p. 375).

A national perspective. This review yielded no empirical research related to the effectiveness of cooperative learning in meeting the needs of gifted and talented learners, despite the fact that it is a recommended approach in inclusive classrooms. Moltzen (2000a), when outlining principles and practices of an effective classroom for students with special abilities, stresses the importance of including opportunities for students to work together with others of like abilities and/or interests. However, he also warns that gifted and talented students can sometimes feel uncomfortable going from a context or setting where they hold a status near the top of the class (such as in heterogeneous groups) to one where they have to do much work to keep pace (homogeneous groups). This would suggest that flexibility is important when making decisions regarding grouping for gifted and talented learners. Riley (in press c) would concur, arguing that flexible grouping (which is described as including ability/aptitude groups and cooperative groups) is desirable. She believes that gifted and talented students should be grouped for different purposes and this should be based upon their needs, abilities, interests, and learning preferences. When deciding on grouping for gifted and talented students, teachers need to be clear about the goals and objectives of the tasks and the needs of the gifted and talented students. Riley stresses the importance of matching these two elements.

The Ministry of Education (2000) points out that cooperative learning groups that are designed for academic or intellectual growth are best organised homogeneously rather than heterogeneously for the gifted and talented learner. This is because heterogeneous groups can lead to lack of challenge and frustration. However, this advice is tempered as it is pointed out that heterogeneous grouping can have some benefits for gifted and talented learners, and in particular, in meeting the service component for Māori learners who are gifted and talented.

Potential Strengths

- Working in teams as opposed to working individually brings academic and social advantages for gifted students (Johnson & Johnson, 1993; Barron, 2000; Elmore & Zenus, 1994), and is culturally desirable and appropriate (Bevan-Brown, 1993, 1996).
- Homogeneous groupings facilitate the most academic advantage for gifted students (Melser, 1999); thus, when the goal of cooperative learning activities is academic, a homogeneous group would be desirable.
- The positive effects of working cooperatively may be transferred to individual work (Barron, 2000).

Potential Weaknesses

- Not enough definitive evidence as to the advantages or otherwise of cooperative learning for gifted students, particularly as this relates to specific curriculum areas (Neber et al., 2001).
- Homogeneous cooperative learning groups may have a negative effect on the self esteem of gifted students (Melser, 1999); then again, so might mixed-ability cooperative learning groups (Coleman & Gallagher, 1995a). Therefore, flexibility and careful decision making related to programme objectives are necessitated.
- Gifted students may become frustrated and uneasy when working in heterogeneously grouped cooperative learning situations (Coleman & Gallagher, 1995a; Ministry of Education, 2000).
- Cooperative learning for gifted students may not be successful unless there is adequate staff development and training, and teachers are enthusiastic about using it (Coleman & Gallagher, 1995a).

Recommendations for Effective Practice

- Cooperative learning can meet the needs of gifted students but should be used in conjunction with other proven teaching and learning approaches (Nelson & Gallagher, 1993; Ramsay & Richards, 1997; Riley, in press c; Robinson, 1991).
- For cooperative learning to be a successful vehicle for learning and teaching, the needs of gifted students need to be consciously planned for (Coleman & Gallagher, 1995a).
- For cooperative learning to be successful for gifted students, there needs to be professional development (Coleman & Gallagher, 1995a; Nelson & Gallagher, 1993).
- Gifted students need to be given some autonomy over their learning goals and methods of achieving these goals (Matthews, 1993; Moltzen, 2000a; Ramsay & Richards, 1997; Robinson, 1991)
- Cooperative learning should not take the place of specialised planning and services for gifted students (Coleman & Gallagher, 1995a; Robinson, 1991)
- Both homogeneous and heterogeneous grouping should be used with gifted students as one may have academic advantages and the other, advantages for the development of self-esteem (Coleman & Gallagher, 1995a).
- There needs to be further research into the efficacy of cooperative learning for gifted and talented students, particularly in relation to curriculum areas and learning tasks and within the context of the New Zealand educational system.

OTHER RECOMMENDED APPROACHES FOR INCLUSIVE REGULAR CLASSROOMS

There are several other approaches to differentiating instruction for gifted and talented students which are commonly reported in the literature, but for which this review yielded minimal, if any, empirical evidence of their effectiveness. Therefore, these are introduced and briefly discussed in this section.

Small Group or Independent Study

The Ministry of Education (2000) defines small group or independent study as a strategy whereby individual students or small groups of students investigate curriculum related or personal interest topics through their involvement in an investigation, research task, or project. The role of the teacher is to guide or facilitate students through (1) topic selection; (2) investigation planning; (3) goal setting; and (4) the presentation of their discoveries (Ministry of Education, 2000). The common characteristic of most enrichment programmes is the expansion on the curriculum (Mastropieri & Scruggs, 2000), and this can be achieved by facilitating gifted and talented students to study topics to a depth that extends beyond the scope of the regular class curriculum.

According to Cathcart (1994) there are three main forms of small group or independent study:

1. *Investigative*: setting a question or problems to which students research the answers;
2. *Conceptual*: developing understanding through providing and reflecting on a range of experiences; and
3. *Ways of Knowing*: developing understanding by examining topics from different perspectives, that is, a multi-dimensional study.

Siegle (1998) reports that when gifted students were asked about what they least liked about the regular class curriculum, they frequently referred to the limited opportunities to pursue topics of their own choosing. Murphy (1987) proposes the option of allowing gifted students, either alone or in small groups, to pursue projects through guided independent study in a particular area of interest. Le Sueur (1996) lists “activities involving the investigation of real problems or topics, using methods of inquiry appropriate to the discipline” (p. 168) as one of the more common levels of curriculum differentiation offered by New Zealand primary schools. She suggests that this “personalised learn by doing” form of study relies on (1) synthesis and application of the content; (2) the process; and (3) direct involvement (p. 168). Outcomes for the students include a greater commitment to the task, a sense of accomplishment and increased self confidence (Le Sueur, 1996).

Independent study can be one of the most comprehensive and rewarding learning experiences for gifted and talented students (Cathcart, 1994), promoting limitless growth (Tomlinson & Imbeau, 1999). This approach allows opportunities for critical thinking and problem-solving through in-depth analyses (Mastropieri & Scruggs, 2000) and facilitates confidence, independence and risk-taking through curiosity and a search for knowledge (McAlpine, 1994). Cathcart (1994) considers a well planned independent study programme to be the ideal strategy for catering to the preferred learning style of gifted and talented students.

According to Tomlinson and Imbeau (1999) the ultimate aim of independent study is self-guided learning. To help students achieve this goal they suggest that teachers create opportunities for students to use independent investigations to follow their own passions because developing a student’s passion for a topic is often more important than the topic itself. Tomlinson and Imbeau (1999) also make a case for using small group investigations rather than solo ones to facilitate peer interactions. Furthermore they suggest no matter how gifted some students are, they may lack the vital skills needed to develop and follow through on a high quality independent investigation, thus an effective ‘independent study coach’ needs to intervene to help the learner develop those skills (Tomlinson & Imbeau, 1999).

Kaplan (1999) outlines the following components as prerequisites to a successful independent study for gifted and talented students:

- Determining when the independent study is finished or completed;
- Assessing the independent study against qualitative criteria rather than quantitative, so that the “learning to learn” is valued more than measuring what was learned;
- Defining where it is acceptable to work individually or collaboratively, as well as teaching how to credit the work of other people in their study;
- Confronting affective behaviours (for example, tedium and disinterest), as well as organizational behaviours (such as time management); and
- Determining success or accomplishments as defined by (1) a rubric or general set of criteria, and (2) the nature of personal individuality.

McAlpine (1994) considers that commitment, sustained periods of work and persistence are critical to creative endeavour, but this form of learning is not just about the process, products are also important. Therefore they should be “made to count” so that assignments encourage and reward creative thinking (McAlpine, 1994).

Lewis (1990) described how some New Zealand families and teachers of gifted children make provisions for these children. The gifted education programme offered by Lincoln Heights Primary School, which at that time was run by Elaine Le Sueur, was presented as an exemplar of good practice. In this programme, 22 children were undertaking independent study contracts. The students decided on a topic, researched it and then presented their work by the contracted date.

Potential strengths of independent or small group study.

- While teachers initially may provide students with choices to select from and perhaps manage the learning via a negotiated learning contract, the strength of this type of study lies in its ability to gradually scaffold students towards independence so that it is totally student selected and directed (Ministry of Education, 2000).
- By guiding their own project to completion, independent study encourages students to take responsibility for their own learning and to become autonomous learners (Macleod, 1996).
- This approach is well-suited to inclusive classrooms because gifted students do not need to be withdrawn from class. The goals of enrichment are easily accomplished through having students work independently or in small groups on projects in the regular classroom (Mastropieri & Scruggs, 2000).
- Independent study is a well-known and proven approach for regular class teachers and is a viable option for meeting the needs of many students (Siegle, 1998).
- With independent study, apart from playing a useful role of audience or celebrant (of the student’s creation) the teacher can step back, therefore this type of learning is student-centred as opposed to teacher-centred (Tomlinson & Imbeau, 1999).
- The teacher becomes the ‘critical friend’ to help the student clarify and refine plans, while at the same time facilitating independent learning (Tomlinson & Imbeau, 1999).
- Independent study provides gifted and talented students with an opportunity to expand their understanding of various topics through self-directed inquiry under guidance, while providing minimum interruption to the school timetable and curriculum (Siegle, 1998).

Potential weaknesses of independent or small group study.

- The success of this strategy is contingent upon time management, timetabling, availability of resources, checkpoints, student knowledge of research and product development and assessment (Ministry of Education, 2000).
- This strategy may not always achieve the desired level of work because (1) the topic is too broad or not clearly defined so the student is unsure what is expected; (2) the required learning skills are not identified or taught; (3) the construction of the study programme is inadequate; or (4) there is insufficient guidance offered to the student (Cathcart, 1994).

Recommendations for effective facilitation of small group or independent study.

- Due to the time and energy invested into an independent study, teachers must ensure it becomes a highly effective learning experience (Cathcart, 1994).
- Allow longer sustained periods of time for study and research, using flexible timetabling (McAlpine, 1994).
- Consider different groupings, for example, pairs, trios, as well as individual research (McAlpine, 1994).
- Encourage self-initiated learning, based on student interests and a problem-finding approach (McAlpine, 1994).
- The teacher needs to evaluate the learner's need for guidance or coaching, and to put in place the steps required to gain a level of competence and proficiency (Tomlinson & Imbeau, 1999).

Learning Centres

The use of learning centres as a strategy for meeting the needs of gifted and talented learners in a regular class is commonly reported in the literature. Learning centres (or sometimes called challenge centres) have been described as: extended activities, pegged at the level of the learner (Van Tassel-Baska, 1994); a station or group of materials and resources that learners can use to study topics or practise and reinforce skills (Tomlinson, 2001); and places in a classroom for self-directed learning of differentiated content (Riley, in press c). Despite small differences in explanation, most agree that learning or challenge centres are physical places, usually in a classroom, where learning activities are available for students to engage in. There is often some form of choice and self-management involved in a learning centre.

Potential strengths of learning centres.

- Useful in providing enrichment or acceleration and in allowing students to work at their own level and pace (Tomlinson, 2001; Winebrenner, 2001).
- Allow for student choice (Cathcart, 1994; Heacox, 2002; Van Tassel-Baska, 1994) which is a key factor in motivating students to learn (Stipek, 1998)
- Emphasis on self-directed learning (Heacox, 2002; Riley, in press c).
- Tomlinson (2001) also suggests that learning centres frees up the teacher for small group, direct instruction.
- Learning centres can be designed around learning styles or multiple intelligences (Heacox, 2002; Winebrenner, 2001) and can be used with students of any age and in any curriculum area (Davis & Rimm, 1998; Heacox, 2002).
- Kaplan (1999) suggests taking a learning centre approach to independent study because of its advantages in shifting the responsibility from the teacher to the student in learning how to conduct an investigation or project.
- Learning centres can be an integral part of the curriculum and its delivery (Riley, in press c).

Potential weaknesses of learning centres.

- Could result in ‘more of the same’ busy work if not carefully planned and managed (Riley, in press c).
- Learning centres require student self-direction and motivation, so could prove difficult for some students.

Recommendations for effective practice in the use of learning centres.

- The activities must match the interests, abilities, and learning styles of the students. Therefore, the topics or focuses of the learning centres should be a balance of curricular-driven and student-driven ideas.
- There must be clear instructions provided at the learning centre, or prior to students beginning work at the learning centre.
- Resources need to be organised and easily available.
- There should be both long term and short term activities.
- Because an aim is to encourage independence, there must be procedures for students to make choices and decisions and to record their own progress. Students also need to be held accountable for the time they spend at learning centres.
- Ensure that procedures are in place for assessment and evaluation (Heacox, 2002; Riley, in press c; Tomlinson, 2001; Winebrenner, 2001).

Integrated Curriculum

Several different terms are used to make reference to curriculum integration: interdisciplinary; multidisciplinary; thematic; integrative; correlated; unified; synergetic; fused; and holistic teaching (Lake, 1994; Vars & Rakow, 1993). The Ministry of Education (2000) defines this strategy as the integration of multiple disciplines, adding that for gifted and talented students the different disciplines or content areas are pulled together by an overarching broad-based, conceptual theme. It “involves the integration of multiple disciplines, allowing learning across wide issues as opposed to narrow topics. For example, the themes of discovery, survival, or exploration may be umbrellas under which many disciplines and subtopics rest” (Ministry of Education, 2000, p. 43).

“The flexibility of the New Zealand Curriculum Framework enables gifted and talented students to “work at a level appropriate to their ability alongside others in the classroom working at different levels” (Education Review Office, 1998a, p. 13). The Ministry of Education (2000) consider an integrated curriculum approach to be appropriate for all students in a regular classroom, while also providing gifted and talented students with the added freedom to “pursue topics of choice in accordance with their individual needs” (p. 43). It enables all students to be part of the regular curriculum while including skills and knowledge not explicitly taught as part of that curriculum (Conway, 2001).

Fogarty (1991) suggests 10 models for designing curriculum that help students make valuable connections while learning. Some of these models may be particularly appropriate for gifted and talented students. The continuum begins with...

...an exploration within single disciplines (the fragmented connected and nested models), and continues with models that integrate across several disciplines (the sequenced, shared, webbed, threaded and integrated models); the continuum ends with models that operate within learners themselves (the immersed model) and finally across networks of learners (the networked model) (p. 61).

Although curriculum integration is acknowledged as appropriate for all students, it naturally matches the behaviours and characteristics of some gifted and talented students, who by their very nature make abstract connections between ideas and demonstrate understandings of the relationships between and amongst various disciplines of study (Riley, 1997). Curriculum integration is therefore a recommended strategy for qualitatively differentiating the curriculum for gifted and talented students; the underlying principles outlined by the Ministry of Education (2000) which apply here are:

- Present content that is related to broad-based issues, themes, or problems.
- Integrate multiple disciplines (p. 36).

By integrating the curriculum, other principles can be met in practice and these include comprehensive, mutually reinforcing learning experiences; in-depth study; and differentiation of content, processes, and products.

Jenkins (2002) suggests that curriculum integration enables students to explore interrelationships across all curriculum elements. Riley (1997) elaborates and describes curriculum integration as providing opportunities for students to examine the interrelationships between facts, concepts, ideas, and principles. According to McAlpine (1994) creative thinking should not be taught in isolation or in a vacuum, but it should be integrated into the curriculum (and represented in all areas of the curriculum). He proposes that an interdisciplinary approach can encourage and reward new links and fusions. Given that students are able to use higher thinking skills, which can be something of a rarity in classroom learning (Jenkins, 2002), this approach is likely to have good educational outcomes for gifted and talented students.

Educators in gifted and talented advocate for an interdisciplinary approach to teaching gifted and talented students which moves ‘up a notch’ from potentially narrow topics to the use of conceptual themes (Kaplan, 2001; Riley, 1997; Roberts & Roberts, 2001; Van Tassel-Baska, 1994). This moves multidisciplinary or integrated study beyond topic studies, such as World Cup rugby, dinosaurs, or pirates to studies of ‘big ideas’ like exploration, discovery, change, patterns, energy, adventure, power, or soul. There are two immediate advantages of using this approach: firstly, challenging and complex content naturally arises (Riley, 1997); and secondly, gifted and talented students are given the freedom and flexibility of choice, depth, and breadth (Ministry of Education, 2000).

Negotiating curriculum with students is at the essence of curriculum integration (Fraser, 2000). The type of negotiation required by curriculum integration involves sharing power in the classroom. Teachers “have to take cognisance of their students’ concerns, questions, and prior knowledge. This could mean abandoning some of their own ideas. In sharing power, teachers are in fact thrust into the role of researchers and investigators alongside their students” (Fraser, 2000, p. 35).

Merifield (2003) describes an integrated curriculum as weaving together the different curriculum areas in a meaningful way to achieve intended learning outcomes in each of the targeted curriculum areas. When differentiating the curriculum through integration, Van Tassel-Baska (1994) offers four fundamental ways of making adaptations to the curriculum:

1. The level of the curriculum must be sufficiently advanced to interest and challenge the gifted learner;
2. The pace at which the curriculum is offered must be adjusted to accommodate both faster and slower rates, depending on the nature of the curriculum challenge;
3. The complexity of the curriculum should reflect the capacity of the gifted learner to engage in simultaneous rather than linear processing of ideas; and
4. The depth of the curriculum should allow gifted learners to continue exploring an idea of special interest to the level of expert.

Developed specifically as a model for gifted and talented students, the Integrated Curriculum Model is comprised of three components: advanced content; high-level process and product work; and intra- and inter-disciplinary concept development (Van Tassel-Baska & Brown, 2001). It is a 'step up' from the core curriculum in its advancement of knowledge and expected levels of excellence and expertise in both learning processes and products. Van Tassel-Baska (1997) believes that these three elements are "the best approaches to curriculum development and implementation" (p. 128) and describes their synthesis in the following ways:

1. Disciplines of study are framed through an emphasis on advanced knowledge.
2. Higher order thinking and processing are developed.
3. Learning experiences are created around major issues, themes and ideas that reoccur in real world applications and theoretical understandings within and across disciplines.

Curriculum integration is not simply an organisational strategy, rather, it is a way of thinking about the purposes of schooling, the sources of curriculum, and the uses of knowledge (Beane, 1995). Beane advocates that the central focus of curriculum integration is the search for self and social meaning. It is based on a view of learning as the continuous integration of new knowledge and experience. The disciplines of knowledge are drawn on in a responsible curriculum integration; they are "clearly not the enemies of curriculum integration" (p. 622).

Potential strengths of integrated curriculum.

- Previous research indicates that an integrated curriculum can replace the isolated compartmentalised learning experienced by some gifted and talented students (Clark, 1997; Maker, 1983).
- An integrated curriculum provides a framework to help students bring together in some meaningful way the many experiences they encounter both in and out of school (Vars & Rakow, 1993).
- It also encourages the natural inclination of gifted and talented students to make connections among abstract ideas while enriching the students' general education (Vars & Rakow, 1993).
- With an integrated curriculum approach, curriculum is co-constructed by the questions and concerns collaboratively developed by students and teachers (Fraser, 2000; Jenkins, 2002).
- Gives gifted and talented students the opportunity to become immersed in a study of personal interest and to internally integrate information by making connections (Fogarty, 1991).

Potential weaknesses of integrated curriculum.

- The curriculum integration approach is misunderstood (Beane, 1995).
- There is a danger that if curriculum integration is an approach used for all students, gifted and talented students may still be overlooked in its planning and delivery.

Recommendations for effective use of integrated curriculum.

- Integrating models and approaches with solid instructional strategies would be more responsive to the needs of practitioners (Brighton, 2001).
- Use a step-by-step plan for planning differentiated integrated units of study (for example, see Riley, 1997; Kaplan, 2001; Roberts & Roberts, 2001).
- Programming for gifted and talented students, as well as the students with special needs, should be part of the overall integrated curriculum planning, not an add on (Conway, 2001; McAlpine, 1994).

- Curriculum should not be restricted to the boundaries of academic subject areas, but centres on life itself (Beane, 1995).
- Themes should be selected based upon their importance and worthiness, complexity, relevance, and interest (Van Tassel-Baska, 1994).
- In planning and implementing integrated study, content, process, products, and evaluation must be taken into consideration, as well as students' abilities and interests. Gifted students should, therefore, be central to the planning and implementation (Riley, 1997).

SCHOOL-BASED PROVISIONS FOR GIFTED AND TALENTED STUDENTS

This section of the review of the literature examines the reported practices and research related to provisions for gifted and talented students beyond the inclusive classroom. It is important to remember that in the implementation of these practices, all learning and teaching should be qualitatively differentiated and matched to the individual strengths, abilities, and qualities of gifted and talented students. Furthermore, these should merge enrichment and acceleration practices, although some provisions will clearly lend themselves toward one approach over the other. This part of the review discusses cluster grouping, withdrawal or pull-out programmes, special classes, early entry to school, dual enrolment, competitions, mentorships, and distance learning.

CLUSTER GROUPING

Cluster grouping is an organisational or administrative strategy related to class placement of gifted and talented students. It is "an administrative procedure in which all of the identified youth at a grade level are assigned to one classroom rather than being dispersed among two or more rooms at that grade level. Their assigned class is typically a heterogeneous one with children of all ability levels" (Hoover & Saylor, 1993, p. 13). For example, in a school that has eight out of a hundred students in the same year group identified as being gifted and talented, these eight students are placed in the same classroom, as opposed to scattering them among all of the classrooms that cater for that age group within the school (Kennedy, 1995). Basically gifted and talented students at a particular level are assigned to one or two classrooms rather than dispersed across several (Hoover, 1993). The remainder of the class in which these students are assigned is heterogeneously grouped.

In the context of this review of the literature, cluster grouping differs from 'enrichment clusters' which are described as part of the Schoolwide Enrichment Model (Renzulli & Reis, 2000), and the 'cluster groups, clubs, or electives' described by the Ministry of Education (2000). Also, cluster grouping differs from the organisational strategy whereby one or more schools work together to provide programmes for gifted and talented students.

Winebrenner and Devlin (2001) suggest that a group of three to six students, usually in the top 5% academically, are placed together in a mixed ability classroom with a teacher trained in gifted education. They further state that cluster grouping can be applied in all levels of schooling. Rogers (2002b) states that students who are cluster grouped spend blocks of daily time working with peers of similar ability, specifically for 'traditional' academic subjects (such as reading and mathematics), as well as peers of mixed ability. With cluster grouping, the gifted and talented students may be the only ones in the class who are grouped together on the basis of similar instructional needs (Fiedler et al., 2002).

Gentry (1999) describes three common themes in relation to cluster grouping: a group of gifted and talented students are placed in a heterogeneous classroom; the curriculum is differentiated for gifted and talented students in the cluster group; and the teacher of the cluster group has professional development and/or experience working with gifted and talented students.

Winebrenner and Devlin (2001) suggest that students should be identified for cluster groups based upon demonstrated needs for a differentiated curriculum. The methods of identification discussed

earlier in this review of the literature apply to decision-making regarding cluster grouping. Rogers (2002b) recommends identification based upon academic potential or performance, preferably using out-of-level tests. Additionally, cluster groups may be designed for specific subjects. For example, as Winebrenner and Devlin (2001) explain, “If there will be more than one cluster, those highly capable in specific subjects might be grouped together in separate clusters” (no page given). However, they also recommend that highly gifted and talented students, given their ‘rarity,’ should always be cluster grouped together and on a full-time basis.

Braggett and Moltzen (2000) describe the approach many schools in New Zealand use to determine student placement as “pepperpot” (Bendikson’s 1997 thesis is the original source). This approach results in children with common characteristics being ‘spread across’ classrooms ensuring no teacher is “overburdened or overblessed” (p. 792). However, they also indicate that some schools in New Zealand have decided this is not the best use of resources and have begun ‘cluster grouping’ gifted students.

This is the only reference to cluster grouping in New Zealand to be found in this review of the literature.

In fact, the literature review only located research regarding the use of cluster grouping in the United States. For example, in a survey of 69 schools representing 29 states undertaken by the National Research Center at the University of Connecticut in 1993, 17% of respondents had a policy on cluster grouping, and 62% of respondents indicated the use of cluster grouping, but none of these had a policy to support its implementation (Schuler, 1997). In relation to the grade level of implementation, 51% of respondents indicated that cluster grouping occurred in grades 3-6, 5% reported using cluster grouping in kindergarten and ninth grade, 32% reported the use of cluster grouping in the first, second, seventh, and eighth grades, and 12% indicated cluster grouping occurred in the tenth, eleventh, and twelfth grades. The schools gave a range of definitions of cluster grouping and most of these gave indication of a number or percentage of gifted students being placed in heterogeneous classrooms.

Schuler’s study also probed the selection process of cluster students, special populations represented, selection and training of cluster teachers, differences between cluster and non-cluster classrooms, programme options used, reactions to cluster grouping, academic and social/affective effects of cluster grouping, and advantages and disadvantages of cluster grouping. The results are summarised as follows:

- Students were selected using a range of typical identification methods.
- The schools indicated that under-represented students were included in cluster groups (i.e., culturally diverse, gifted with disabilities, underachievers).
- Teacher selection was primarily left to the discretion of the principals (40%) and professional development was seen as necessary by 22% of respondents.
- All schools indicated that teaching and learning programmes were ‘qualitatively differentiated,’ with 99% indicating use of content enrichment.
- All schools indicated positive reactions from teachers, parents, and students.
- Of school administrators, 69% were positive in regards to the implementation of cluster grouping.
- Finally, 90% of the respondents indicated that gifted and talented students were positive about the cluster grouping approach.

Outcomes for Students

This review of the literature found only a small number of empirical studies related to the effectiveness of cluster grouping for gifted and talented students. However, because cluster grouping relies primarily upon differentiation within the regular class-room, which may be supplemented with

other provisions, its effectiveness would no doubt be dependent upon the differentiated provisions in the regular classroom and schoolwide. Gentry (1999) reports only eight published studies regarding the effectiveness of cluster grouping: none of these examined the effects upon students other than those identified as gifted and talented; all of these were conducted in the United States (as was Gentry's study); and they were conducted between the years 1962-1994. Gentry concludes that although cluster grouping is commonly suggested, there is little evidence of its effectiveness. As she states, "Perhaps cluster grouping is recommended in the absence of research ... because the practice makes sense" (p. 8).

International perspectives. Rogers (2002b) reports research findings from a 1986 study by LeRose which compared the test performances of gifted students who were clustered against equally gifted students placed in accelerated classes. Both groups received the same differentiated curriculum. The clustered students scored significantly higher on tests of verbal creativity and Rogers speculates that this could be because a smaller group of students has more opportunity for peer interaction than a whole class.

Gentry (1999) conducted a four-year comparative study of two schools in the United States, one which employed cluster grouping and the other which did not. The results of her study indicated that cluster grouping led to the increased identification of students as high achieving and fewer students identified as low achieving. The teachers in the study felt that this change had occurred because cluster grouping had created more opportunities for individualisation of instruction. This was because by placing the highest achievers in one classroom meant that the range of achievement levels in other classrooms was restricted. As a whole, the students in the treatment school (employing cluster grouping) demonstrated significant gains in overall achievement after three years, despite the fact that the treatment school began with lower achievement levels. Gentry concludes that the use of cluster grouping led to higher teacher expectations, greater use of gifted education strategies, and growth in the use of ability grouping – all of which would no doubt have a positive impact upon gifted and talented students.

Hoover (1993) conducted a survey of teachers in Indiana (USA) classrooms where cluster groups of gifted students were assigned. The results indicated that teachers perceived this approach as enabling opportunities for interaction with gifted and talented peers, as well as providing challenging tasks and materials. They also perceived increased motivation in gifted and talented students. The teachers reported more opportunities for small group work, individual and small group projects and thinking skills activities for gifted and talented students. Finally, they reported positive relationships between the clustered students and their classroom peers.

National perspectives. As stated previously, this review of the literature yielded no references in relation to the effectiveness of cluster grouping in New Zealand schools.

Potential Strengths

- Elimination of disruption and fragmentation of instruction because students remain in one classroom with one teacher (Hoover, 1993).
- Interaction with other gifted and talented students throughout the day allowing for intellectual stimulation (Hoover, 1993; Winebrenner & Devlin, 2001), as well as with students of all ability levels (Rogers, 2002). Additionally, gifted students will feel more comfortable when given the opportunity to interact with similar peers (Winebrenner & Devlin, 2001). Thus, cluster grouping in regular classrooms enables gifted and talented students to interact with peers of like ability for intellectual stimulation and social-emotional support (Hoover & Saylor, 1993).
- Eases the implementation of differentiated learning experiences and increases the likelihood teachers will implement differentiated experiences (Winebrenner & Devlin, 2001). As Callahan (2001a) states, "Teachers are unlikely to differentiate for one or two students" (p. 151).

- A practical option for small or rural schools (Hoover, 1993).
- Eases scheduling of 'outside' provisions, such as withdrawal or pull-out programmes (Winebrenner & Devlin, 2001).
- One teacher has responsibility for ensuring that the level and pace of instruction is appropriate for gifted and talented students (Hoover, 1993).
- Allows for flexible within ability grouping (Hoover, 1993) and eliminates concerns regarding inflexible 'tracking' (Winebrenner & Devlin, 2001).
- Allows for use of strategies like cooperative learning more effectively for the gifted and talented, since they can be more homogeneously grouped (Winebrenner & Devlin, 2001).
- Compatible with the inclusive education model in that teachers are able to more closely align instruction to educational needs of gifted and talented students (Winebrenner & Devlin, 2001).
- General improvement in achievement for all students, when the cluster group of gifted and talented students is kept small and manageable (Winebrenner & Devin, 2001) and general improvement in teaching by way of gifted education pedagogy and its influences on general education (Gentry, 1999).
- Gifted and talented students are more likely to choose more challenging tasks when other students will also be eligible (Winebrenner & Devlin, 2001).
- Teachers no longer have to deal with the strain of trying to meet the needs of just one precocious student in a class (Winebrenner & Devlin, 2001).
- Cluster grouping can be helpful as a means of compacting the curriculum for the group of gifted students within the class so that unnecessary repetition of basics is replaced with appropriate enrichment and accelerated learning (Kennedy, 1995).
- As cluster grouping allows gifted and talented students to receive all instruction within their regular classroom, it eliminates the class disruption caused when gifted and talented students leave for instruction in pullout and resource programmes (Hoover & Saylor, 1993).
- Teachers using cluster grouping are more likely to plan appropriate tasks and activities to engage their larger number of gifted and talented students (Kennedy, 1995). As these teachers have clearly stated responsibilities to provide appropriate instruction for their gifted and talented learners, these students will benefit from the documented advantages of ability grouping (Kulik & Kulik, 1991; 1992).
- Cluster grouping is a realistic option for schools who wish (for whatever reason) to appropriately cater for the needs of their gifted and talented students in heterogeneous rather than homogeneous classrooms (Hoover & Saylor, 1993; Rogers, 1993).
- Provides a full-time, cost-effective programme for gifted students (Winebrenner & Devlin, 2001).
- Cluster grouping is less likely to alienate gifted students from ethnic minority groups as cluster placement within a mixed-ability class increases the potential for these students to have cultural peers in the same class.

Potential Weaknesses

- Could result in 'more of the same' if teacher is not professionally trained, committed to, and supported in gifted education (Hoover, 1993).
- May be difficult to implement at intermediate and secondary levels (Hoover, 1993).
- Parental pressure to have children placed in cluster grouped classrooms (even if the children are not placed in 'the cluster group') (Winebrenner & Devlin, 2001).

- Difficulty may arise if students transfer or move into school after cluster placements have been made (Winebrenner & Devlin, 2001).
- The possibility that differentiation does not actually occur (Winebrenner & Devlin, 2001). Since grouping alone does not guarantee appropriate differentiation, teachers assigned to a cluster grouped classroom must be trained in teaching gifted and talented students and enjoy and be committed to teaching such students through differentiating the instruction and curriculum (Hoover & Sayler, 1993; Kennedy, 1995).
- Concerns have been raised regarding the effects of cluster grouping upon other students in relation to their achievement, self esteem, and teacher expectations (Gentry, 1999).

Recommendations for Effective Practice

- The cluster group teacher should be trained in gifted education and committed to differentiation (Hoover, 1993; Rogers, 2002b), as well as provided with support (Winebrenner & Devlin, 2001). Additionally, the teacher should enjoy working with gifted and talented students (Rogers, 2002b).
- Supplementary teaching and learning materials should be made available to the cluster teacher and students (Hoover, 1993).
- The teacher must be prepared to spend a proportionate amount of instructional time with clustered students, as with other students (Rogers, 2002b)
- “The positive effects of the cluster grouping practice may be shared with all students over several years by rotating the cluster teacher assignment among teachers who have had gifted education training and by rotating the other students so all students eventually have a chance to be in the same class with a cluster group” (Winebrenner & Devlin, 2001, no page given)
- The rotation of the cluster teacher assignment every two years among teachers who have had appropriate training so parents understand that many teachers are capable of teaching gifted students (Winebrenner & Devlin, 2001).
- The cluster grouping of a small number of gifted and talented students within a heterogeneously grouped regular classroom can be supported for demographic, economic and philosophical reasons (Hoover & Sayler, 1993; Rogers, 1993).

WITHDRAWAL OR PULL-OUT PROGRAMMES

Gifted and talented students in withdrawal or pull-out programmes, often referred to in New Zealand as ‘extension programmes,’ leave their regular classroom, where the majority of their instruction occurs, to attend special classes with other identified gifted and talented students. These classes may vary from a few hours a week to a full day, a term to a year long. Braggett and Moltzen (2000) report that in New Zealand students from three to four different year levels are drawn together for a morning, afternoon, or full-day a week for periods of approximately six weeks. During this time students study topics which may build upon or extend beyond the ‘regular’ curriculum, and these vary widely. In New Zealand, one reason given for such a wide array of topics is to ensure that as many children as possible benefit (Braggett & Moltzen, 2000; Ministry of Education, 2000). This type of provision is reported in the United States as the most common programme option at primary level (Bernal, 2003a; Olszewski-Kubilius & Limburg-Weber, 1999), employed by approximately 70 to 95 percent of school districts (Cox & Daniel, 1984; Cox, Daniel, & Boston, 1985). Braggett and Moltzen (2000) report that programmes of this nature are the most popular supplementary provisions in New Zealand.

The Education Review Office (1998a) report that withdrawal programmes at primary level may be situated within-school or outside school. The Ministry of Education (2000) describes opportunities for gifted students to attend mini-courses and seminars, take field trips, and interact with special guests. The Education Review Office (1998a) reports that some secondary schools offer enrichment

programmes of this nature. Macleod (1996) states that some secondary schools offer withdrawal classes on a department-to-department basis, and others offer cross-curricular programmes. Rogers (2002b) reports in the United States that scheduling and the content-specialisation of classes make pull-out provisions difficult at secondary level, and it is fair to say that in New Zealand the same difficulties could be faced. Students in pull-out programmes may be taught by specialist teachers (Bernal, 2003a; Ministry of Education, 2000) or community-based experts (McAlpine, 2000b), but the approach used in one New Zealand school seems quite common: "Different teachers ... using their own strengths and interests to cater for the group's needs" (Keen, 2002a, no page given).

Two models of out-of-school provision are described by the Education Review Office (1998a): independent providers offering one-day-a-week programmes; and clusters of schools which pool resources to draw together gifted students from the area. Over the last several years in New Zealand, there has been growth in one-day-a-week programmes being offered by outside providers. These programmes withdraw gifted and talented students from their regular school on a weekly basis for a full-day of instruction, on a sliding user-pay basis which varies dependent upon the programme and family income. The goals of these programmes reflect those of other withdrawal programmes: to offer gifted and talented students opportunities to interact with like-minded peers in an emotionally safe, intellectually challenging learning environment. The two largest providers of these programmes are operated by charitable trusts and are the One Day School and The Gifted Kids Programme.

The One Day School began in May 1996 in Central Auckland under the initiative of the George Parkyn National Centre for Gifted Education, and offers programmes for gifted children between the ages of six and twelve. Currently the programme is operating in fourteen venues around the country: Warkworth, Auckland (eight venues), Waiuku, Taupo, Tauranga, Hawkes Bay, Wellington, Dunedin, and Timaru. Most venues operate three days per week, with the Grey Lynn venue the only one that operates five days per week; thus, the programme is currently offering 36 'days' of One Day School per week. Across the country there are approximately 430 children attending One Day School, coming from 184 different schools, plus many homeschoolers. In 2002 the George Parkyn National Centre for Gifted Education received three-year funding from the Ministry of Education Talent Development Initiatives to establish COOL: Community of On-line Learners, which offers the One Day School programme to children in rural areas. At present, two online classes have been established. Additionally, funding was received for scholarships to be made available for gifted students needing financial assistance (M. Stafford, personal communication, September 3, 2003).

The Gifted Kids Programme was established in 2000 by The Gifted Children's Advancement Charitable Trust, with the aim of providing educational opportunities for gifted and talented students from lower socio-economic communities. It began at Tamaki Intermediate School with fourteen students from four schools (C. Fernyhough, personal communication, September 5, 2003). Currently the programme is operating six clusters in the North Island, based in Wellington, Auckland, Rotorua, and Whangarei. The Gifted Kids Programme currently serves approximately 435 students from 110 primary, intermediate, and secondary schools. In 2002 the programme received Ministry of Education funding for a Talent Development Initiative, The Gifted Edge, a three-year programme which aims to provide professional development in gifted education to mainstream teachers whose students attend the one day programme. Additionally, Gifted Kids is involved in iPAiNT, a Ministry of Education contract which seeks to provide professional education in the use of information communication technology for gifted students (The Gifted Kids Programme, 2003).

Both of these providers have seen growth in the number of classes being provided, alongside support from communities, schools, and the Ministry of Education. Anecdotal evidence of their appeal is not only seen in this steady growth, but also the vast, positive popular media attention given to both providers. Additionally, the Ministry of Education projects that both organisations are involved in give indication of their commitment to ensuring the possible negative side-effects of pull-out programmes are alleviated. However, the review of the literature yielded no research related to the effectiveness, or ineffectiveness, of either of these programmes in enhancing affective and cognitive outcomes for gifted and talented students.

Anecdotal evidence indicates that the nature of withdrawal or pull-out programmes in New Zealand mirrors international literature. Pull-out programmes may be enriched or accelerated, but it seems that the most common practice is an enrichment-orientation (Borland, 1997b; Rogers, 2002b), with Renzulli's Enrichment Triad Model being reported as the most often utilised curricular framework (Winner, 1996a). Apart from content differentiation, pull-out programmes also tend to focus on creative and critical thinking, complex problem solving, independent or small group learning, and creative productivity (Moon, Feldhusen, & Dillon, 1994). Winner (1996a) indicates that pull-out programmes offer active, hands-on, project-based learning. Additionally, it is recommended that pull-out programmes, like all other provisions for gifted students, provide a psychological support system (Delisle, 1995).

Reid (1996) raises concerns over the nature of gifted and talented programmes in New Zealand, including pull-out programmes, indicating that the buzz words related to content, process, and product differentiation are seldom defined, but "... provide a nice warm feeling of worthiness and wellbeing" (p. 379). Similarly, Winner (1996a) questions the value of provisions which might be "too superficial, too short, and too unsystematic" (p. 262). Rogers (2002b) describes the typical approach of these programmes as a 'potpourri.' However, if educators heed the advice of the Ministry of Education, then differentiated pull-out programmes will not be 'more of the same,' but incorporate "well-thought-out, meaningful learning experiences that capitalise on students' strengths and interests" (Ministry of Education, 2000, p. 36).

Outcomes for Students

The review of the literature found some descriptive reports of pull-out provisions within New Zealand. For example, there are New Zealand-based case studies of pull-out programmes reported on *Te Kete Ipurangi: The Online Learning Centre*: College Street Normal School; Mairehau Primary School; Leeston Consolidated School; and Harley Street School. The 1998 Education Review Office report, *Working with Students with Special Abilities*, describes several case study schools employing this provision. *Tall Poppies* magazine also regularly features descriptive reports of pull-out provisions for gifted students. This review of the literature, however, did not yield any substantive reports of the effectiveness of pull-out programmes for gifted and talented students. It seems that the situation has not changed much since 1996 when Reid wrote, "... there have been a handful of articles written about 'programmes' for gifted children, but these are long on description, unsupported opinion, and unsubstantiated conclusions on outcomes, and they are woefully short on quantitative and/or qualitative evidence of effectiveness" (p. 378).

Despite the fact that pull-out or withdrawal programmes are the most common provision worldwide, the research related to the effectiveness of this approach in enhancing cognitive and affective outcomes for gifted and talented students is rather limited. As Delcourt et al. (1994) report in regards to research on programme effectiveness:

Although there are many theoretical articles, and articles which describe the curricula or goals of different kinds of gifted programs, there are few studies which have directly examined how students change over time after entering a gifted programmes. Research on the effects of gifted programs is generally sparse, unsystematic, and far from conclusive (p 3).

This is certainly the case regarding national and international research on pull-out programmes: Rogers (2002a) in her research synthesis cites one meta-analysis, and this review of the literature yielded a very limited number of other forms of reported research.

An international perspective. Moon et al. (1994) report empirical research which indicates that students in pull-out programmes make moderate gains in achievement, critical thinking, creativity, encouragement of interests, and interaction with other gifted students. Some of these studies were included in a meta-analysis and review of the research on pull-out programmes conducted by Vaughn, Feldhusen, and Asher (1991). The meta-analysis included nine studies using true or quasi-experimental designs and a control group of gifted students. They concluded that pull-out programmes

have significant but varying positive effects upon students' academic achievement (overall effect size of .65), critical thinking (overall effect size of .44), and creative thinking (overall effect size of .32). They also found that pull-out programmes did not appear to have negative effects on self-concept (overall effect size of .11). It is important to note that the moderately positive effects upon achievement and critical thinking are contingent upon the emphasis placed upon these in pull-out programmes. Furthermore, Rogers (2002a) reports that the greatest gains in achievement occur when the pull-out programme is an extension of the regular classroom curriculum.

Winner (1996b) comments on the modest gains in achievement which result from pull-out programmes, stating that "probably students of any ability level would benefit from the kinds of open-ended, project-based learning that goes on" (p. 44), emphasising that none of the studies to date have proven otherwise. She purports that the studies compared gifted students in pull-out programmes with similarly gifted students *not* in such programmes, and these two groups were not randomly assigned. "Only with random assignment can we be sure that gains experienced by the children in the pull-out group are due to the programmes, and not to pre-existing differences between the two groups of children" (Winner, 1996a, p. 262). However, as Reid (1996) points out, research of this nature creates ethical dilemmas, and perhaps for that reason, the type of research Winner calls for has not been carried out.

Another factor to consider in relation to the modest gains in achievement is the relationship between the nature of pull-out programmes and the measures of achievement utilised in studies of effectiveness. Kulik (2003) comments that such modest gains are in fact quite remarkable given that most programmes "...do not ordinarily provide more work on the basic skills ... However, the standardised achievement tests used to evaluate the effects of most enrichment programs stress basic skills" (p. 275).

Moon et al. (1994) conducted a study to investigate the long-term effects of a pull-out programme which used the Purdue Three-Stage Model as a framework. Their study found that gifted and talented students perceived benefits by way of enhanced creative and critical-thinking skills, problem solving skills, and motivation to pursue their own goals, and, furthermore, that these attitudes and skills were transferable to other learning situations. The students also reported enjoyment of the variety and pace of enriched learning activities. Some students indicated short-term or mild effects associated with missed instruction. However, they further report that in regard to self-concept, the research findings are mixed, with some research indicating neutral or positive effects and others reporting negative effects. They conclude that pull-out programmes "can have positive effects on both cognitive and affective development if the curriculum is differentiated to match the needs of gifted learners" (Moon et al., 1994).

Delcourt et al. (1994) report research which examined the outcomes for primary age students in pull-out programmes which did offer the differentiation Moon and his colleagues describe. They describe pull-out programmes which consisted of units of study normally not found in the 'regular curriculum' and with a scientific orientation. Further, these programmes placed strong emphasis upon individualised pursuit of investigative study. They concluded that students in these programmes demonstrated higher academic achievement than their gifted peers who were not involved, especially in the areas of reading comprehension, science, and social studies, yet lower achievement in mathematics. Furthermore, the perceived social acceptance of the students was not negatively affected by their participation in the pull-out programmes, in fact, it was greater than that of gifted students in separate classes and special schools.

Moon and Feldhusen (1993) conducted a small-scale longitudinal study which investigated the accomplishments and future plans of secondary students who had participated in an enrichment pull-out programme during primary school. This exploratory qualitative investigation revealed that for the most part, the gifted students showed evidence of high ability, creativity, and accomplishment during their secondary education. The participating students also had moderate to high educational and career goals. The researchers concluded, "The study provides support for the belief that there is a relationship

between early identification of gifted children and high performance in one or more talent areas as an adolescent” (p. 179).

A national perspective. From a cultural perspective, Bevan-Brown’s (1996) research gives some insight into the cultural appropriateness of pull-out programmes for Māori students. She states that for Māori students with gifts and talents, there is danger that the students could suffer cultural isolation and experience uncomfortable or unfamiliar teaching methods when placed in a withdrawal or pull-out programme. This potential problem extends to other cultural groups. As the Ministry of Education (2000) states, “If the learner is removed from a culturally safe, comfortable environment and placed in a situation where they are the sole Māori, Tongan or Samoan, the gifted provision may do more harm than good” (p. 46). Furthermore, by removing the gifted and talented students from their whānau class, there is a concern regarding the possible negative, even unspoken, messages being given to the ‘ones left behind.’ However, it should be noted that Bevan-Brown’s criticism related specifically to pull-out programmes that remove students from a culturally responsive environment to one that is not valuing and supportive of their culture. She has no issue with pull-out programmes that are culturally appropriate, responsive and welcoming of ethnic minority students.

Potential Strengths

- Ease of implementation (Cox et al., 1985), with ‘few scheduling headaches’ at primary level (Ronvik, 1993).
- Interaction with like-minded peers while remaining in their regular classroom the majority of the time (Cox & Daniel, 1984; Renzulli, 1987; Belcastro, 1987).
- A differentiated curriculum which offers more choices to match the variety of student interests, allowing students to capitalise upon their strengths (Cox & Daniel, 1984; Renzulli, 1987).
- Highly visible (Cox et al., 1985), with potential for positive publicity (Ronvik, 1993) and capturing a ‘niche market’ (Moltzen 1996c).
- May require a limited number of specially trained teachers to develop and implement (Cox et al., 1985).
- In theory, programme evaluation is eased (Cox et al., 1985).
- Labels the programme, not the student, as gifted (Renzulli, 1987).
- Students enjoy the change, teachers like working with bright students, and parents can take pride in having an identified gifted child (Ronvik, 1993).
- Alleviates boredom for the gifted student (Renzulli, 1986).
- Gives other students an opportunity to ‘shine’ in the regular classroom once the gifted and talented students have been removed.

Potential Weaknesses

- Fragmented instruction (Cox & Daniel, 1984) by way of a mismatch with students’ characteristics and needs (Vaughn et al., 1991); lack of either vertical or horizontal articulation with the regular classroom curriculum (Van Tassel-Baska, 1987); and/or little continuity (Winner, 1996b).
- Emphasis on ‘fun rather than rigour’ (Davis & Rimm, 1998; Moon et al., 1994), and thus, lacking in substance (Ronvik, 1993).
- Disruption to classroom routines (Cox & Daniel, 1984), including interruption to preferred activities (Moltzen, 1996c).

- Missed instruction (Cox & Daniel, 1984) which may lead to students feeling punished for participating (Vaughn et al., 1991), getting a ‘double-dose’ of work or missing out on favourite activities (Moltzen, 1996c).
- A ‘part-time solution to a full-time problem’ (Van Tassel-Baska, 1987) or “weak solutions to big problems” (Winner, 1996b, p. 44).
- Danger of being one-off, temporary fillers or add-ons (Townsend, 1996).
- Seldom meet the goals of gifted education programmes, but create a false impression that something ‘substantial’ is being provided for gifted and talented students (Belcastro, 1987).
- By being singled out, the child is labelled ‘gifted’ and this may create resentment amongst classroom peers (Carter & Kuechenmeister, 1986).
- Teachers may resent having their ‘best’ students withdrawn (Cox & Daniel, 1984), feeling that they could teach these students as well as the specialist (Rogers, 2002b).
- Lack of communication between the pull-out programme and regular classroom teachers (Delcourt et al., 1994) which may result in staff discord and misperceptions (Van Tassel-Baska, 1987).
- Dependent upon the length of time a student is involved, pull-out programmes may not allow students in-depth study (Winner, 1996b).
- If enrichment-based, there is a danger of simply ‘more of the same’ busy work (Townsend, 1996).
- One kind of curriculum offered to all gifted children, regardless of their individual strengths and abilities (Townsend, 1996; Winner, 1996b), and being “taught as an homogeneous group, where little cognisance is taken of differences in learning styles, abilities or interests” (Moltzen, 1996c, no page given).
- “These classes are not clearly distinguishable from good classes for ordinary children” (Winner, 1996b, p. 44).
- If specialist teachers are employed, pull-out programmes can be cost-bearing and potentially expensive (Bernal, 2003a).
- May be perceived by parents and educators as ‘the’ gifted programme, and in doing so this does not take into account the remainder of the time spent in school (Rogers, 2002b).
- Pull-out programmes have the potential to isolate gifted students from ethnic minorities (Bevan-Brown, 1996; Ministry of Education, 2000).

Recommendations for Effective Practice

- The pull-out programme should be combined with other strategies (Vaughn et al., 1991) along a continuum of provisions (Ministry of Education, 2000).
- Pull-out programmes should be offered in gifted and talented students’ early years of schooling and followed-up with more appropriate options during intermediate and secondary years (Moon et al., 1994)
- Belcastro (1997) outlines the key criteria that all gifted programmes, including pull-out or withdrawal, should meet: integration with the regular curriculum; identification of students; daily programme experience; placement with intellectual peers; match between pace of programme and students’ rates of learning; curriculum complexity; and excellent teachers.
- The curriculum in pull-out programmes should *replace* (Ronvik, 1993) or *enhance* (Rogers, 2002b) the regular curriculum, as opposed to being ‘added-on.’ Additionally, the curriculum

should be differentiated in the major academic areas in which each gifted student was identified (Ronvik, 1993).

- Close and regular communication between regular classroom teachers and those working with gifted students in pull-out programmes is essential (Ministry of Education, 2000). Rogers (2002b) recommends that time must be made available for specialist teachers and regular teachers to work together.
- The effectiveness of pull-out programmes should be regularly evaluated, and in doing so, efforts must be made to match the indicators of social/emotional and academic growth with clearly defined programme goals (Reid, 1996).
- A curriculum or planning framework should be utilised in the development of withdrawal programmes (Riley, 1996).
- Pull-out programmes should be culturally appropriate and responsive to the needs of all ethnic minority students. They should not isolate these students from their cultural peers (Bevan-Brown, 1993; 1996).

SPECIAL CLASSES

Special classes for gifted and talented students may be full-time or part-time options, with full-time special classes including all or most aspects of the curriculum, and part-time classes for specific curricular areas. Braggett (1998a) states that in Australia, “Such programs are usually commenced because it is believed that the traditional comprehensive school does not, or cannot, provide adequately for students with high academic potential or with specialised abilities” (no page given). Research in the United States has shown that 84% of time in heterogeneous classroom settings is spent on whole class activities, with no attention to differentiating for the gifted (Archambault, Westberg, Brown, Hallmark, Zhang, & Emmons, 1993b). Thus it is no wonder that American researcher John Feldhusen (1994) believes that curriculum and instruction appropriate for gifted and talented students must be delivered in special classes which offer a challenging curriculum, as well as the opportunity to work closely with other exceptionally gifted students. The criteria for students enrolled in special classes are typically quite selective (Braggett, 1998a), and Winner (1996b) believes that special classes should only be made available to highly gifted students.

The Ministry of Education (2000) recommends special classes as one of the many provisions schools might offer across the continuum of approaches. They state, “These specialised classes for gifted and talented students offer broader depth and complexity, usually at a faster pace than would be typical” (p. 43). Moltzen (2000a) reports that in New Zealand, the incidence of special classes has been rather low; however, Braggett and Moltzen (2000) indicate some growth in special classes over the last decade, particularly at intermediate and secondary levels. These are often referred to as ‘accelerate classes,’ especially at secondary level. Van Tassel-Baska (2003) states that in the United States the provision of special classes for subject areas has “historically been the most utilized approach to grouping at the secondary level” (no page given).

Special classes may be enriched, accelerated, or a combination of the two. As the Ministry of Education (2000) advise, the important factor is to ensure that instruction is qualitatively differentiated rather than ‘more of the same.’ The Ministry of Education also describes ‘telescoping,’ whereby for example students may complete two years work in one, as a possible complement to these classes. Davis and Rimm (1998) describe special classes which cover the core curriculum and then extend beyond that with planned enrichment, personal development, and skill development. Feldhusen and Sayler (1990) explain that students in special classes in the United States are often mainstreamed for art, music, or physical education to promote their social interaction with a range of diverse students. In this sort of structure, gifted students are homogeneously grouped for ‘traditional’ academic subjects, but mixed with other students for the remaining subjects (Rogers, 2002b). This is sometimes referred to as a ‘school-within-a-school’ approach (Davis & Rimm, 1998). Another option, particularly relevant at secondary level, is subject-based special classes. For example, Davis and Rimm (1998)

describe American secondary schools which offer special classes in a range of areas – journalism, advanced sciences and mathematics, photography, creative writing, drama, and so on.

In the United States and Britain, ‘magnet schools’ are described as one means of offering specialised classes for gifted and talented students (Davis & Rimm, 1998; Freeman, 1998; Rogers, 2002b); in Australia these are sometimes referred to as ‘special interest centres.’ The magnet school model draws students from a city or district into specialised schools which offer advanced courses in different curriculum areas. For example, one school may specialise in fine and performing arts and another in mathematics and science. Freeman (1998) reports that in Britain these schools aim to attract, rather than select, talented students to an area of excellence, such as music. These schools may be full or part-time options; for example, students in the United States often leave their base school for part of each day to participate. This review of the literature found no references to this option within New Zealand, but it may be worthy of investigation.

Braggett (1998a) describes the evolution of special classes and special schools in Australia, indicating that entry is competitive, academic standards are rigorous, and parental support is strong. Although provisions vary from state to state, he describes full-time special classes and special schools for upper primary to secondary level students. Gross and Sleaf (2001) state that New South Wales is the only state which has instituted ‘Opportunity Classes’ – special classes for gifted and talented students at Years 5 and 6 of primary school. Braggett (1998a) believes that this approach has been taken in Australia based upon a belief that regular classrooms are inappropriate for gifted students. The outcome, however, of such specialised and segregated approaches is summarised by Braggett as follows: “... a belief that the regular classroom teacher does not need to provide for students with high abilities: it may be left to someone else” (1998a, no page given).

The Office for Standards in Education (2001) reports that in England as part of government initiatives in gifted education, ‘masterclasses’ were created which focused upon specific subjects in the curriculum. These classes focused upon accelerated study, broadened understandings, or generic skills, although there was ‘considerable overlap.’ In the United States, Davis and Rimm (1998) and Feldhusen and Saylor (1990) cite research which indicated that special classes for gifted and talented students were the second most favoured provision (following pull-out programmes) with 23% of American schools employing this approach.

Special classes for gifted and talented students strive towards greater homogeneity, so could be viewed as a form of segregation which goes against the egalitarian grain so comfortable to New Zealand educators (Moltzen, 2000a). But as Moltzen points out, this is a ‘curious double standard’ given willingness, almost zeal, to group students by abilities in other areas, particularly sport. Silverman (2003) believes that the accusations of elitism, which would no doubt be cast towards those providing special classes for gifted and talented students, have nothing to do with giftedness but are a way of sidestepping the most appropriate ways of meeting the needs of gifted and talented students.

Outcomes for Students

Given the low occurrence of special classes for gifted students in New Zealand schools, there is mainly descriptive information regarding special classes and their outcomes for students available from a national perspective. For example, Braggett and Moltzen (2000) describe a low decile primary school in Hamilton which created special classes. The school has established two separate classes for gifted and talented students, one for children ages five to seven and the other for children eight to 11. The classes were established in response to a concern that the diversity of student needs in a low decile school resulted in gifted students missing out. A search of the World Wide Web results in links to New Zealand schools offering accelerate classes, and these are primarily at secondary level in mathematics and English. The international literature also gives some insight into the effectiveness of special classes for gifted and talented students.

An international perspective. A review of the research related to special classes was conducted by Feldhusen and Treffinger in 1985 which concluded that the needs of highly able students were best met in special classes with well-trained teachers (cited in Feldhusen & Saylor, 1990). Students in these

classes are reported to have achieved at superior levels, developed outstanding skills in thinking, and broader interests. They also concluded that students in special classes did not experience any problems with social adjustment or in their overall learning.

Rogers (2002a) reports the findings of a research synthesis related to special classes for the gifted and talented. Full-time gifted programmes were found to show marked academic achievement gains across all subject areas and moderate gains in students' attitudes toward subjects. She also reports no significant differences in the self-esteem of students placed in full-time special programmes. Yet, as Rogers (2002b) explains, these studies looked only at the provision itself and did not examine the actual teaching differences between full-time and mixed-ability classes. Rogers' conclusions are based upon the meta-analyses of Kulik and Kulik (1992) described more fully in the section on enrichment and acceleration of this review of the literature. In summary, Kulik and Kulik (1992) found that students in enriched classes made gains of 0.41 standard deviations, whereas those in accelerated classes made gains of one standard deviation on measures of achievement. In their examination of enriched classes, Kulik and Kulik (1992) found that self-concept was slightly enhanced, but the effect size was trivial (0.10). Self-esteem in relation to accelerated classes was not examined.

Despite Rogers' conclusion that being placed in a full-time special class has little effect upon one's self-esteem, it is a debatable issue. Goldring (1990) reports that when grouped homogeneously, gifted and talented students may develop feelings of incompetency as a reaction to the increased competition and levelling of 'the playing field.' She describes research which indicates peer rejection, lack of contact with a range of diverse students, and loss of general social acceptance for students in special classes. Conversely, Goldring also describes opposing views: that gifted and talented students by their very nature may be more socially and emotionally stable and as such able to cope with increased pressures; rejection by peers in heterogeneous settings; and reports of higher self-concept. Kulik and Kulik (1992) conclude that "effects of grouping on self-esteem are near-zero" (p. 76).

Goldring (1990) conducted a meta-analysis of 23 studies which investigated outcomes for students in special classes for the gifted and talented in comparison to peers in regular classrooms. Gifted and talented students in full-time special classes demonstrated gains in achievement. Her analysis indicated an average effect size of 0.4 of a standard deviation for overall achievement based upon standardised testing; however, there was variability in effect sizes for different subtests. Interestingly, the overall effect size on teacher-made tests of achievement was substantially higher (0.7 of a standard deviation). This may be explained by the relationship between standardised tests and teacher-made tests and the curriculum of the special classes. Goldring also investigated non-achievement outcomes for gifted and talented students in special classes. Her results indicated virtually no differences in self-esteem (0.093) or creativity (-0.019), a negative effect upon relationships with peers (-0.456), and a positive effect upon attitudes toward school (effect not reported).

An examination of other factors indicated that the gains in achievement and non-achievement outcomes were influenced by the length of time students had participated in the programme, the level of teachers' professional development and training in gifted education, and the nature of instruction. Goldring reports that gifted students who had been in a special class for more than one year demonstrated achievement gains of almost four times those of students enrolled for less than a year (0.47 versus 0.12 respectively). Furthermore, achievement gains doubled for students who were in classes with specially trained teachers (0.48) and those who were not (0.27). Finally, one study in the meta-analysis demonstrated academic gains were most likely to be positively affected by the use of independent or small group study (0.47) over problem-solving (0.24) or discovery methods (0.35). Students in special classes which utilised enrichment materials specifically designed for gifted and talented students demonstrated achievement gains of 0.45; whereas students being taught using an accelerated approach whereby materials were not differentiated made smaller gains (0.29).

Delcourt et al. (1994) conducted research in the United States which evaluated the effects of a variety of programme arrangements, including special classes. They found that students in special classes (as well as pull-out programmes and special schools) attained higher levels of achievement than their peers not in programmes and those in within-class programmes. The students in special classes also

felt that instruction was more student-centred and there were more opportunities for self-direction and independence. Although students in the separate classes scored the highest levels of achievement, they conversely had “the lowest perception of their academic competence, preference for challenging tasks, sense of acceptance by peers, internal orientation, and attitudes to learning” (p. 77). Interestingly, teachers in special classes tended to rate their students slightly lower in terms of their creativity, learning and motivation. The combination of apparently high teacher expectations of these students and the students’ low perceptions of their abilities and qualities led Delcourt et al. to conclude that instruction in these classes must incorporate the development of a realistic and positive self-concept. They also found no differences in learning outcomes for students of diverse cultures, regardless of programme type. In relation to African-American students, they state, “...once they are admitted into appropriate programs, their achievement levels remain above the national average and continue to follow an upward trend over time” (p. 79).

Feldhusen and Sayler (1990) report the findings of a survey evaluation of special classes for gifted and talented students in 35 school districts in Indiana (United States), concluding that this provision was effective in meeting the students’ needs. The study involved respondents representing 123 special full-time classes for primary age students (grades 1-6). The majority of respondents perceived these classes as an academic advantage to gifted students (98%) providing opportunities for positive growth in social and emotional development (95%) and more motivating than regular classes (89%). They concluded that special classes do meet the academic and social and emotional needs of gifted and talented students, and are supported by teachers and parents.

McSheffrey and Hoge (1992) describe the research findings of an examination of the effectiveness of 20 self-contained enrichment classes for American students in grades five through eight. Their study was primarily concerned with evaluating academic achievement levels, variability amongst those levels, and the correlates related to that variability. The results indicated that students in the special enriched classes achieved higher levels on standardised tests of language and mathematics than their peers in regular classrooms. However, there was significant variation amongst individual students, with some performing much better than others in the class and others struggling academically. The factors contributing to student achievement in these classes included intellectual potential, as well as creative, motivational and social competencies. The major implication of these findings is that special classes should not be confined to narrow conceptions or identification of giftedness and talent, and the curriculum “must be flexible enough to accommodate a range of pupil needs” (p. 17).

Shields (1995) found that “homogeneous classes may serve the needs of academically talented and gifted students without detrimental effects to other students served in heterogeneous classrooms” (p. 234). Comparing 5th and 8th grade American students in both homogeneous and heterogeneous classrooms, Shields compared previous research in grouping with the results of her own study:

The existing research clearly shows that some form of homogeneous grouping benefits the most able and gifted students in terms of their academic achievement, as well as their attitudes concerning themselves as learners, and regarding their school experiences. This study helps to complete the picture. The data demonstrate that students placed appropriately in regular classes do not suffer socially or emotionally when students identified as academically talented or gifted are served in separate, homogeneous classes (p. 238).

A national perspective. Moltzen (2000a) reports the findings of a research study conducted by Carson and Moltzen in 1994. The study probed the perceptions of intermediate aged students who were in a special class. Overwhelmingly, the students had positive responses regarding their participation (93%). These responses related to the level of challenge, interaction with like minds, and classroom flexibility. However, the students also reported negative aspects of being in a special class. These were difficult work, increased homework, pressure from other students, and more work than play. Although most students did not report changes in the attitudes of their parents (66%) and teachers (72%), the majority (72%) did experience negative responses from their peers. Despite these difficulties, all of the students indicated that if given the opportunity they would partake in a similar class again.

Ellis, Riley, and Gordon (2003) report research which investigated the perceptions of a small group of female secondary students who participated in a 'sports academy' (18 participants). Through questionnaires and a focus group interview, it was found that participants did not perceive themselves as significantly talented or special in any way. However, the study also reveals that on the whole the participants enjoyed being athletically talented and would not wish to be any different. Both positive and negative aspects of being considered athletically talented were acknowledged, with the positive factors being mainly in regards to increased confidence and self-esteem, and opportunities to meet new people, while the negative problems were predominantly centred around friendship issues, gender problems, and outside pressures.

Anthony et al. (2002) report the research findings of a study which investigated the extent and nature of programmes in New Zealand for mathematically gifted secondary students. Of the 235 responding schools, 18% reported accelerate or advanced classes in Year 9. In order to gain a better understanding of the effectiveness of mathematics accelerate classes, four cases studies, involving 64 students, were undertaken. Overall, the participants felt that their involvement in accelerate classes enhanced their learning. They reported no perceived negative effects upon their friendships; an increased enjoyment of mathematics; relief of boredom, in comparison to their experiences in non-accelerated classes; and no regrets regarding their involvement in an accelerated class. The students further reported that accelerated classes had little impact upon their attitudes toward mathematics nor their future career plans. The researchers conclude that, "According to the students, the opportunities offered by being involved ... outweighed any negative spin-offs" (p. 16).

Potential Strengths

- May ease curriculum and instructional differentiation (Rogers, 2002b).
- Improved academic and social outcomes (Moltzen, 2000a).
- The opportunity to interact with a more homogeneous group of peers (Feldhusen & Sayler, 1990; Van Tassel-Baska, 2003).
- Instruction can be designed at a pace, depth, and breadth appropriate for gifted and talented students (Van Tassel-Baska, 2003).
- Instruction can become more closely aligned to individual student needs (Figlio & Page, 2000).

Potential Weaknesses

- May prove difficult to implement in secondary schools and result in limited subject choices during which gifted students are grouped together (Braggett & Moltzen, 2000).
- Being grouped with peers of like ability may actually lower self-esteem amongst gifted students (Feldhusen & Sayler, 1990).
- Decreased acceptance of gifted and talented by less able peers and increased pressure to achieve (Moltzen, 2000a).
- Teachers in other classrooms may complain that by removing gifted and talented students, they are left with "no models to motivate or stimulate children of average or low ability" (Feldhusen & Sayler, 1990, p. 242).
- If the curriculum is not differentiated both academically and to address social-emotional needs (Feldhusen & Sayler, 1990), difficulty may arise in adequately meeting the asynchronous development of individual gifted and talented students.
- Special classes may require additional funding, physical space, and resourcing (Feldhusen & Sayler, 1990).

Recommendations for Effective Practice

- If removing gifted and talented students potentially has negative effects upon other children and only modest effects upon gifted and talented students, Winner (1996b) recommends the provision of separate classes only for the 'most profoundly gifted' students.
- The concept and identification of giftedness should be broad, including academic, creative, motivational, and social competencies (McSheffrey & Hoge, 1992).
- The curriculum in special classes should be flexible enough to cater to individual differences and needs (McSheffrey & Hoge, 1992).
- Students in special classes should be given opportunities to mix with same-age and mixed-ability peers, and this may be facilitated through extra-curricular activities or certain curriculum areas (Feldhusen & Saylor, 1990).
- Professional development to dispel myths regarding special classes (Anthony et al., 2002) and to assist teachers in better meeting the cognitive and affective needs of gifted students (Delcourt et al., 1994).
- There is a need for more research related to the effectiveness of special classes in order to determine their overall effectiveness (Anthony et al., 2002; Feldhusen & Saylor, 1990; Goldring, 1990).
- Culturally diverse students should not be placed in an environment that isolates them from their culture or utilises culturally inappropriate or irrelevant teaching and learning strategies (Bevan-Brown, 1993, 1996). Therefore to be effective for students from ethnic minority groups, special classes must provide culturally responsive environments.
- Students who are placed in full-time programmes need to demonstrate the following characteristics: processing and achieving well above their same-age peers; academically motivated; preference for fast-paced, challenge; and enjoyment of academic work, including outside of school time (Rogers, 2002b)
- Many schools have provided special grouping for mathematics and language. It is critical that a grouping policy apply to all relevant academic subjects (Van Tassel-Baska, 2003).

EARLY ENTRY

Early entry is an option recommended by the Ministry of Education (2000). In the international literature early entry refers to entry into primary, intermediate, secondary, or tertiary education at an earlier age than usual. In the New Zealand context, early entry to primary school is not a legally viable choice in accordance with the Education Act of 1989. For the purposes of this discussion, the focus is upon full-time early entry. Dual or concurrent enrolment, whereby a student may enter a sector of education earlier than expected, but on a part-time basis is discussed in the next section of this review.

As the Ministry of Education (2000) makes clear, early entry is a viable option for *some* gifted and talented students, especially those with exceptional academic abilities and social and emotional readiness. Therefore, as an option, early entry must be well-managed, ensuring that the student is willing and wanting to advance ahead of his or her same age peers, and is also prepared both academically and socially-emotionally. The literature predominately describes two forms of early entry: primary school and tertiary education. Although this review of the literature found references regarding early entry in the international theory and research, the only New Zealand-based information is that offered by the Ministry of Education (2000). It is unclear how many New Zealand students may be entering educational institutions on a full-time basis at an early age.

Early entry to school is one option for meeting the needs of young gifted children in many countries but is not, under the Education Act of 1989, a legally viable choice for children in New Zealand. There are issues associated with the rhetoric, research, and reality of early entry. These issues stem from

legislative requirements, identification, advocacy, accessibility, and social and emotional consequences. On the one hand is the argument that a gifted child should be placed with the most suitable peer group irrespective of age, and on the other hand is the unsubstantiated view that early entry has negative effects on social and emotional development. Early entry is argued as one way of matching a child's natural capability with an appropriately challenging environment. However, the New Zealand early childhood curriculum, Te Whāriki, should be responsive to individual needs. In implementing the curriculum, the starting point is the learner and the knowledge, skills, and attitudes that the child brings to their experiences (Ministry of Education, 1996). The curriculum enables early childhood services to plan teaching and learning programmes to respond to the particular interests and abilities of each of child. Overseas, the notion of responsiveness is advocated by supporters of early entry: "Gifted learners should be afforded the opportunity to begin school-based experiences based on readiness" (Van Tassel-Baska, 1992a, p. 71). Therefore, the decision for early entrance should be based on the child's interests and readiness for learning with reasonable levels of competence in early reading and calculation skills, motor skills, and social and emotional maturity. Social and emotional maturity must be considered in light of a child's background and advanced intellect (Cornell et al., 1991; Robinson & Weimer, 1991).

Similarly, early entrance to tertiary institutions, a strategy which has long been used in countries such as America to accommodate gifted students' learning needs, is recognised as an appropriate accelerative option for students who have mastered material at an earlier than usual age (Southern & Jones, 1991). These institutions sometimes offer programmes which may vary widely in their philosophy and approach, but are designed to meet the needs of students who are ready for university but would like to be part of a peer group who have made the same decision to leave secondary school early. Several Australian universities, including the University of New South Wales and the University of Melbourne, accept early entrants (Gross & Slep, 2001). Many students complete these programs and then transfer to another university where they eventually receive their degrees. For example, Gross and Slep (2001) report that In New South Wales, the University of Wollongong offers one such early entry programmes where students who have completed Year 10 or 11 may apply to complete a one or two semester early entrance programmes. Completion of these programmes provides eligibility into a full degree programmes at that university as well as a number of other universities in Australia. However, it seems that in New Zealand, only a few institutions have instated special early entrance programmes to attract and support young talent.

Not necessarily all gifted and talented students should be considered for early entrance to tertiary education. Early entrance criteria should include factors such as high motivation, recommendations from high school personnel and use student and parent interviews (Boothe, Sethna, Stanley, & Colgate, 1999). Brody and Stanley (1991) reiterate that it must clearly be the student's desire rather than an effort to please a parent or mentor. The students should be strongly motivated and be considerably mature (Boothe et al., 1999). As with early entry to school, "The decision to enter college [i.e., tertiary education] early is one of matching a students needs and abilities to the appropriate environment" (Olszewski-Kubilius, 1995, p. 121).

Grade advancement decisions should be based on facts rather than myths (Feldhusen et al., 2002). Students should consult with parents and need to be aware that may have to deal with the objections from friends and teachers. The conduit for early entrance may come from outside the walls of the student's school (Olszewski-Kubilius, 1998a). Jones and Southern (1991), Brody and Stanley (1992) and Saylor and Lupkowski (1992) offer guidelines for parents and students, when considering early entry. They recommend that students should have high academic ability, choose a provider that offers a wide range of courses, have exhausted the challenging opportunities available in their current grade or school system, consider their personal organizational skills, have a sincere desire to accelerate, consider attending programmes where a group of young students attend together so that age-peers have a support group, and also need to be prepared to leave friends and miss opportunities for sports and other high school activities. Ultimately, the decision for early entry "...comes down to whether it is a good match between an educational setting and a student's needs and characteristics" (Olszewski-Kubilius, 1995, p. 124).

Outcomes for Students

Early entry is primarily a form of acceleration, and as such, the research refuting and supporting accelerative options is an important basis for the outcomes-based research regarding acceleration. This section describes some of the research regarding early entry to primary school and tertiary study from an international perspective. As stated previously, the review of the literature yielded no New Zealand-based research on this provision.

Early entry to primary school. Advocates of early entry for gifted children argue that it has academic and social emotional benefits. Academic advantages of early entry have been reported for several decades (see studies cited in Diezmann, Watters, & Fox, 2001) and include the following: that children are able to achieve at average or above average levels in academic tasks, perform well or are advantaged at high school, outperform later entry students with a common birth date and mental age, and have been more successful beyond compulsory schooling. They found no empirical evidence of any long-term intellectual deficit.

There is limited empirical research that details social and emotional advantages for early entry processes for gifted students. Where social adjustment is considered more important than intellectual challenge, the decision for early entry is discouraged (Kerr, 2000). Many young gifted children have a heightened social awareness, personal sensitivity, and high expectations for themselves (LeVine & Kitano, 1998). These affective attributes may be strengths when they influence interpersonal relationships and their ability to relate to age peers. Consideration must be given to view that “this placement does not provide intellectual peers for the gifted child; average 5-year old children do not think in the same ways or about the same topics as gifted 4-year old children” (Schiever & Maker, 1991, p. 101).

There is little research that substantiates any disadvantage for carefully considered selected gifted children. Feldhusen and Feldhusen (1998) suggest that there must be consideration given to the dangers of not accelerating as there is to accelerating. The following points were raised by Diezmann et al., (2001) from a parent’s perspective:

- The parents had to take the initiative and demonstrate disadvantage rather than advantage for early entry.
- Early entry occurred because the parent’s were well informed, had professional support and documentation.
- Parents should be recognised as credible sources of information about a young child’s behaviour.
- Acceleration to school and a more appropriate environment may contribute to a positive change in the child’s behaviour.
- It is important that there is open communication between parents and teachers so discrepancies between behaviours and performance at home and in early education settings are acknowledged.
- Some curriculum tasks may be insufficiently challenging for young gifted children despite the philosophy of a child-centred curriculum in the early years.

For a child to gain advantages from early entry there must be a cognitive match; information must be presented in a form that fits within the child’s existing cognitive constructs. The child should be keen to learn and be made to feel like a valued member of the class and school community. There should be no major cultural conflict. Additionally, the child should not be bored by receiving a programme that is too simplistic, paced too slowly and without a degree of ‘moderate novelty.’ Early entry to school can be successful if the school procedure is thorough; the teacher is aware of the needs of the gifted child and has a positive attitude towards the child’s placement (Mares & Byles, 1994).

Policies may exist that meet the needs of gifted young children in principle but may not necessarily be put in to practice. In a New South Wales study (Rankin & Vialle, 1996) it was found that students were not rejected for early entry based on their academic ability but social-emotional maturity was a dominant concern despite Gross's (1993) findings that children are better adjusted if placed in situations where they are being stimulated academically. Principals in New South Wales felt that the procedure is not well promoted, expressed a willingness to implement it as a procedure but raised the issues of the need for specialised teacher training and resource support.

Early entry to tertiary. Research results suggest that early entrants to tertiary institutions continue to achieve high levels. These students tend to continue on with graduate study and further academic opportunities (Boothe et al., 1999). Early entrance can engender concern because it places a student in a more adult environment at an earlier age and can mean a move away from the home environment. There may be an initial period of adjustment as reported by Muratori et al. (2003) who suggest from their study of early entrants' first semester that consideration should be given to factors such as size of the school, geographic location, and the leaving of close friends at home. However, with appropriate support a student's early entrance can be a rewarding and effective educational intervention.

Early entrance programmes in American universities differ on the following dimensions: the age at which they will accept students, academic requirements, gender (some are exclusively for females), transition programme opportunities, and levels of support. However most programmes base acceptance on a substantial amount of information gained from interviews, teacher recommendations, levels of family support and students' general readiness for the university environment (Olszewski-Kubilius, 1995).

The research findings regarding academic performance are overwhelming, although it must be remembered that students who do not perform well tend to leave the programme (Olszewski-Kubilius, 1995). Schumacker and Saylor (1995) used a Learning and Study Strategies Inventory (LASSI) to investigate the relationship with academic achievement in an early college entrance programme. The LASSI provides an early warning system to help identify students with potential academic problems. Being ready for early college entrance involves more than high aptitude measures and success in high-school classes. The results of this study showed that some students do not make the transition from high school to an early entrance college programme because they lack adequate study and time management skills. These skills included information processing and selecting main ideas. One student in Noble et al. (1993) study commented: "Acceleration has given me tremendous opportunities to broaden my academic studies while not 'losing much time.' It was also responsible for my realization of my abilities – hence for much of my enthusiasm in pursuing academics" (p. 129).

Although there is a substantial body of research about academic performance of early entrants there is little research regarding social and emotional issues. How well will they fit into university life is usually a major concern of the students (Olszewski-Kubilius, 1995). There is a greater expectation for self-management and responsibility. Age was found to hamper the students in some ways and they did at times feel less socially adept. However, generally students felt positive about peer relationships (Noble & Drummond, 1992). Some students experienced a decrease in self-esteem initially (Lupkowski, Whitmore, & Ramsay, 1992) but these changes were not deemed to be significant. Certainly, their self-esteem does not decline appreciably as a result of participating in a challenging programme. Participation in transition programmes and support from both counsellors and other early entrants were found to be valuable strategies for successful adjustment to university. Adult and peer support are crucial to gifted students' sense of psychosocial wellbeing (Noble et al., 1993).

Noble and Drummond (1992) found that those early entrants who participated in transition programmes felt that they matured both academically and socially and would had not have done so if they had stayed at high school. Students felt that the early entrance experience had many positive effects including enhancement of their emotional stability (Noble et al., 1993). For those who do experience modest adjustment problems they are usually overcome in a reasonably short period. (Saylor & Lupkowski, 1992). However, the key to a student's success is social and emotional preparedness (Boothe et al., 1999). Although many students manifest no evidence of adjustment

difficulties, Cornell et al. (1991) did find considerable variation in student affective adjustment. Healthy personality characteristics and positive family relationships were associated with more favourable adjustment.

There are usually questions raised from parents and educators about what happens to students who enter tertiary study early. Will they burn out? Are they too young to begin a career? The research is overwhelmingly positive and largely provided by Dr. Julian Stanley (Stanley, 1991) the founder of the Study of Mathematically Precocious Youth (SMPY). Many of the students in this longitudinal study finished college in less than four years and pursued further academic careers or undertook further studies in other countries. Generally, these students continued with studies and did not take time out for other pursuits. However, early entrants who have not spent time thinking about career possibilities may find that they have been compelled to make career choices at too young an age (Sayler & Lupkowski, 1992).

Potential Strengths

- Early entry provides an appropriate match between the advanced academic abilities of highly able students and their education, based upon their intellectual and social-emotional readiness (Diezmann et al., 2001; Olszewski-Kubilius, 1995; Van Tassel-Baska, 1992a).
- Early entry to tertiary studies helps students realize their abilities and reinforces enthusiasm for academic pursuits (Noble et al., 1993).
- It also gives opportunity for advancing academic careers (Stanley, 1991) and gives time for multiple or hybrid majors or careers (Sayler & Lupkowski, 1992).
- Early entry enhances emotional stability (Noble et al., 1993) and self-esteem (Lupkowski et al., 1992).

Potential Weaknesses

- If students are not carefully selected and flexibly placed, early entry could prove unsuccessful.
- It must be remembered that rapid educational acceleration might not be the ideal path for some equally capable boys and girls (Charlton et al., 2002; Noble & Robinson, 1993).
- Some precocious children are so advanced in their intellectual and academic skills that one year of advancement may still leave them bored in school. For a very few precocious children additional advancements may be necessary.
- Decisions for students to enter college early are usually highly personal and not made lightly. Most parents of talented students are responding to their child's interests and abilities, not pushing their child (Lupkowski-Shoplik & Assouline, 1994).
- Although children in New Zealand enter school age five, and it is recognised that this is earlier than some countries; there are legal issues which impede upon a child's early entry to primary school.
- For early entry there could be cost requirements (such as travel, tuition, and so on) which need consideration (Ministry of Education, 2000).
- Career choices may have to be made at too young an age (Sayler & Lupkowski, 1992).
- Students may not make the transition to tertiary study because of lack of study and time-management skills (Schumacker & Sayler, 1995).
- Students may at times feel less socially adept (Olszewski-Kubilius, 1995) and experience initial decrease in self-esteem (Lupkowski et al., 1992).

Recommendations for Effective Practice

- Cornell et al. (1991) suggest it is important that the research focuses on determining for whom acceleration might be desirable and for whom it might be undesirable. Factors that could be considered are a student's attendance record, physical size, degree of motor co-ordination, degree of motivation, and desire for academic challenge.
- Interpersonal skills should also be considered; skills such as participation in non-school extracurricular activities, relationships with peers, relationships with parents, emotional development, parent involvement, grade placement of siblings, relationships with older peers, teachers, and self image (Pyryt, 1999).
- Feldhusen et al. (2002) offer the following guidelines for acceleration: academically, the child should demonstrate skill levels above the mean of the grade desired; socially and emotionally, the child should be free of any serious adjustment problems, should demonstrate a high degree of persistence and motivation for learning; the parents must be in favour of grade advancement, but the child should express the desire to move ahead as well; the receiving teacher or teachers must have positive attitudes toward the acceleration and be willing to help the child adjust to the new situation; efforts are generally made to have grade advancement occur at natural transition points such as the beginning of a new school year; and all cases of grade advancement should be arranged on a trial basis. A trial period of six weeks should be sufficient. The child should be aware that if it does not go well he or she may request to be returned to the original class placement; the child should not be made to feel he or she is a failure if it does not go well.
- Care should be taken to ensure that early entrants are not culturally isolated, and that teaching is culturally relevant and appropriate (Bevan-Brown, 1993, 1996).
- A student entering any educational institution at an age earlier than expected will require forward-planning of his or her education, and the options should include a merging of accelerative and enrichment approaches.
- As with all approaches to provision, early entry should be used in conjunction with other educational options, but more importantly, the curriculum, teaching, and so on must be qualitatively differentiated, ideally including elements of enrichment.
- Early entry to a tertiary institution should primarily be the student's decision but families need to be supportive (Olszewski-Kubilius, 1995). Students should also have the support of peers and counsellors (Noble et al., 1993).
- There must be a good match between an educational setting and a student's needs and characteristics (Olszewski-Kubilius, 1995).
- Acceptance into tertiary study must be based on substantial information from a variety of sources and people (Olszewski-Kubilius, 1995).

DUAL ENROLMENT

Dual enrolment, or concurrent enrolment, refers to a student's simultaneous enrolment in two different levels of schooling. Although the most commonly reported form of dual enrolment is that of secondary students enrolled in part-time tertiary study, it is also possible for students at primary level to attend an intermediate school or intermediate school students to attend secondary school. Perceived this way, dual enrolment is a form of subject-specific acceleration, which allows gifted and talented students the opportunity to move beyond the curriculum of their expected age level in one or more areas. For example, a primary student might attend a mathematics class at an intermediate school, or a senior secondary student may enrol in a University level computer science paper. In New Zealand, the term is most commonly associated with enrolment in the Correspondence School; however, it must be recognised that dual enrolment at the Correspondence School offers students distance learning

opportunities for acceleration *and* enrichment. Therefore, the Correspondence School is discussed in the section on distance learning. For the purposes of this review of the literature, dual enrolment is discussed in relation to a student's part-time early entry to an educational institution.

Freeman (1998) reports, that in Britain, it is possible to place pupils in part-time acceleration through higher education institutions. She describes a secondary school which has 10 pupils on a mathematics foundation course at the Open University in addition to their A-level studies. Gross and Sleaf (2001) state that in South Australia a programme which allows secondary students to enrol in courses at Flinders University was being reviewed by the Department of Education; however, this review of the literature could not locate any further information on this programme. They also describe a programme in Victoria which allows gifted and talented students who have completed requirements for completion of secondary school prior to their final year access to concurrent enrolment in an approved course at tertiary level. They indicate that a wide range of subjects is offered but is limited to first year generic subjects (such as mathematics), not course specific subjects (such as architecture).

In the United States, beginning in the mid-1980s, states passed legislation that guarantees qualified students access to tertiary courses, often at no cost to the student, while they are concurrently enrolled in high school (McCarthy, 1999). *Gifted Child Today Magazine* (1999) report that the occurrence of dual enrolment, particularly amongst secondary students, has increased dramatically as a result of this legislation. It is much more common, in fact, than full-time early entry to university and is seen as a supplement to high school (ERIC, 2001).

The Ministry of Education (2000) suggests concurrent enrolment as part of the continuum of approaches to provision, emphasising that students are dually enrolled in their academic subjects of greatest strength. Braggett and Moltzen (2000) report that some New Zealand primary schools facilitate students' study of a subject at a local intermediate or secondary school, but the practice of secondary students enrolling in tertiary study is less common. They report that when secondary students are accelerated in this manner it is most likely to occur in mathematics, but may also occur in music and science.

This literature review did not yield much more information regarding the use of dual enrolment in New Zealand schools. Its nature and frequency is simply not reported in the literature; however, anecdotal evidence of its use does exist. Although it was beyond the scope of this research to investigate all New Zealand-based tertiary institution's arrangements for dual enrolment of secondary students, during the course of the research a news article appeared in the local paper describing a formal agreement between Massey University and Palmerston North Boys' High School (Nash, 2003). This arrangement will allow Year 13 students to enrol in extramural study using Secondary Tertiary Aligned Resource (STAR) funding. This initiative builds upon Massey University's dual enrolment scheme in terms of funding and delivery (T. Weir, personal communication, October 14, 2003). Prior to this arrangement, STAR funding was not accepted by the University, but rather individual students have paid the tuition fees of approximately \$350-400 per paper. Students dually enrolled have taken extramural papers, however, this new arrangement will allow students to attend lectures and meetings on the University campus and University lecturers will visit the secondary school campus.

This programme further develops the University's concurrent enrolment scheme. For approximately the last decade, the University has allowed secondary students who wish to enrol for one or two extramural Massey papers while staying at school to do so. This concurrent study has required the student to have both an entrance qualification and the support of the school. For accelerate students the entrance requirement has meant either they have been entering the University Bursary exams from Year 12, or they have needed to apply for Provisional Entrance (soon to be renamed Discretionary Entrance). In either case, the students have been above average with demonstrated abilities endorsed by their secondary school. Whilst most of these students are in their final year of secondary schooling, individual allowances have been made for exceptional students of earlier ages and stages in their education.

Approximately 90 to 100 students per year have taken advantage of this option, although the University has never actively promoted it. Students have enrolled in papers across all areas of the institution, but mathematics, computer science, economics, philosophy, and languages are commonly sought. In many cases, students enrolling have exhausted all courses offered in their secondary school. For example, several students who completed Bursary study in Māori language during Year 11 have been enrolled at the University in 100-level Māori language papers. Typically these papers are considered 'above and beyond' the student's secondary course load; however, they do receive University credit for the papers completed. The University has not conducted any formal evaluation of the effectiveness of this provision, however, Weir reports that anecdotally these students have been successful and enjoyed the experience.

In respect to Māori language one of the research team members (Bevan-Brown) reports that Te Wananga o Raukawa has been enrolling secondary students who have completed Bursary level Māori for many years. In addition to these tertiary level courses in te reo Māori, gifted secondary school students are also enrolled in iwi and hapū studies, computer, and design and art papers.

Burns and Lewis (2000) explain that dual enrolment is not only a solution to meeting the needs of students with academic gifts and talents, but is also appropriate for encouraging students who have special abilities in other areas. For example, they describe programmes in the United States which utilise dual enrolment in 'vocational' areas, giving students with practical skills and abilities advanced opportunities to develop those. Bailey, Hughes, and Karp (2003) explain that many secondary schools in the United States have eliminated technical and vocational programmes due to financial cutbacks, however, tertiary providers have maintained these. In New Zealand, STAR funding could be used to facilitate opportunities for such programmes. Bailey et al. (2003) also describe programmes of dual enrolment designed for culturally-diverse students whereby their dual enrolment is seen as a way to prepare these students for successful transitions into higher education or the workforce.

Bailey et al. (2003) explain that the delivery of dual enrolment options for secondary students in tertiary institutions in the United States varies greatly in terms of course content, location, student mix, instructors, and credits earned. For example, some tertiary institutions have developed courses specifically for secondary students, whilst others deliver the exact same content as prepared for tertiary students. Courses may be offered on the campus of the tertiary institution or secondary school, delivered by tertiary or secondary teachers who may teach secondary students separately or combined with tertiary students. Finally, they explain that the credits earned may be applied towards either secondary or tertiary study.

Student Outcomes

Bailey et al. (2003) report that although dual enrolment programmes are increasing in the United States, the research related to their effectiveness in meeting the cognitive and affective needs of gifted and talented students is sparse. Furthermore, they indicate that when research has been conducted this has been by the providers of such programmes and so tends to emphasise the positive results. This review of the literature yielded very few empirical studies related directly to the effectiveness of dual enrolment; however, the literature related to acceleration does shed some light upon its general effectiveness. No New Zealand reports of the impact of dual enrolment upon students' cognitive or affective development were located.

International Perspectives. Rogers (2002a) reports the findings of a synthesis of 36 research studies from 1959-1988 on concurrent enrolment. All of these studies, except for one, included gifted and talented students, with 50% of these on students at intermediate age and the other half at secondary age. The academic gains for students were positive, however they were small. As Rogers alerts these gains must be considered in relation to the measures of achievement, all of which were designed for the student's 'normal' level of schooling, not that in which he or she was dually enrolled. Rogers hypothesises that these gains would be greater if student achievement had been measured with above-level testing and recommends that research of this nature be undertaken. There were no reported changes in students' social skills; however, students showed very positive gains in overall self-esteem, behavioural conduct, and self-perceptions of their creative thinking.

Burns and Lewis (2000) conducted a small-scale study in the United States which investigated secondary students' perceptions of dual enrolment. They interviewed six secondary students who were enrolled in tertiary courses to determine their perceptions of dual enrolment and the learning environment. All of the students felt positive about their dual enrolment experiences, some remarking that it had been 'fun' and a 'step up.' Three of the students were enrolled in tertiary study on a community college campus (i.e., similar to a polytechnic in New Zealand), whilst the other three were enrolled in tertiary-level courses provided at their local high school. The students who were actually physically attending the tertiary institution expressed greater satisfaction in their experiences, reporting that the rigour of the courses were perceived as being greater in that environment. They also described enjoyment in having opportunities to interact with older peers and developing skills of independence. All of the six participants indicated that if given the opportunity they would dually enrol in more courses, and overwhelming they reported 'great value' in their experience.

Southern, Wilson, and Lenner (2003) conducted a study to investigate the reasons secondary students might choose to concurrently enrol in tertiary study. They surveyed 257 students in their final two years of secondary school, some of whom were dually enrolled and others who were not. The reasons students gave for dual enrolment included: financial savings; access to courses not available at secondary level; enhancement of credentials so that students could attend more selective universities upon completion of secondary school; to shorten the length of time in tertiary study; and to have opportunities for learning at an advanced pace. The students participating in dual enrolment rated their high school experiences in relation to meeting their social and academic needs, as well as their overall involvement in their secondary school, lower than those students choosing not to participate and these differences were significant.

Bailey et al. (2003) argue that dual enrolment in secondary school and tertiary education also enhances students' success at tertiary level by providing easy access to a challenging and rigorous curriculum. They further argue that attending courses on a tertiary education site 'demystifies' the university experience, and makes the psychological transition from secondary school to tertiary education easier. These outcomes, however, are only speculated and not supported by empirical research. They also report research which indicates that overall secondary students who are dually enrolled in tertiary study find the experience both useful and motivating.

Potential Strengths

- Allows gifted and talented students the opportunity to pursue their regular school activities. In this way, the students have "the luxury of acclimating" to a new environment "while remaining in within the security of home, school, and friends" (McCarthy, 1999, p. 33).
- Gifted and talented students can retain their identity with home and school (McCarthy, 1999).
- When partnerships are formed between institutions, this can bring together educators and enhance instruction within a particular discipline (*Gifted Child Today*, 1999).
- For tertiary institutions, the likelihood of dually-enrolled students attending their site upon completion of secondary school arises (Burns & Lewis, 2000).
- Allows students access to a wider range of courses of study (Bailey et al., 2003).
- For secondary students, dual enrolment may reduce overall costs associated with tertiary education by shortening the length of time for qualification completion (Bailey et al., 2003).
- For Māori students with exceptional ability in te reo Māori, Māori arts, crafts, history and/or tikanga, dual enrolment at wananga provides opportunities for further development in cultural knowledge and areas not normally available at secondary schools. An added advantage is the culturally appropriate environment in which these courses are delivered.

Potential Weaknesses

- Issues related to ownership and control for educational decisions can arise (McCarthy, 1999).
- Difficulties can arise in awarding course credit and grades, and the transferability of these between institutions (Burns & Lewis, 2000; McCarthy, 1999).
- Fiscal accountability can be an issue in relation to the costs of dual enrolment tuition (Burns & Lewis, 2000; McCarthy, 1999). Financial difficulties are reported, especially in the United States where funding is often diverted to tertiary institutions as opposed to local schools (*Gifted Child Today*, 1999).
- The transition into higher levels of education or even the workforce must be carefully considered (Burns & Lewis, 2000).
- There may be a reduction in the number of advanced courses offered at the senior level of local schools (*Gifted Child Today*, 1999).
- Proponents might argue that this form of acceleration removes the brightest students, depletes the school's supply of leaders, and pulls students away from school activities (*Gifted Child Today*, 1999).
- Without careful selection, some students could be ill-prepared for higher-level work (*Gifted Child Today*, 1999).
- The advanced courses may not actually meet the unique needs of gifted and talented students (Burns & Lewis, 2000).
- Pragmatic difficulties might arise in relation to scheduling and transportation (Burns & Lewis, 2000; Ministry of Education, 2000).

Recommendations for Effective Practice

- Students need guidance and assistance in advanced planning for enrolment and future options (McCarthy, 1999).
- McCarthy (1999) discusses several factors which better ensure a seamless transition for students who are dually enrolled in secondary and tertiary institutions: enhanced curriculum articulation; cross-institutional counselling support; and parental advocacy.
- Rigorous and careful identification is critical (Bailey et al., 2003); however, flexibility in requirements which recognises individual student differences is crucial.
- Students should have documented support from their base schools.
- Given that many of the reported positive outcomes are tentative, there is a need for research related to the nature and effectiveness of dual enrolment (Bailey et al., 2003).
- Secondary schools which have students enrolled in tertiary study should consider whether this study is in addition to their secondary schooling and if possible make arrangements within the school to support these students.

COMPETITIONS

Competitions are another provision recommended by the Ministry of Education (2000) and acknowledged in the Education Review Office (1998a) report on provisions in New Zealand. These are opportunities for gifted and talented students to compete or perform, exhibiting their special abilities and talents, and as such, competitions have long been a cornerstone of gifted education (Riley & Karnes, 1998/99; 1999). Gifted and talented students, amongst all other participants, can take part in competitions which maximise their abilities in academics, fine and performing arts, leadership, service-learning (Riley & Karnes, 1998/99; 1999), cultural arts, and athletics. Riley and Karnes (1998/99) state that for gifted and talented students, competitions put their talents to the test. In this

way, competitions allow students a chance to 'showcase' their special abilities, and in doing so, they receive recognition and acknowledgement of those (Davis & Rimm, 1998; Riley & Karnes, 1998/99). As Campbell, Wagner, and Walberg (2001) state, "One can create an arena where individuals are allowed to perform some task or set of tasks with those being selected as eligible whose level of performance is judged superior, by whatever definition or criteria" (p. 524). In this way, competitions may serve a dual role: identification and provision (Riley & Karnes, 1998/99).

Competitions may be local, national or international and range from school-based science fairs to the international Future Problem Solving Programme. Additionally, they may be designed for individual student participation or group entry. Campbell et al. (2001) believe that competitions operate on five assumptions:

1. Students who are talented need to be identified early.
2. Competitions are needed to supplement schools which are lacking in differentiated curriculum resources appropriate for gifted students.
3. Competitions will attract students with extraordinary talent.
4. Competitions will motivate early talent development.
5. Once talents are developed, the expectation is that those will contribute to society.

Given this rationale, they describe three types of competitions utilised in the United States: teams of talented students; long-term independent research projects; and tests to identify exceptional talent.

In New Zealand, many of these different types of competitions are available, though scarcely reported in the literature. For example, Riley and Karnes (1998/99) suggested a number of competitions available to New Zealand students and though this list is not comprehensive, these included the Future Problem Solving Programme, CREST Awards, and BP Technology Challenge. Holton and Daniel (1996) describe competitions for gifted mathematicians, and these include the programmes offered by the New Zealand Mathematics Olympiad Committee. Holton and Daniel (1996) state, "Competitions provide a wealth of problems to challenge bright students" (p. 212). They also describe many ways teachers can use competitions in their classroom environments. Macleod (1996) also provides information regarding competitions for secondary students and Le Sueur (1996) outlines competitions for primary and intermediate students.

One of the most acclaimed and recognised competitions, and often used with gifted and talented students, is the Future Problem Solving Programme developed by Dr Paul Torrance in 1974 (Future Problem Solving, 2003). This creative problem solving programme serves thousands of students in the United States, Australia, New Zealand, and Korea. It offers both competitive and non-competitive options, including Team Problem Solving, Community Problem Solving, and Scenario Writing. The Future Problem Solving Programme began in New Zealand at Raumanga Intermediate School in Whangarei and Tauranga Intermediate School in 1990 (Future Problem Solving, 2003). Since that time, the programme has grown to include participants from approximately 110 schools (R. Boswell, personal communication, October 21, 2003). New Zealand students have shown they can "foot it with the best in the world" by winning numerous awards at international competitions (Boswell, 2003a, no page given). (For a recent review of this programme, readers should refer to Phillipson, Haerle, & Volk, 2003). Given the value Māori place upon recognising group giftedness and the sharing of their talents (Bevan-Brown, 1996), the Community Problem Solving Programme might have great potential for these students.

Competitions are reported to be used worldwide for gifted and talented students. For example, in Australia, the Report to the Senate Select Committee described several state, national and international competitions in which Australian students participate. The report commended competition providers for their encouragement of young talent. The report also made an important point regarding the potential benefit of competitions: "...these competitions may help defuse any public antagonism towards gifted children and legitimise the making of appropriate provisions for them" (1998, no page

given). In Britain, Freeman (1998) described competitions as one way to offer gifted and talented students enrichment opportunities. In Germany, the Federal Government funds 19 nationwide competitions based upon the belief that “Competitions have proven to be the most important instrument of gifted development” (German Federal Ministry, 2003, no page given). Additionally, there are many other competitions in science, mathematics, humanities and social sciences, and art and music, and some of these are being funded by business and industry. The emphasis placed upon competitions of this nature is based on the philosophy that competitions encourage the generation of new ideas and also serve as a good way for students to judge or assess their own abilities.

Student Outcomes

As Rogers (2002b) explains, there is a scarcity of research related to the effectiveness of competitions in meeting the unique social, emotional, and intellectual needs of gifted and talented students. Campbell and his colleagues (2001) believe that it is crucial for researchers to determine the effects of competitions, but state that given the poor track record in gifted education of evaluative studies this type of research has not been undertaken. They also hypothesise that since many competitions are sponsored by community and business agencies, they simply may not have the ‘manpower’ to conduct such research, or might not be interested in any negative findings. For these reasons, there seems to be much more speculation regarding the outcomes of competitions than empirical research, and these are briefly described in this section.

International perspectives. Cropper (1998) argued for the use of competitions as an effective classroom tool, citing research that demonstrates both short-and long-term motivational gains for students. Identifying motivation as a central element necessary for turning students on to learning, Cropper stated that overall, competition is most beneficial in arousing short-term motivation. This sort of extrinsic motivation in the short-term can be an effective tool for sparking more intrinsically motivated achievements for gifted students. Riley and Karnes (1999) concluded that competitions can serve as a ‘motivational spark plug.’

By being placed in a competitive environment with adequate supports, students learn to cope with differences, strive toward excellence, accept failure and frustration, and recognize their potential. While winning might be the ultimate goal, Karnes and Riley (1996) stated that the focus should be placed on the premise that participation in and of itself constitutes winning. Students who compete are given opportunities to experience a taste of what lies ahead in the challenges of the everyday world.

It can also be argued, however, that these real world experiences can have negative outcomes. Davis and Rimm (1994) cited stress and feelings of failure as results of extreme competitiveness. While success in competitions may serve to motivate students, thus leaving them wanting for more, failure to succeed or a desire for perfectionism can be harmful. Cropper (1998) placed the blame for these negative effects upon poorly planned competitive goals and suggested a range of curriculum strategies to deter or prevent negativity.

Rimm (1986) has implicated competition with the academic underachievement of gifted and talented students in the United States. Given the competitive nature of many classrooms, she posits that individuals who handle competition poorly are at risk for underachievement. Rimm argues that too much competition or too great an emphasis on winning should be discouraged. Nevertheless, Rimm believes that competition aimed at self-improvement, or competition with oneself, will benefit students. Despite the fact that other-referenced competition might be detrimental to achievement, Rimm acknowledges the importance of learning to deal with winning and losing, especially in how to appropriately interpret wins and losses.

Campbell et al. (2001) report the findings of three long-term retrospective studies involving winners of the American Mathematics, Physics and Chemistry Olympiad programmes. They tracked the progress of 229 of these winners through their tertiary and postgraduate study and into their professional careers. These winners demonstrated ‘success’ through their enrolment in prestigious institutions, with the majority completing their degrees in four years and many undertaking postgraduate study. One

hundred and sixteen of these Olympiad winners completed, or were in the process of completing, doctoral degrees, and most were in academic careers. These highly gifted students may well have succeeded with or without competitions; however, when the Olympians and their parents were asked:

- 76% of the Olympians and 70% of their parents expressed the view that they would not have accomplished as much without the programmes;
- 76% of the Olympians and 74% of their parents felt that the programmes helped, rather than hindered, their talent; and
- 76% of the Olympians and 83% of their parents reported that the programmes increased their awareness of educational opportunities.

The ‘proof in the pudding’ is in the comments made by Olympians about their experiences: “confirmation of my abilities;” “realization I had potential;” “a more objective indication of my talent;” and “First indication I had of how good I really was” (p. 533). The researchers conclude, “Even if participants do not win the contest, these newly developed skills will prove very useful. In this sense there may be no ‘losers’ ...” (p. 534).

National perspectives. During the summer of 1991-1992, Curran, Holton, Marshall, and Hair surveyed students who had participated in the mathematics camps organised by the New Zealand Mathematics Olympiad Committee (NZMOC) and their parents. The survey probed several areas of interest, but this discussion will focus upon the findings in relation to parental and student views of competition. From the 51 parental and 49 student responses received, a dozen parents and some students reported that the opportunity for peer interaction and competition during the NZMOC camps were motivating. The researchers report that the stimulation extended beyond mathematics, and included discussions over abstract concepts, heated debates, and social freedom to be themselves. Curran et al. (1991/2) make a salient point in regard to competition in stating, “It is worth noting that competition is seen here as a positive motivating factor. The students are competing with their peers against a mathematical problem” (p. 23). Their point is that the students in a team situation are not competing against one another, but against a problem which ultimately one person will solve but only as a result of team effort.

Fletcher (1995) reports the results of a similar study conducted with students who participated in the International Chemistry Olympiad (IChO). Sixteen students who attended the 1994 study camp were interviewed to gain their perceptions of the effects of the programme upon them personally, and in relation to their knowledge and interest in chemistry and their study habits. The students responded favourably, indicating that from a personal perspective the greatest gains were in having the opportunity to interact with peers of similar ability. As one student commented, “it was good to meet other people with similar interests who don’t think you’re strange to spend a week of your holidays studying chemistry” (Fletcher, 1995, no page given). The students also indicated that their participation enhanced their study skills and work habits, as well as their understandings and interests in chemistry.

Potential Strengths

- Student satisfaction is achieved through goal-setting and management (Riley & Karnes, 1998/99).
- Potential for the enhancement of student’s self-directed learning skills; sense of autonomy; cooperative team work skills; content, process, and product development; and personal and interpersonal understandings (Riley & Karnes, 1998/99).
- A celebration of the abilities and skills of gifted and talented students (Davis & Rimm, 1998; Riley & Karnes, 1998/99), which can raise the public profile of gifted and talented students and their educational programmes (Riley & Karnes, 1999).

- Competitions provide students with opportunities to work with others of similar ability, confidentially exchanging ideas and enjoying new challenges (Holton & Daniel, 1996).

Potential Weaknesses

- Costs involved in relation to entry requirements, travel, materials, sponsorship, etc (Riley & Karnes, 1999).
- Negative consequences related to competition (Cropper, 1988; Rimm, 1986).
- Availability of competitions and the time involved in seeking those out, adequately assessing their value, and working with students in preparation (Riley & Karnes, 1998/99).

Recommendations for Effective Practice

- Effective and coordinated planning and supervision of student participation in competitions may overcome any potential barriers to their effectiveness (Riley & Karnes, 1998/99).
- Careful selection of competitions requires thorough understanding of their purposes and procedures, as well as the special abilities of individual students, to ensure a match which will maximise the potential benefits for students (Riley & Karnes, 1998/99).
- Teachers, coaches, and facilitators should focus upon student participation as opposed to student outcomes, helping students understand that their involvement is more important than winning or losing (Karnes & Riley, 1996; Riley & Karnes, 1998/99).
- Community support by way of human, fiscal, and other resources may enhance the competitions (Riley & Karnes, 1999).
- It may be important to ‘sensitise’ students to different ways of competing constructively and responding appropriately to competitive situations (Udvari, 2000).
- For success, students should develop skills and attitudes related to time management, organisation, and self-discipline (Campbell et al., 2001).
- Care should be taken to ensure that competitions are not in conflict with cultural values.

MENTORSHIPS

The Ministry of Education (2000) recommends mentoring opportunities for gifted and talented students as one of the many possible approaches to meeting their needs. They describe mentorship as a partnership between a gifted and talented student and an experienced, older student or adult who shares similar interests and abilities. The purposes in a mentoring arrangement are two-fold: the acquisition of new knowledge and skills; and the nurturance of social, emotional, and cultural aspects of giftedness and talent through ‘empathetic companionship.’ As Casey and Shore (2000) explains, “The mentor, typically an adult, acts as a guide, role model, teacher, and friend to a less experienced and often younger protégé or mentee” (p. 227). The Ministry of Education (2000) recommends that mentorships may work best when used in combination with small group or independent study, which is facilitated by a school-based coordinator who is clear about the goals and objectives, as well as roles and responsibilities of students and their mentors. Students who are involved in mentorships may have talents and gifts identified in the array of areas – academics, arts, creativity, leadership, sport, or cultural abilities and qualities.

In New Zealand, mentoring is recommended by numerous writers (see for example, Fitzgerald & Keown, 1996; Gray, 2001; Macleod, 1996; Wood, 1996). These writers suggest mentoring as an appropriate strategy for older students in need of developing their expertise under the guidance of an appropriate role model. This strategy is also strongly recommended for Māori learners who are gifted and talented (Bevan-Brown, 1993, 1996; Ministry of Education, 2000). Mentoring builds upon the tradition within Māori society of a *tohunga*, one who takes a child with recognised talents under his or

her wings so that those special abilities can be nurtured and developed (Bevan-Brown, 1996). Bevan-Brown (2000b) reports that this is a common practice amongst kura kaupapa Māori, and the mentors are usually drawn from the kura kaupapa whānau or wider Māori community.

The Ministry of Education (2000) advises that for Māori students who are appointed mentors from a different cultural group, it is important that those individuals are culturally sensitive. Finally, because mentoring is “essentially about people helping people” (Vasilevska, 1998, no page given), Māori students may enjoy the opportunity to act as mentors for others.

The international literature describes many different mentoring programmes. For example, Vasilevska (1998) describes a mentoring programme developed in New South Wales called the “Mentor Links Programmes” for students ages 10 and above. These students are matched to a community-based mentor or a student in their final year at Sydney University. In an evaluation of the programme, some interesting results emerged: the programme had overwhelming support from parents and students; and those of culturally diverse families (i.e. Tongan, Aboriginal, and Arabic) were more supportive of the mentoring programme than other options (i.e. special classes and selective schools). Bisland (2001), Casey and Shore (2000), and Pleiss and Feldhusen (1995) describe a variety of mentoring programmes in the United States. In New Zealand, Gray (2001) provides a few examples of mentoring programmes, but it is unknown whether these are still functioning (references are dated 1984-1996).

Outcomes for Students

Many writers describe research investigations which have examined the perceptions of gifted adults, and all of these conclude that these gifted and talented individuals pay tribute to significant teachers, parents, and other role models (i.e., mentors) for influencing their talent development (see for example Kauffman, Harrel, Milan, Woolverton, & Miller, 1986 and Pleiss & Feldhusen, 1995). At the same time, mentoring is a highly recommended practice in the gifted education literature, with many descriptive resources available to assist schools in establishing mentoring programmes. Most studies have focused on outlining possible programmes, rather than looking at results and benefits of programmes (Schatz, 1999). However, there is still little empirical research related to its effectiveness (Bisland, 1999; Casey & Shore, 2000; Schatz, 1999). Within New Zealand, a literature review conducted by Gray (2001) concluded that there was little, if any, specific information on mentoring programmes in the literature. This review confirms the lack of research, yielding only recommendations and descriptions reported within the international and national literature.

Potential Strengths

- When mentoring is seen as a two-way relationship (Schatz, 1999), personal rewards are gained by mentees and mentors (Bisland, 1999).
- Mentorships may encourage students in their career planning and decision-making (Casey & Shore, 2000; Purcell, Renzulli, McCoach, & Spottiswoode, 2001).
- Students can focus intensely on emerging interests and learn about those in a ‘ceilingless’ environment (Purcell et al., 2001).
- Provision of opportunities for advanced content and skill development, as well as ‘real-world’ products (Purcell et al., 2001). Pleiss and Feldhusen (1995) add to this the potential for the development of self-directed and autonomous learning.
- Development of the dispositions, beliefs, and attitudes of practitioners and professionals within the student’s field of study (Purcell et al., 2001).
- Provision of role models, heroes and heroines, for whom gifted and talented students can gain insight, respect and understanding in the development of their own, similar aspirations (Pleiss & Feldhusen, 1995; Purcell et al., 2001).
- Mentorships are a culturally appropriate and valued provision for Māori students (Bevan-Brown, 1993, 1996, 2000b).

Potential Weaknesses

- Safety issues could be a concern, particularly if students are placed off-campus and mentors are not carefully selected and screened (Keen, 2002a).
- For schools in rural or isolated areas it may be difficult to find appropriately qualified and interested mentors (Keen, 2002a); however, Schatz (1999) describes the use of tele-mentoring, or online mentoring opportunities which may overcome this barrier.
- Funding for transportation and coordination can be costly (Bisland, 1999); however, as Gray (2001) reports this does not have to be the case. In some instances, mentorships take place in the student's own time.
- Without commitment, time, overall organisation and coordination, and training mentorships will not necessarily be successful (Schatz, 1999).

Recommendations for Effective Practice

- Careful selection of students for mentoring opportunities is important. As Keen (2002a) points out, students should be highly motivated, perhaps in a specific field of talent. He also raises concerns regarding the appropriateness of placing underachieving students in the hands of unpaid volunteers.
- Bisland (2001) advises that students need a certain degree of developmental maturity. Schatz (1999) recommends this approach is best-suited to students of intermediate or secondary age; however, Pleiss and Feldhusen (1995) argue that mentoring experiences should begin early in one's schooling. Therefore, mentorships may initially be short-term experiences, but ideally should increase in duration as students grow and mature (Pleiss & Feldhusen, 1995). In New Zealand, Gray (2001) suggests that mentoring is most applicable for upper primary and lower secondary levels. She also points out that for senior secondary students who have 'exhausted' the system (perhaps through acceleration) mentoring would be an excellent option.
- Pleiss and Feldhusen (1995) discuss the importance of basing the mentorship upon the individual student's needs, and therefore recommend that gifted and talented students be directly involved in the organisation and planning of mentoring opportunities.
- Mentorships may be used to foster partnerships or relationships between educational institutions (Keen, 2002a). For example, secondary students may work as mentors for primary or intermediate students. These partnerships also extend to the local community.
- "It is wise to build a mentoring programme gradually from small beginnings" (Keen, 2002a, no page given).
- Care should be taken in the selection of mentors, ensuring that they have an interest and understanding of gifted and talented students, expertise in the area of interest and a willingness to share that (Bisland, 1999).
- A school-based policy should support mentoring programmes (Bisland, 1999).
- Mentorships have been recommended as an appropriate practice for under-represented gifted and talented students, particularly those of different cultures (Bevan-Brown, 1996); lower socio-economic groups and females (Casey & Shore, 2000; Pleiss & Feldhusen, 1995).
- Schatz (1999) recommends that mentorships should be one-on-one; however, cultural consideration should be given to the appropriateness for groups of gifted and talented students to work with a mentor.
- The Association for Educators of Gifted, Talented, and Creative Children British Columbia (AEGTCCBC) (2003) suggests the following steps in the establishment of mentoring

programmes: establish a “definition” of mentor; identify a person responsible for coordination; decide on a programme plan; develop criteria for student and mentor selection; assist students and mentors in the establishment of mutually agreeable goals and outcomes; create a process for monitoring student progress; and evaluate and adjust the programme and/or match of student and mentor. Berger (1990) provides more details related to each of these steps.

- Positive publicity of the programme may assist in recruiting and securing mentors (Pleiss & Feldhusen, 1995). This would be enhanced by undertaking programme evaluation on a regular and ongoing basis.
- Mentoring should be used as part of a comprehensive programme for gifted and talented students; as a solo provision its effectiveness will be largely dependent upon the mentor (Gray, 1999).

DISTANCE LEARNING

Distance learning is defined as any educational situation in which the teacher and student are not face-to-face. The Northwestern University Center for Talent Development (2003) explains that this mode of study may include traditional by-mail correspondence courses; two-way, interactive audio and video classes; classes using the Internet; and CD-ROM based courses. As Adams and Cross (1999/2000) point out, there has been a significant increase in distance learning opportunities, especially since the dawn of so many new technologies, however, few of these have been specifically designed for gifted and talented students. The Ministry of Education (2000) recommends distance learning as an educational option, and specifically includes the Correspondence School and ‘virtual instruction.’ In Riley’s (2003) survey of rural principals, both of these options were seen by respondents as having promise. Ayr’s (1998/99) New Zealand-based review of the literature related to rural education and gifted and talented students also strongly recommended both the Correspondence School and telecommunications as viable options. The intent of distance learning “...is not to be an alternative to a high quality teacher and classroom” but in many cases, “... the intent is to be an alternative to nothing, and that is what many ... gifted students are getting right now” (Belcastro, 2002, p. 14).

The New Zealand Correspondence School (2003) offers enriched or accelerated programmes for full-time and dual enrolled primary and secondary students. Their programmes are individualised to suit the needs of each student and to support their schools, in the case of dual enrolments. The study of other languages is also available to older primary students. This distance learning programme incorporates a variety of resources, including videos, books, CD-ROMs, audio tapes, games and/or online materials. In order to be eligible, students must meet the criteria outlined by the Ministry of Education (2003) and these include: evidence of exceptional ability as demonstrated in standardised test scores (i.e., PAT, TOSCA) within the top 5% of the student’s age group; evidence that enrolment in the Correspondence School is based upon the student’s individual needs as outlined in his or her Individual Education Plan; and evidence that the individual student programme will be managed in an integrated manner that appropriately balances enrichment and acceleration. The Ministry of Education funds enrolments at the Correspondence School.

The Correspondence School currently has approximately 443 gifted and talented students enrolled in their programmes (D. Watson, personal communication, October 24, 2003). Most of the students Year 6 and below are catered for in the primary section of the school and are on enrichment programmes. The older primary students who are being accelerated often go on to secondary courses. Table 2 below shows the current enrolment figures as reported by Watson.

Table 2. 2003 Enrolment Figures: The Correspondence School.

Year Level	Gifted Students
1	9
2	15
3	18
4	46
5	62
6	77
7	66
8	119
9	13
10	13
11	4
12	1

Many of the university-based Talent Search programmes have developed online courses for gifted and talented students. An example of this is the Education Programmes for Gifted Youth (EPGY) at Stanford University (2003) which offers courses in a variety of subjects at levels ranging from kindergarten (age 5) through advanced undergraduate and currently serves more than 3,000 students from 28 countries. The courses include instruction in mathematics, English, physics, computer science, and music which are facilitated via a virtual classroom, e-mail, and telephone. Adams and Cross (1999/2000) provide detail on several similar distance learning programmes in the United States, and the Northwestern University Center for Talent Development provide web-based links to other programmes.

Closer to the shores of New Zealand is the Virtual School for the Gifted (VSG) (2003), which was established in Melbourne in 1997. The online school specialises in providing enrichment courses to complement and extend the regular curriculum, and in doing so strives to develop an online community of learners in which gifted and talented students can ‘remove their masks.’ The courses, available to primary and secondary students, are taught by specialist teachers and class sizes are kept small, allowing for individualisation of instruction. The online classes encompass opportunities in mathematics and science, humanities, and computing, and each course lasts approximately nine weeks. Individuals or groups of students can apply for the VSG and there are no criteria for entry; their website states, “There are no testing procedures for admittance to the VSG. Places are offered on a first-come-first-served basis.” The VSG was unable to report exact numbers of New Zealand students who are currently enrolled in their programmes, however, they did indicate that at least four different schools from New Zealand have participated (D. Kelly, personal communication, September 5, 2003). A similar, but much smaller, programme is offered by the University of New England, Armidale and is called the TalentEd Enrichment Programmes (TEEP) (2003). TEEP is a computer mediated collaborative learning environment for young learners which appears to specialise in mathematics-based enrichment.

Frydenberg and O’Mullane (2000) report that several Australian state departments of education deliver differentiated programming via satellite, facilitate mentoring and peer-group interaction on the Internet, and offer access to more resource bases than could be available in any single school environment. For example, they describe The International Student Project which links gifted students at 22 Victorian schools via e-mail and the Internet with counterparts in a dozen countries to research and debate worldwide problems facing young people today.

Outcomes for Students

Rogers (2002b) reports that there is no systematic research which examines the effect of distance learning. Olszewski-Kubilius and Lee (2003) believe that more research is needed to determine how distance learning can be most beneficial to gifted and talented students. As they state, “In particular, continued comparison of distance learning to traditional learning formats should help researchers

determine what features are essential elements of successful distance learning ...” (no page given). Adams and Cross (1999/2000) support this view, stating that although enrolment numbers in many distance education courses in the United States continue to steadily increase, very little systematic evaluative research related to their effectiveness has been undertaken. This review of the literature confirmed the lack of empirical research related to the effectiveness of this often-recommended provision for gifted and talented students. Whilst a few overseas articles were located, this review yielded no references within the context of New Zealand.

International perspectives. Smith (2000) describes research which evaluated the effectiveness of virtual schools in Alberta, Canada. Since 1995, twenty-three virtual schools have been created in Alberta, and these offer ‘anytime/anyplace’ learning opportunities, and as such, Smith believes these are viable alternatives for gifted and talented students. Unfortunately, the report does not give any indication of the methodology utilised (and attempts to contact the researcher or locate the study were unfruitful). However, it does provide some information regarding the results in relation to outcomes for students. For example, she reports that 14% of students attending virtual schools were identified as highly gifted. The students and their parents selected this option because it gave way to opportunities for autonomous learning: students could work at their own pace, in their own time, and to the depth and breadth of their choice. She reports that the students found these independent learning opportunities motivational. The students also reported that in the virtual schooling environment relationships were created which were not influenced by race, gender, or age and they saw this as a positive feature. As she reports “These students felt that eliminating these issues made them feel more accepted and this increased their grades because they were no longer occupied with how they felt emotionally” (no page given). Of the parents surveyed, 34% reported that their children’s academic achievement has improved since enrolment. Further, they reported changes in their children’s satisfaction with learning and personal confidence.

Wilson, Litle, Coleman, and Gallagher (1997) report the findings of an evaluation of a distance learning programme at the North Carolina School of Science and Mathematics (NCSSM), a residential high school for academically talented students in the last two years of their schooling. NCSSM incorporated a distance learning programme in 1991 as an outreach to students unable to attend the residential facility. During the evaluation, students were surveyed and interviewed to obtain their perceptions of the distance learning programme. Overall, the participating students reported favourable experiences. The benefits cited by the students included: access to outstanding faculty; opportunities to take courses that they would not have otherwise been able to take; the chance to interact with students from other schools and other sites; the opportunity to test their abilities against prestigious courses from the NCSSM; a chance to develop independent skills and study skills that they felt would better prepare them for tertiary study; and the opportunity to sharpen their communication and thinking skills.

The authors further report that as a group, the students achieved to levels similar to their peers in residence at the school. However, they also indicate that some students struggled to achieve and had difficulties with the courses. The difficulties these students experienced were not so much related to the mode of study, as to the content and teacher expectations. These students did point out disadvantages and these primarily related to lack of face-to-face, one-on-one face-to-face contact with their teacher and technical difficulties.

Olszewski-Kublius and Lee (2003) conducted an evaluation of the online learning courses available through the Northwestern University Center for Talent Development, a programme established in 1982 for students in grades 6 through 12 (or approximately ages 11-18). Through questionnaires, they probed student perceptions of their experiences. Overall the students reported satisfaction, with 73.3% of the 149 students surveyed indicating that they plan to enrol in future courses. The authors report, “Most were satisfied with the quality of overall technical support, reporting easy access to information, adequate technical support help, clear navigation and organization of course websites, and quality online communication with their instructors” (no page given). Their research confirms the findings of Wilson et al.’s (1997) study that the greatest difficulty for students was the lack of face-to-face, one-on-one interactions with the teacher.

Beardon, Jared, and Way (1999) describe the evaluation of an online mathematical enrichment programmes in the United Kingdom, the NRICH Internet Project. This programme provides gifted and talented students with enrichment and learning support, but also provides teachers with advice, inservice training, and resources. Additionally, university students provide peer-assistance via an electronic answering service. The writers report that though this service is based in Cambridge, it provides services to students worldwide, and in 1999 they estimated 3,000 registered members from 62 different countries. The evaluation reports little in relation to outcomes for students, but the one 'gem' reported is shining – of the 46 teacher respondents to their survey, 91% responded that the NRICH problems had improved students' problem solving skills.

A small scale, descriptive study of gifted mathematics students in Bulgaria who participated in a correspondence course via 'snail mail' also demonstrated positive gains in student outcomes (Lazarov & Tabov, 1995). The students took part in a programme of correspondence which centred around problem-solving, whereby students received problems, submitted their responses, and were given feedback. The authors report that the students showed gains not only mathematically, but also in their communication skills.

Potential Strengths

- Allows students opportunities to interact with like-minded peers (Adams & Cross, 1999/2000; Bailey, 1998; McKinnon & Nolan, 1999; Urban, 2003), and in virtual instruction, as part of a community of learners (Belcastro, 2002; Harrison, 2003).
- Access to creative teaching (Bailey, 1998) whereby teachers act in the role of facilitator of learning (Adams & Cross, 1999/2000). Online teachers can concentrate on specialised areas of study and develop these to advanced levels (Wilson et al., 1997).
- Provides a wider range of courses otherwise unavailable because of low student enrolments or lack of teacher expertise, especially in advanced areas of study (Adams & Cross, 1999/2000; Wilson et al., 1997).
- Can allow students early entry into courses (i.e., acceleration) or allow students opportunities for enrichment (Northwestern University Center for Talent Development, 2003).
- Can be integrated with inexpensive professional development via the Internet, assuring some connection with the regular classroom and enhancement of teaching (Wilson et al., 1997).
- Gifted and talented students can be exposed to experts in the field (McKinnon & Nolan, 1999; Urban, 2003; Wilson et al., 1997), and given access to ideas, information, and people otherwise inaccessible (Adams & Cross, 1999/2000; Lee, 2001).
- Can facilitate team teaching, whereby, for example, one teacher may focus on the content and another on the technological aspects (Wilson et al., 1997; Riley & Brown, 1997).
- Can be undertaken in the student's own time, granting students the freedom to decide when to study and at their own pace (Bailey, 1998; Harrison, 2003; Northwestern University Center for Talent Development, 2003; Urban, 2003) and even in their own homes (Ravaglia, Suppes, Stillinger, & Alper, 1994).
- Opportunities for student individualisation through level of instruction and pace of delivery (Adams & Cross, 1999/2000; Harrison, 2003; Le Seuer, 2002; Ravaglia, 1995; Ravaglia et al., 1994; Smith, 2000), and can also facilitate group work (Urban, 2003).
- Students who are accelerated via distance learning opportunities are not faced with the physical awkwardness of attending classes with older students (Ravaglia et al., 1994).
- Students who are shy, or have barriers created by learning, physical or language difficulties, can more easily take part in discussions because they have time to reflect upon and prepare

their responses (Harrison, 2003). Other social differences, such as culture, age, and gender also become 'invisible' (Smith, 2000).

- Potentially overcomes barriers to provisions within small and rural schools (Adams & Cross, 1999/2000; Ayr, 1998/99; Bailey, 1998; Belcastro, 2002; Riley, 2003)
- Belcastro (2002) believes that Internet-based instruction enhances many cultural arts, research, communication and 'virtual field trip' opportunities.

Potential Weaknesses

- Lack of physical contact with teacher (Wilson et al., 1997) and peers (University of Plymouth, 2003).
- Scheduling or timing of online contact can be problematic (Wilson et al., 1997).
- Some teachers may feel threatened by the introduction of new teaching modes and methods, including information and communication technologies (University of Plymouth, 2003).
- Increased teacher preparation time for online instructors, especially in the initial establishment of such programmes (Wilson et al., 1997).
- Costs for course enrolments may be expensive (Bailey, 1998; Northwestern University Center for Talent Development, 2003), as can initial set-up costs for equipment (Bailey, 1998).
- Distance learning may conflict with "dominant social beliefs about what teaching, learning and proper knowledge are and how schools are organized for instruction" (Adams & Cross, 1999/2000, p. 88).
- When using information and communication technologies, both teachers and students can be faced with technological glitches which can be frustrating and time-consuming (McKinnon & Nolan, 1999).

Recommendations for Effective Practice

- Careful student selection is critical. As Wilson et al. (1997) state, "To perform well in a distance learning course, a student must be highly motivated, self-disciplined, and able to work independently without constant supervision" (p. 92). They further point out that students need to have prerequisite knowledge and a desire to participate. The Northwestern University Center for Talent Development (2003) describes successful students as 'self-starters.'
- Teachers of online courses must also be carefully selected. Wilson et al. (1997) provide a set of criteria for effective online teachers and this includes: flexibility and ingenuity (especially in dealing with technological 'hiccups'); advanced content knowledge and technological skills; the ability to create a 'lively and enthusiastic' learning environment online; the ability to engage individual students, as well as facilitate cooperative learning amongst groups of students; and the ability to communicate effectively with students.
- Wilson et al. (1997) recommend that an 'on-site facilitator' is necessary to assist with scheduling, create a 'real' classroom environment, distribute and collect materials, etc. The Northwestern University Center for Talent Development (2003) endorses this and further suggest that a contact for technical assistance is also necessary.
- Wilson et al. (1997) recommend that in the selection of students, facilitators should: allow students to preview courses so that they can get a sense of what distance learning is like; develop a detailed brochure and course guide; facilitate discussions between other students who have taken distance learning courses and those who are thinking about doing so; design pre-tests for students to ensure that the prerequisite knowledge and skill base is in place; and remain flexible so that students can always switch back to a traditional setting.

- Online instructional courses need to be readily revisable and by carefully tracking student progress, sources of difficulty can be changed to better accommodate student needs (Ravaglia, 1995).
- Efforts must be made to stimulate students and provide adequate, timely feedback (Lazarov & Tabov, 1995).
- In the use of information and communication technologies to support distance learning, it is essential that schools are equipped with appropriate computer hardware and software, as well as telecommunications connections (Belcastro, 2002). In designing such programmes, Beardon et al. (1999) recommend that success depends largely upon the design of the programme, efficiency of the computer system, and effective safeguards and monitoring.
- Bailey (1998) recommends that in Australia, every university, but particularly those offering teacher education degrees, should establish its own set of ‘virtual mini–courses.’
- McKinnon and Nolan (1999) recommend that for the purposes of virtual instruction, the ideal number of students is 10. Lee (2001) advises schools to ‘trial’ online provisions with a small group of students before opening it up to a larger one.
- This provision should be used as one of many opportunities for gifted students, and not seen as a ‘panacea’ for all gifted and talented students (Smith, 2000).
- Funding should be available to ensure eligible students are not denied access to online learning opportunities because of their socioeconomic circumstances.

OTHER IDENTIFICATION METHODS AND PROVISIONS

This review of the literature yielded information regarding other identification methods and provisions which are not reported in the national literature or Ministry of Education documentation. However, these may be worthy of consideration and further examination in the New Zealand context of gifted and talented education. These are briefly discussed in this section.

In relation to identification, the Talent Searches conducted in the United States, Canada, Ireland, and Australia are a model for off-level testing which has great potential in the accurate identification of academically talented students (Lupkowski-Shoplik et al., 2003). As reported earlier, this is a systematic assessment programme which uses tests of aptitude, rather than achievement or intelligence. Students are initially screened based upon achievement tests scores and those students achieving at or above the 95th or 97th percentile are invited to take an above-level test, measuring their aptitude. The power of this assessment programme lies in the precision of the assessment, especially for students of exceptional ability.

Talent Searches are offered in tandem with University-based programmes for academically gifted and talented students. Freeman (1998) reports that the three largest organisations offering these courses are the Center for Talented Youth at Johns Hopkins University (a branch is at City University, Dublin), the Talent Identification Programme at Duke University and the Northwestern Center for Talent Development. The University of New South Wales also offers programmes of this nature. Associated with these programmes is a wealth of research which supports their effectiveness in meeting the needs of academically able students (see for example, Lupkowski-Shoplik et al., 2003). As Freeman (1998) reports, “virtually all show the courses to have increased the students’ knowledge and enthusiasm for the areas studied” (p. 50).

Apart from the Talent Search research, the provisions of other university-based weekend and summer programmes for gifted and talented students are widely reported in the literature as effective provisions for gifted and talented students (see for example, Davis & Rimm, 1998; Freeman, 1998; Lupkowski-Shoplik et al., 2003; Olszewski-Kubilius, 1998b; Rogers, 2002b). Davis and Rimm (1998) summarise the benefits of these programmes as opportunities to work with students of similar ability, working with professionals in their fields of interest, learning complex skills, learning about topics and

ideas beyond the school curriculum, researching new problems, and confirming special talents. They also report that students enrolled in residential programmes gain a sense of independence and responsibility. In New Zealand, the New Zealand Council for Gifted Children provides holiday enrichment programmes on the University of Auckland campus (see Hendy-Harris, 2001), and in the past, Massey University has offered Saturday programmes for students with advanced skills in computing (see Riley & Brown, 1997). Both of these provisions are perceived by their providers as giving gifted and talented students positive learning experiences, though no empirical data related to their effectiveness supports these claims.

Out-of-school programmes are also provided by advocacy groups, such as the New Zealand Association for Gifted Children, and private organisations, such as the George Parkyn Centre. This is similar to worldwide trends. For example, Freeman (1998) reports that in Britain, several local authorities and a few private organisations run out-of-school activities. The Ministry of Education (2000) includes outside provision of this nature in its continuum of approaches, however, the review of the literature did not yield more than descriptive reports of these approaches. Therefore, if provisions of this nature are to grow and expand, including university-based programmes as previously described, the evaluation of their effectiveness would be important.

The literature also reports the existence of special schools for the gifted and talented in other countries; however, in New Zealand there are not any state schools designated by the Ministry of Education as such. However, there are private schools which cater for gifted and talented students. For example, Thomas Kennedy Junior Academy is a small, independent, fully registered private school established in 1993 to support students with special abilities and talents (Education Review Office, 2000). Internationally, these schools range from magnet schools which specialise in certain curricular areas to full-time residential schools which specialise in mathematics and science. For example, Mönks and Kieboom (2002) report that of 24 European countries, 15 make provision for gifted and talented students through special schools; however, they do not describe the nature of these schools. Freeman (1998) reports that in Britain there are many 'unofficial' highly selective schools for the academically gifted, many of which are private and accelerate students in efforts to better assure academic success and Oxbridge entrance. Similarly, Winner (1996a) describes many private schools in America as "de facto schools for the gifted" (p. 269). Gross and Slep (2001) report that in New South Wales there are 'selective high schools' and these aim to cater to the needs of academically gifted students. Freeman (1998) also describes non-selective maintained schools in Britain which specialise in teaching certain subjects to a high level, such as the 222 Technology Colleges and Language Colleges. These 'magnet schools' aim to attract (rather than select) talented children to an area of excellence, such as music. Special interest centres in South Australia operate in a similar manner (Gross & Slep, 2001).

Shore and Delcourt (1996) report that students in special schools have more positive attitudes toward learning and view their learning as student-centred. Additionally, they report that in regards to social acceptance, these students were seemingly unaffected. The homogeneous nature of special schools may ease curricular differentiation.

For senior secondary students, the literature describes the Advanced Placement Program (AP)[®] of the non-profit organisation for secondary and postsecondary institutions called the College Board in the United States (AP[®] Central, 2003). The programme is a cooperative endeavour between secondary schools and tertiary institutions which recognises that tertiary-level material can be taught to advanced secondary students. Academically able students can enrol in any of 34 courses in 19 subject areas (e.g., art, biology, foreign languages, psychology, statistics, etc). These courses are offered in many schools, but also are now available through distance education programmes. Students may also take AP exams, and those who are successful receive tertiary credit. Thus, the goal of the programme is to grant students credit, advanced placement, or both in recognition of their achievement in Advanced Placement courses and exams. This is not a programme designed only for American students. In 1999, 704,000 students in 14,000 schools from 80 countries took more than 1.1 million exams (Curry, MacDonald, & Morgan, 1999). Of the 3,500 tertiary institutions which accept AP grades, approximately 500 of these are outside of the United States (e.g., Australia, Canada, the United Kingdom, South Africa and many European countries). It appears that no New Zealand universities

currently accept Advanced Placement credits, and this review of the literature yielded no references to this programme being used in New Zealand schools. The benefits of this programme for senior secondary students who are highly able are reported as positive (see for example, Curry et al., 1999) and in other countries the programme has shown positive growth in recent years.

Another option gaining more attention in the literature are ‘enrichment clusters’ (see for example, Renzulli et al., 2003). Enrichment clusters, one component of the Schoolwide Enrichment Model, provide a regularly scheduled weekly time for students to work with adult facilitators to complete a product or provide service in a shared interest area. They are designed to offer students challenging, real-world learning experiences. Reis, Gentry and Maxfield (1998) found that many of the teachers who facilitated in the clusters transferred some of the strategies into their regular classroom practices. This model provides challenges and learning paths for all students with opportunities to develop higher-order thinking skills and to pursue more rigorous content and first-hand investigative activities. These skills are then applied in creative and productive situations. They are not designed to be the total programme for gifted students but one vehicle for stimulating interests and developing talent potential. Given the inclusive nature of gifted and talented education in New Zealand coupled with the need for professional development opportunities, this approach may have particular appeal.

Finally, some of the models for identification and provision for culturally diverse groups of gifted and talented students, which are discussed in the next section, may be of value within the context of New Zealand. These would, of course, have to be adapted and adjusted to ensure their appropriateness and relevance for New Zealand students, as well as their ‘fit’ within the educational system.

CULTURAL ISSUES

This section discusses issues related to the identification and provisions for students from ethnic minority groups. The national and international literature and research shows that these students are under-represented in many gifted and talented programmes and provisions. The problem stems primarily from lack of effective identification practices. However, there are also potential problems faced by these students if they are identified, but the provisions are not culturally relevant or appropriate. This part of the review begins with a description of the overseas literature, but then focuses upon understandings within the context of New Zealand.

The International Scene

Over the last twenty years the gifted and talented literature documents an increasing concern for cultural sensitivity and appropriateness when identifying and providing for gifted and talented students from ethnic minority groups. Fletcher and Massalski (2003) maintain that this movement towards greater cultural awareness has been influenced by two major catalysts. The first is new developments in intelligence theory and cultural psychology, in particular the developmental theory of creativity expounded by Feldman, Csikszentmihalyi, and Gardner (1994), Cole’s (1996) cultural psychology theory and Gardner’s (1983, 1999) multiple intelligence theory. The second catalyst is the under-representation of ethnic minority students in gifted education. This under-representation has been reported for minority cultures in general (Bernal, 2003b; Fletcher & Massalski, 2003; Frasier, 1992; Mills & Tissot, 1995; Patton, 1997; Sisk, 2003; Van Tassel-Baska, Patton, & Prillaman, 1991; Worrell, Szarko, & Gabelko, 2001) and for particular ethnic groups, namely, Native Hawaiian (Martin, Sing, & Hunter, 2003); African-American (Ford, Harris III, Tyson & Trotman, 2002); Hispanic (Ford, 1998); Australian Aborigine and Torres Strait Islanders (Harslett, 1993; Vasilevska, 2003) and Pacific Island and Arab-speaking students in New South Wales (Vasilevska, 2003)

Identification: Problems

Multiple reasons are given for the under-representation of minority groups in gifted education. They are mainly related to discriminatory assessment practices including:

- Assessment measures and procedures that are firmly embedded in white, middle class culture (Ford et al., 2002; Smutny, 2003; Tonemah, 2003; Worrell et al., 2001);

- Narrow selection criteria including an over-reliance on IQ tests which are considered incapable of accounting for the cultural differences that shape intelligence (Bernal, 2002; Fletcher & Massalski, 2003; Ford et al., 2002);
- Tests that disadvantage and misdiagnose language-minority students (Belcher & Fletcher-Carter, 1999; Fletcher & Massalski, 2003; Frasier, Garcia, & Passow, 1995); and
- Testing procedures that are unfamiliar to minority group children (Belcher & Fletcher-Carter, 1999; Castellano & Diaz, 2002; VanTassel-Baska, Johnson & Avery, 2002).

Additional reasons cited in the literature are shown in Table 3 below (Belcher & Fletcher-Carter, 1999; Fletcher & Massalski, 2003; Frasier et al., 1995; Ford, 1996; Hunsaker, 1994; Maker, 1996; Sisk, 2003; Ford et al., 2002; Tonemah, 2003, VanTassel-Baska et al., 2002; Vasilevska, 2003).

Table 3. Barriers to the Identification of Culturally Diverse Students with Special Abilities and Qualities.

Problems Associated with the Identification of Culturally Diverse Students
<ul style="list-style-type: none"> • Low teacher expectation • Teacher bias • Low teacher referral rate • Inadequate teacher preparation in testing, assessment, multicultural and gifted education • Cross-cultural misinterpretations and misunderstandings • Inadequate home-school communication about gifted education opportunities • Narrow concepts of giftedness • Negative stereotyping of minority group children • Characteristics associated with cultural diversity that may obscure giftedness • Reluctance amongst parents of children from diverse minority cultures to identify their children as gifted and nominate them for gifted programmes • Children unmotivated to perform in test situations • Children inhibited by conditions of poverty or psychological stress • Geographic isolation • The pervasive deficit orientation that prevails in society and educational institutions

Identification: Solutions

Multidimensional identification methods and procedures. The most frequently mentioned means of fairly and accurately identifying gifted children from minority groups and thus overcoming under-representation is the use of multiple assessment measures and procedures sensitive to cultural values and practices (Barkan & Bernal, 1991; Frasier, 1997b; Frasier et al., 1995; Frasier & Passow, 1994; Ford, 1996; Ford et al., 2002; Harris & Ford, 1991; Hunsaker, 1994; Smutny, 2003; Worrell et al., 2001). A wide variety and combination of approaches are recommended. Fletcher and Massalski (2003), for example, suggest the use of: “nominations by parents, teachers, peers and community leaders, grade point averages and portfolio evaluations. These are site specific determinants and are important when considering the cultural reality of the person, the school and community” (p. 163).

Similarly, Martin et al. (2003) report that the identification of gifted and talented Native Hawaiian students for Na Pua No’eau programmes are “multisource, multimethod, multisetting and over time” (p. 191). Students are invited to participate in a range of enrichment programmes designed to provide them with opportunities to develop their interests and abilities. Those children who excel in initial programmes are encouraged to continue involvement and invited to subsequent programmes. Additional identification tools employed are consultation with peers, family and community members, culturally sensitive interviews and questionnaires, auditions, behavioural checklists which include both mainstream and local interpretation characteristics, school achievement scores, product presentations and performance on relevant problem-solving items.

The United States Department of Education commissioned a panel of researchers to evaluate teacher, parent, peer and self nomination. The conclusion reached was that these were “a promising means to identify giftedness in children from poor, culturally different and bilingual backgrounds” (Belcher & Fletcher-Carter, 1999, p. 18). To test this contention a team of parents, community leaders, teachers and academics developed four Spanish/English nomination inventories based on what the school and community considered traits of giftedness. Using these nomination inventories 21 children were identified as being gifted and talented – only two had been previously identified using traditional assessment measures. Belcher and Fletcher-Carter (1999) reported that the subsequent winning performances of these 21 students in a state-wide future problem solving competition justified their selection to the gifted programme.

In the Tuscon Unified School District minority participation in gifted programmes increased from 17% in 1989 – 1990 when traditional assessment tools were used to 31% in 1990-1991 when a multidimensional “case study” approach to selection was adopted. Case study data included Raven’s Progressive Matrices tests, a teacher checklist of student behaviours, a parent questionnaire, a rating of self esteem, samples of student work and an abbreviated version of the Weschler IQ test (Barkan & Bernal, 1991).

The multidimensional identification approach has been formalized in models such as the Krantz Talent Identification Instrument (KTII) and Baldwin’s Identification Matrix (cited in Davis & Rimm, 1989). These models draw together scores and assessments from a range of instruments and sources to present a comprehensive profile of students’ strengths and weaknesses. KTII in particular has been developed to identify gifted and talented students from ethnic minority and poor families. Davis and Rimm (1989) conclude that the use of such multidimensional criteria coupled with “a quota system will insure representation of disadvantaged and minority students” (p. 91).

However, it should be noted that a number of cautions have been sounded in respect to the use of multiple method identification. Castellano and Diaz (2002) maintain that combining and/or weighting data from multiple sources can lead to the identification of the ‘jack of all trades’ and may eliminate the masters of some. They also note:

Most of the identification procedures used, such as standardized tests, teacher recommendations and grades are really a measure of conformity to middle class academic values and achievement. The more measures that are used and combined inappropriately, the more likely it is that disadvantaged students (poor, minority, creative and others that tend to be underachievers at school) will be excluded. Therefore, the use of multiple measures, which may create the appearance of inclusiveness, can actually promote elitism in the identification process (p. 100).

Similarly, Hunsaker (1994) contends that multimethod identification can have its drawbacks. They surveyed 39 school districts where culturally diverse students were under-represented in gifted programmes. The most popular assessment approach was the use of multiple assessment criteria including checklists and rating scales, portfolio assessments, provisional placement, behavioural observations and alternative tests. Teachers outlined strengths and weaknesses of the various assessment measures but notably “no school district responded that they were totally satisfied with the results they had been achieving” (p. 74).

Broad, inclusive concepts of giftedness and talent. Associated with multi-dimensional identification, but not as widely reported in the literature, is the call for the recognition of broader philosophies, definitions and theories of giftedness that accommodate cultural diversity and cultural concepts of giftedness (Frasier et al., 1995; Frasier & Passow, 1994; Ford, 1996; Ford et al., 2002; Maker, 1996; Martin et al., 2002; Worrell et al., 2001). Identification measures and programmes based on the theory of multiple intelligences are seen to be an effective way of incorporating these broad, inclusive concepts of giftedness and talent (Maker, 1996).

Culture free and culture fair tests. A further strategy for identifying gifted minority children is the use of assessment tools specifically developed to overcome the majority cultural bias of IQ tests. The Naglieri Nonverbal Ability Test (Naglieri, 1996), the Comprehensive Test of Nonverbal Intelligence (Hammill, Pearson, & Wierderholt, 1996), the System of Multicultural Pluralistic Assessment (SOMPA) (Mercer & Lewis, 1978) and Ravens Progressive Matrices (RPM) (Raven, Court, & Raven, 1977, 1983a, 1983b) are all examples of standardised tests that are claimed to be ‘culture free’ or ‘culture fair.’ Ford et al. (2002) report others’ research which found that 50% of non-white children who failed to qualify for gifted programmes using WISC-R qualified when Ravens tests were used. Ravens Progressive Matrices, like other non-verbal tests, are considered to be better measures of ‘pure potential’ than IQ tests because they “do not have the confounding influence of language, vocabulary and academic exposure” (Ford et al., 2002, p. 57).

Similarly, Castellano and Diaz (2002) cite studies where there was a seven fold increase in the number of Latino children identified as gifted when Ravens Progressive Matrices replaced IQ testing as a means of identifying gifted children while Mills and Tissot (1995) note that in their research “a significantly higher proportion of minority children scored at a high level on the RPM than on the traditional measure [The School and College Ability Test]” (p. 209). Mills and Tissot add that RPM appears to be a useful instrument for identifying academic potential in students with limited English but suggest that it is used as a general screening instrument in conjunction with other identification measures (p. 209).

DISCOVER is an assessment tool developed by Maker, Nielson, and Rogers (1994) specifically for “use with students from groups who are traditionally underserved in programmes for gifted learners – children who may be at risk because of socioeconomic factors or disabling conditions” (p. 210). Assessment consists of a continuum of problem solving tasks in five different intelligence domains. Instructions are given in the child’s first language. While the child participates in the series of ‘fun’ activities, trained observers record and later evaluate his/her performance based on established criteria. Nielson (2003) maintains that DISCOVER trials show this test is culturally appropriate and more effective in identifying gifted children from ethnic minority groups than traditional assessment measures. This is reflected in DISCOVER’s widespread use in Native American schools and in areas that have large populations of African-American and Hispanic students (Fletcher & Massalski, 2003).

QUEST, Bauerle, Gonzales and Felix-Holt’s assessment tool (cited in Fletcher & Massalski, 2003) was developed to counteract the low scores of Spanish-English students on traditional measures of verbal intelligence. It utilises a case study component and language sensitive responses. Fletcher and Massalski (2003) maintain that QUEST achieves an accurate qualitative assessment of bicognitive, bicultural and bilingual learning and development and thus is an appropriate tool for identifying gifted Spanish-English students.

Another assessment tool was developed by Van Tassel-Baska and a team of experts in Project STAR (Van Tassel-Baska et al., 2002). Students are given a “sample test” which is followed the next day by the real assessment tasks. These tasks are not timed, they use manipulatives and are scored according to specified criteria. The lack of emphasis on speed and the preteaching component optimise performance conditions for inexperienced learners. Because each task has a preteaching example to accompany it there is no assumption of prior learning as is the case for traditional assessment methods. Field trials were conducted with 1792 children:

The performance assessment tasks of Project STAR resulted in finding an additional group of students who were 12% African American and 14% low-income children ...These students represent those who would not have qualified for gifted programs using traditional measures. (VanTassel-Baska et al., 2002, p.110).

While these findings were encouraging the authors also note that these tests are a lot more time consuming to administer than traditional tests and extensive staff training is needed to administer and score them accurately.

Sisk (2003) reports on a screening instrument developed by Howells (1998). Teachers were questioned about the cognitive and behavioural strengths of culturally different students they taught. This information was then used to formulate a list of characteristics that could be used to select potential candidates for grade one gifted programmes at Palm Beach. Using this screening device 500 children were initially selected. This number was reduced to 80 on the basis of their performance on Meeker's (1975) SOI Test of Learning and Abilities and teacher recommendations. This was considered a successful approach in a district where standardized tests and general checklists had previously failed to identify gifted minority students (Sisk, 2003).

In conclusion it should be noted that while there is considerable support in the literature for the use of alternative and multidimensional identification measures and procedures, empirical evidence of their effectiveness is relatively scarce. Bernal (2002) calls for presumed successful practices to be thoroughly evaluated and the results dissemination widely. He maintains that this needs to be done in order to justify alternative selection systems and bring about meaningful change in traditional practices.

Provisions: Problems

Assuming barriers to identifying gifted and talented minority students have been overcome and they have been nominated for gifted programmes, the literature indicates that they may still not be adequately provided for. The main reasons cited are the cultural inappropriateness of existing gifted programmes and the inability of teachers in gifted education to provide for cultural diversity (Ford et al., 2002; Maker, 1996). Bernal (2003b) notes that while the move to more inclusive education for gifted students may appear to augur well for gifted minority students, in fact regular teachers' inability to provide for gifted students means they are ill-served in both segregated and inclusive settings. Bernal supports this contention by citing Ray's (1997) research showing regular teachers' attitudes and practices result in neither gifted students from minority nor majority cultures getting their needs met.

Provisions: Solutions

The literature mentions a number of approaches to improving education for gifted minority students.

Multicultural and bilingual provisions. First, there is a call for gifted education to become multicultural (Bernal, 2002; Ford, Grantham, & Harris, 1997; Ford et al., 2002). This would require: the recruitment of culturally diverse teachers; preservice and inservice multicultural teacher training; provision for differing culturally preferred learning styles; inclusion of multicultural content, materials, processes and perspectives in all gifted provisions; and the introduction of multicultural criteria in education's accountability system (Barkan & Bernal, 1991; Bernal, 2002, 2003b; Castellano & Diaz, 2002; Ford & Harris III, 1999; Ford et al., 2002; Maker, 1996; Montgomery, 2001; Vasilevska, 2003).

Second, bilingual gifted programmes are advocated. Where there are insufficient numbers to populate a bilingual gifted class, Bernal (2003b) suggests an English as a Second Language (ESL) gifted class be established. A third option suggested by Bernal (2003b) is the provision of programmes designed to cultivate advanced levels of proficiency in both English and the student's native tongue. These programmes would be open to gifted English-speaking students who wanted to become bilingual. Initially gifted students would be taught their respective second languages in separate settings, for example, gifted Spanish-speaking students with limited English proficiency would be taught English in their classroom and gifted English-speaking students would be taught Spanish in theirs. When both groups become proficient in their second language, the classes would be amalgamated into one bilingual gifted class.

Early intervention. An issue that is often raised in relation to gifted and talented children with limited English proficiency is the timing of their entry into gifted programmes. Sisk (2003) notes that the common misconception that children need to be taught to speak English before they can be intellectually challenged should be dispelled. "School districts that teach children in their native language in primary years have been able to develop gifts and talents in their children" (p. 242).

In her examination of successful programmes for gifted minority students Sisk (2003) maintains that early intervention emerges as a vital component. Two programmes that provide evidence of this are Project STEP UP and a study reported by Karnes and Johnson (1991). In the latter, innovative lessons were used to teach high level thinking skills to 234 four and five year old Head Start Children. Pre and post test performance on a battery of tests showed that these children out-performed a control group of 212 children. Twenty four students were identified as being potentially gifted and talented.

The aim of Project STEP UP was to help teachers provide for underserved gifted children. Observations, checklists that focused on minority students, problem tasks, Ravens Progressive Matrices and portfolios were used to identify 243 minority, economically disadvantaged students in 14 school districts. Teachers were then trained in areas relevant to providing for gifted minority students. A culturally appropriate curriculum was developed, field-tested and collated into a source book for teachers. The curriculum content included self-concept development, communication skills, problem solving, higher level thinking processes and integrated units of work. Community members were utilised as mentors, role models and instructors and a parent involvement component was included.

Pretests and student's profiles indicated that none of the 243 students involved in Project STEP UP would have qualified for their schools' gifted programmes. At the conclusion of the Project 50% were identified as gifted and were enrolled in gifted programmes (Sisk, 2003). Sisk cites similar results in the Palm Beach Gifted Minority Students' Project and Project TEAM. On the basis of these research findings Sisk maintains that the components necessary for successful provision for gifted children from ethnic minority groups are: well planned early intervention programmes that provide a supportive environment and include goal setting and metacognitive skills; and teachers with high expectations who develop strong, caring relationships with both students and parents.

Curriculum models and approaches specifically designed to cater for gifted minority children. The literature contains a large number of specifically designed programmes that have been developed and used with various gifted minority groups. One example is the DISCOVER Curriculum Model based on Gardner's theory of multiple intelligences and Maker's problem continuum. The DISCOVER curriculum is composed of a range of open-ended, problem-solving activities in all intelligence areas. It is claimed that this content enables students to "develop understandings, construct new knowledge and create products valued in diverse cultures" (Nielson, 2003, p. 219). The DISCOVER Curriculum Model was piloted in six Navaho schools, six schools with a high proportion of Hispanic students and in two ethnically mixed school districts. Results showed student improvement, increased reading achievement scores, decreased discipline referrals and improved attendance (Maker, Rogers, & Nielson, 1997; Maker, Rogers, Nielson, & Bauerle, 1996; Nielson, 2003).

The programmes offered by Na Pua No'eau, the University of Hawaii's Center for gifted and talented Native Hawaiian students, are of particular interest given the similarities in culture, language, colonisation history and concept of giftedness (see Martin, 1996) between Native Hawaiians and Māori. The Center and its Outreach Facilities offer 11 core programmes which include school-based, weekend and holiday activities where teachers, university faculty, reknown community resource people and established experts and artists teach a variety of topics. The activities offered incorporate Native Hawaiian values, culture, language and history. Students are allocated mentors who meet with them at least four times during the year to pursue individual independent projects. They participate in specialised field trips, university visits and are given opportunities to pursue career goals via summer internships in selected areas of interest. The Center also runs an annual one day 'family affair' where gifted and talented children and their families are invited to the university campus to participate in educational and recreational activities offered by community agencies and organisations (Martin et al., 2003).

Student and parent interviews, questionnaires and student profiles are used to evaluate Na Pua No'eau programmes. Students who have participated in a variety of programmes report increased knowledge and appreciation of their culture, improved self-esteem and in-school benefits. School data reveal that these students "are more active in sports, are improving in their school work, and are more

responsible, participating in student government and maintaining 3.0 to 4.0 grade point averages” (Martin et al., 2003, p. 197). However, it is not ascertainable whether these school-related outcomes are directly attributable to Na Pua No’eau programme attendance.

Parental and community input. The literature identifies parental and community involvement as essential to the success of identification and provisions for gifted and talented children from ethnic minority groups (Castellano & Diaz, 2002; Damiani, 1996; Harris & Ford, 1991; Harslett, 1993; Sisk, 2003; Smutny, 2003; VanTassel-Baska, 1989). A variety of reasons for and means of encouraging family and community involvement are reported. Fletcher and Massalski (2003) describe a project aimed at extending gifted students and addressing intergenerational conflicts. At the Jose Clemente Orozco Community Academy, Center for the Gifted Hispanic LEP/Bilingual Students in Chicago:

The community took their cultural capital and utilized it as a foundation for developing their program for gifted and talented students.... Although the older generation may appreciate a student’s ability in higher mathematics, it leaves them outside of any meaningful conversation with the students and lessens their ability to share cultural knowledge and life experience in a way that might assist youth in their future challenges...The cultural components of the curriculum embrace the generations through their contributions of history, folk stories, their knowledge of artistic and musical expression, as well as their true life stories of personal encounters and achievement in the dominant society (Van Groenou, 1995). The whole community is brought forward into the Third Wave culture emphasizing contexts, relationships and wholes (Fletcher & Massalski, 2003, p.167).

Similarly, family members are called upon to share their expertise in Na Pua No’eau Center programmes. They can also learn about traditional Hawaiian values in classes with their children and attend additional sessions on how these values can be used to appreciate and develop their children’s gifts. Family members are invited to hear motivational speakers with their children and act as volunteers in a number of Center programmes (Martin et al., 2003).

Damiani (1996) describes a research study where 87 culturally diverse, economically disadvantaged families were offered classes on the characteristics of giftedness, advocacy and fostering their child’s high ability. They were also assisted to develop Individual Family Support Plans in which available resources, family strengths, goals and strategies to achieve them were listed. Families were contacted periodically to monitor whether strategies were being used and objectives being met. An evaluation at the end of the study showed that all “Family Plan goals had been met or addressed. Families reported positive reactions to the planning process” (Damiani, 1996, p. 293). Unfortunately, the student’s progress was not assessed in this study but Damiani noted that they subsequently enrolled in a range of gifted programmes.

In Project STEP UP parent seminars were offered in students’ study topics, definitions of giftedness and how to nurture and extend children’s gifts. Parents were also involved in interactive workshops, for example, Navaho parents and their children “worked together to create a poem to express their feelings and ideas about visual images from the reservation” (Sisk, 2003, p. 250). Sisk noted that this parental involvement refutes the misconception that parents from ethnic minority groups are not able or interested in helping their gifted children. This finding is further confirmed in Vasilevska’s (2003) research where ethnic minority parents requested information on available gifted provisions and classes on understanding giftedness and helping their children at home.

Additional strategies. Another strategy mentioned in the literature is the use of mentors preferably of the same ethnic culture as the gifted student. Gardner (1983) maintains that the three elements for success in the gifted person are innate ability, motivation and opportunity. Mentorship is recommended as an effective means of providing for the latter two elements. This contention is supported by findings from Torrance’s longitudinal comparison of culturally different and mainstream gifted and talented children. Observations from this study indicate that providing mentors for disadvantaged gifted children at an early age is an effective way of helping them achieve their

potential (Torrance, 1984). Mentors have certainly played an important role in many of the previously described programmes.

In a consideration of culturally appropriate provision for gifted minority children Castellano and Diaz (2002) mention that a variety of approaches have validity including multiage and multigrade classrooms:

Younger students learn from other students who are older. In many Hispanic cultures, for example, this approach is consistent with their value system of cooperation and collaboration. [Also]...team teaching provides additional resources, skills and stimulation for both teachers and learners (p. 126).

However, the bottom line for Castellano and Diaz (2002) is adapting and modifying curriculum and differentiating identification procedures and teaching approaches to meet diverse needs. This, in fact, is the basis of all the identification and provision approaches mentioned in this section on cultural issues and is applicable in both inclusive and withdrawal situations.

Related issues. In respect to cultural provisions a number of related issues are discussed in the literature. Controversy exists over what actually constitutes effective gifted provision for minority group children. Bechervaise (1996) notes that what is considered successful may not only vary between cultural groups but also within groups depending on the degree of acculturation of the child and family involved.

A second issue is the retention of ethnic minority student in gifted programmes. Worrell et al. (2001) note that because talent development takes a number of years it is essential that gifted students remain in gifted programmes to gain their optimum benefit. They examined the retention rate of ethnic minority children in nine years of summer programmes for the gifted in the San Francisco Bay area. Guided by Ford's (1998) advice on strategies to encourage retention, ethnic minority children and their parents were invited to pre-enrolment information classes. Also provided were extra support in the form of additional tuition, free text books, transportation expenses, subway chaperones, twice weekly mentor tutoring sessions, emotional support from programme counsellors and social support through enrolment in nonacademic activities. The return rate for students receiving this support was 44% while the rate for those without support was 40%. This was not a significant difference and, in fact, was considered a disappointing return rate for all students regardless of ethnicity. It was hypothesized that gifted students may have other interesting summer options that compete with summer extension classes. The point was also made that students from gifted minority groups may feel a sense of isolation in extension classes as they are represented in relatively small numbers. Ford (1998) noted that African American students fear feeling lonely in gifted classes and adds that socially isolated students are unlikely to persist under such circumstances. Financial, academic and social supports are not considered to be sufficient to ensure retention in gifted programmes. In addition Ford suggests counselling to deal specifically with issues of isolation and being different.

The New Zealand Situation

In New Zealand while there are anecdotal reports of the under-representation of Māori in gifted education (Bevan-Brown, 1993, 2002; Cathcart, 1994; Cathcart & Pou, 1992; Galu, 1998; Moltzen, 1996d; 1998/1999; Niwa, 1998/99; Reid, 1990, 1992) and Ministerial statements to this effect (Educational Review Office, 1998; Ministry of Education, 2000) empirical evidence of under-representation is sparse. One research study that does provide hard data is Keen's (2001, 2002a) study of 66 education providers in the Bay of Plenty, Otago and Southland regions. Keen (2001) reported that Māori and other Polynesian students...

...relative to roll numbers, are identified as gifted and talented at about half the rate for New Zealand European and Asians, and at lower rates, also, relative to other ethnic groups. Although some individual schools and centres both in the Bay of Plenty and Otago identify Māori children in markedly higher proportions, the pattern otherwise is broadly consistent across the range of respondents (p. 9).

Identification: Problems

Socioeconomic factors. Keen (2001) hypothesized that the under-representation of Māori and other Polynesian children that emerged in his research could be related to socioeconomic status rather than ethnicity. He notes that children of beneficiaries and unskilled labourers are also under-represented amongst the gifted and that “a disproportionate number of Māori fall within these occupational categories” (p. 9). Similarly, Rata (2000) maintains that ethnicity has been credited with a greater influence than it actually exerts and that poverty is principally responsible for the educational and social inequalities that exist in New Zealand. However, Blair, Blair, and Madamba (1999) argue that it is virtually impossible to separate the potential effects of ethnicity and social class, while Bevan-Brown (2002) and Glynn (cited in Bevan-Brown, 2002) maintain that it is a pointless exercise anyway as both these dimensions need be taken cognisance of in any educational provisions for poor Māori students with special needs and abilities.

Cultural factors. Apart from the influence of socioeconomic factors, participants in Keen’s research mentioned other possible causes of the under-representation of Māori students in gifted education. These were incompatibilities “between Māori performance and conventional school cultures” (Keen, 2001, p. 9); procedures for gifted identification that rely predominantly on written evidence, to the disadvantage of Māori oral culture and kinaesthetic expression (Keen, 2002a, p.17) and the inability of teachers to recognise giftedness in diverse cultural settings (Keen, 2001, p. 3). These last two reasons have particular significance given this research also found that the most frequently used strategies for identifying gifted and talented students were observational approaches in early childhood centres and primary schools and assessment related approaches in secondary schools. Interestingly, the least used identification strategies were those that required community input including parental, whānau, peer and self nomination.

In fact concerns about ineffective and inappropriate identification of gifted and talented Māori students are prominent in the literature. Anderson (1990), Bevan-Brown (1993, 1994, 1996, 2000a, 2002); Cathcart (1994); Cathcart and Pou (1992); Doidge (1990); Galu (1998); Hurtubise (1991); McCaffery (1988); McKenzie (2001); Milne (1993); Niwa (1998/99); Reid (1989, 1990, 1991, 1992) and Rymarczyk Hyde (2001) all voice a concern that gifted and talented Māori and other minority group children are missing out on identification because teachers identify giftedness from a majority culture perspective using methods that have a dominant cultural bias. In particular considerable criticism has been levelled at the use of and over-dependence on majority-normed IQ and achievement tests (Bevan-Brown, 1993, 1994; Cathcart, 1994; Dale, 1988; Freeman, 1983; Galu, 1998; Hurtubise, 1991; McAlpine, 1996; McCaffery, 1988; McKenzie 2001; Milne, 1993; Niwa, 1998/99; Reid, 1989, 1990, 1991, 1992).

Attitudinal factors. Bevan-Brown (2000a) identified negative attitudes as a major barrier in the identification of gifted Māori students. In particular, she highlighted low teacher expectation which resulted in a number of negative outcomes, namely, under-identification, teaching practices and behaviours that disadvantaged gifted Māori students and students developing low self-esteem and performing ‘down’ to expectation. Gifted Māori students were also disadvantaged by a range of organisational procedures, practices and structures in secondary schools and negative feedback from their classmates and society in general.

In a research that involved talking to teachers and students about music education in 15 schools throughout New Zealand and observing in music classes, Henderson (2003) found that the high drop out rate of talented Māori and Polynesian students from traditional music programmes could be attributed to a number of factors. One of these was “a form of cultural ‘blindness’ occurring in music education and a culturally “deficit” model of viewing low achievement ”(p. 14).

Negative and deficit-based teacher attitudes that disadvantage gifted Māori students have also been noted by Galu (1998), McKenzie (2001), Milne (1993), Reid (1992), and Rymarczyk Hyde (2001).

Provisions: Problems

Shortage of culturally appropriate programmes and teachers qualified to provide them. Similar to the situation reported overseas, concerns about the cultural inappropriateness of gifted programmes and the inability of teachers to provide for culturally diverse gifted students have been voiced by Bevan-Brown (1993, 1994, 1996, 2000a, 2002), Cathcart and Pou (1992), Galu (1998), Henderson (2003), Niwa (1998/99), and Reid (1992). It should be noted however, that much of the criticism in New Zealand is opinion-based as outcomes-based evaluations of gifted educational provisions in general and individual programmes in particular are relatively scarce in this country.

Placement and provision issues. Concern is expressed in the literature about the appropriateness and effectiveness of placing gifted Māori students in accelerate classes and withdrawal enrichment groups. This concern comes from different ‘quarters’ and for different reasons. Firstly, Keen’s (2002) participants noted:

the likelihood that giftedness, in a Māori cultural context, will be a group rather than an individual attribute, with the attendant possibility that Māori students will prefer not to be singled out for participation in a gifted programme (p.17).

It is assumed this concern is based on the concept of group giftedness first identified by Bevan-Brown (1993) who states that when group giftedness arises it must be nurtured and developed in a group context (2003).

Reid (1990) also warns against moving gifted Māori and Polynesian students to educational settings away from their peers because this places them in danger of being negatively labelled and rejected by their peers. While Bevan-Brown (1993) does not support Reid’s claim of peer rejection, she does question the practice of moving gifted Māori students into accelerate classes and enrichment groups. In her research Bevan-Brown (1993) came across a number of unsuccessful instances of gifted Māori students being placed in these classes and groups. In every case, the student concerned identified with their Māori culture, was the only Māori in the class or group and the accelerate or enrichment provision did not include any cultural content. Similarly, Niwa, (1998/99) notes that withdrawal programmes and streaming practices result in Māori students “being moved out of their own peer group and [are] asked to display their gifts and talents with a group that they have no aroha-ki-te-tāngata ties with” (p. 5).

Galū’s (1998) research, however, revealed contrary findings. He interviewed ten Māori, three Polynesian and four Asian ex-students of a Differentiated Learning Unit at a large urban school in Hamilton and also current and former teachers of this Unit. Despite agreement that the gifted programme offered in the unit did not meet the students’ cultural needs, the majority of students enjoyed their time in the gifted programme and felt that they benefited academically from the experience. Interestingly they did not experience any undue peer pressure or negativity as a result of being placed in the Differentiated Learning Unit.

A further controversial issue which has implications for identification, placement and provisions relates to Māori attitudes towards giftedness. Reid (1992) and Cathcart and Pou (1992) maintain that gifted Māori students are not encouraged to ‘stand out’ because this goes against traditional Māori values. This claim is refuted by Bevan-Brown (1993, 1994) whose research found that gifted Māori, especially whānau and hapū members, were celebrated and admired. Timutimu-Thorpe (1988) notes that being a strong individual and co-operative group member are Māori values that did not clash in traditional times nor do they today. This is reinforced by Arapere (cited in Bevan-Brown, 1994) who adds that the contention of able Māori students being actively discouraged from standing out is simply not true.

This myth should be confined to the grave, the more it is used the more it becomes a “truth.” The view has been largely promulgated by Pākehā academics and Pākehā teachers, and educators act accordingly. I have a fear that in the future researchers may

trace a relationship between this and the tall poppy syndrome thereby placing the blame on Māori for this kiwi disease (p. 9).

A final issue relating to placement and provisions is “the question, where choice exists, as to whether gifted Māori students are better placed in bilingual or streamed, gifted classes” (Keen, 2002a, p. 17). This issue was also raised by Bevan-Brown (1993, 2000a), Doerr (2000) and Galu (1998). Doerr interviewed a parent whose child was faced with the choice of placement in the bilingual unit or the accelerate class. The parent commented:

The underlying message was that one is either Māori or intelligent, and cannot be both she said. She had to decide from the conflicting positions both as a mother wanting the best for her child and as an advocate of bilingual education ... She also mentioned that if a bilingual student is intelligent and moves from the bilingual unit to the top stream class, what kind of message is it sending to the students left in the bilingual unit? (p. 375).

Reo-related issues. Participants in Bevan-Brown’s (2002) research believed that gifted and talented children had ‘special needs’ and so should be provided for under the auspices of special education in New Zealand. Giftedness: “was viewed as a special need in that the processes, services, expertise and resources needed to challenge and extend gifted children were considered to be lacking in our present education system – both in English-medium and Māori-medium facilities” (Bevan-Brown, 2002, p.266).

While gifted children in Māori -medium education had the advantage of being provided with a culturally appropriate education they faced problems unique to their educational circumstances. These were the inability of many bilingual and total immersion teachers to extend students gifted in te reo Māori because of their own limitations in the language, the lack of written resources in Māori to enable gifted students to do in-depth studies in certain subjects and areas and, as one participant described, the lack of Māori words to describe certain specialised concepts and phenomena: “I just kept hitting blank walls. The words weren’t there” (Bevan-Brown, 2002, p. 275).

Recommendations

The literature contains a number of recommendations for improving education for gifted minority students. Because many recommendations address problems associated with both identification and provision they have been presented together.

The provision of culturally appropriate programmes in a culturally supportive environment. Bevan-Brown (1993, 1994, 1996, 2000a, 2002, 2003); Cathcart (1994); Cathcart and Pou (1992); Doidge (1990); McKenzie (2001); Milne (1993); Niwa, (1998/99); Jenkins (2002); and Reid (1992) all make the point that a prerequisite for the successful identification of gifted Māori and other Polynesian students is the provision of a supportive learning environment which reflects and values cultural diversity. It is in such an environment that student’s gifts and talents will emerge, in fact, Jenkins (2002) reports that a fundamental message from participants in her research is:

...the critical liaison between cultural relevance and the manifestation of gifts. Both whānau and staff perceived the demonstration, recognition and development of gifts/abilities to be inextricably linked to the relevance of the environment to Māori students’ cultural, socio-emotional, spiritual, cognitive and physical realities; the stronger the match the greater the likelihood that Māori students’ gifts/abilities would surface and be recognised (p. 51).

Similarly, being culturally responsive is advocated in the literature as an effective means of providing for gifted minority students. For example, programmes that are described as successfully catering for gifted and talented Māori and other Polynesian students at Kedgley Intermediate (Anderson, 1990), Manurewa Intermediate (Doidge, 1990), Clover Park Intermediate (Milne, 1993) and Clover Park Middle School (Jenkins, 2002) have a number of components in common. These are an environment where students’ culture and values are acknowledged and celebrated and a programme where the

content and context of learning is culturally relevant and the teaching approaches are culturally appropriate.

The importance of cultural relevance and support is also substantiated in Henderson's (2003) research and Rawlinson's (1995) study (cited in Rawlinson, 1996). In the latter research, as a result of an enriched programme in classrooms where a wide range of cultural abilities were accepted and appreciated and where student's feelings of personal competence, academic self concept and self efficacy were reinforced:

...all the Pacific Island children made great gains in both academic self-concept and demonstration of special ability behaviours. The results from this study give a powerful message about classroom climate, organisational structures and pedagogical strategies, which can enhance or inhibit children's academic perceptions and demonstration of special ability behaviour (Rawlinson, 1996, p. 354).

Additional support for the inclusion of cultural content in programmes comes from Bevan-Brown's research (1993) which indicated that "Māori children who have a knowledge of and pride in their Māori culture are more likely to develop their gifted potential and to resist negative peer pressure against achieving" (Bevan-Brown, 2003, p. 3).

Broad, inclusive concepts of giftedness and talent. While there is considerable debate in the literature around definitions of giftedness, there is general acceptance in New Zealand of multicategorical concepts which incorporate a diverse range of abilities (Ministry of Education, 2000). The literature also advocates that this broad, categorical approach incorporate multicultural concepts and perspectives in general (Keen, 2000; Ministry of Education, 2000) and Māori and Polynesian concepts and perspectives in particular (Anderson, 1990; Bevan-Brown, 1993, 1994, 1996, 2002, 2003; Cathcart, 1994; Cathcart & Pou, 1992; Galu, 1998; McKenzie, 2001; Niwa, 1998/99; Reid, 1989, 1990, 1991, 1992).

Including Māori concepts and perspectives would mean recognising and providing for spiritual, emotional and group giftedness and incorporating a 'service component' in gifted provisions (Bevan-Brown, 1993, 1994, 1996, 2000b, 2003). Māori content would not only include cultural knowledge, skills, practices, experiences, customs and traditions but also cultural values, beliefs, attitudes, behaviours, dispositions and qualities (Bevan-Brown, 2003). Some of these qualities identified in research by Bevan-Brown (1993) and Jenkins (2002) are:

āwhinatanga and whakaritenga mahi (helping and serving others), Māia (courage, bravery) manaakitanga (hospitality), wairuatanga (spirituality), whanaungatanga (familiness), aroha-ki-te-tāngata and tūtohutanga (love for, caring and sensitivity to others) pukumahi and pūkeke (industriousness and determination) (Bevan-Brown, 2003, p. 1).

As Bevan-Brown (2003) concludes, "For Māori, providing for students who are gifted in culturally valued qualities is just as important as providing for students who have exceptional skills and abilities" (p.2).

Improved teacher education. The participants in Keen's (2002a) research called for pre-service teacher education and in-service professional development to include, amongst other things, the recognition of giftedness in diverse cultural settings. The call to better prepare teachers to both identify and provide for gifted and talented Māori students and those from minority cultures is repeated by Bevan-Brown (1993, 1994, 1996, 2002); Cathcart (1994); Galu (1998); Henderson (2003); McKenzie, (2001); Milne (1993); Niwa, (1998/99); Reid (1990); and Rymarczyk Hyde (2001). Speaking specifically of in-service provision, Cathcart (1994) suggests a whole-school approach: "Professional development time on an on-going basis has to be put into working through concepts about cultural difference, sharing information, practicing strategies and skills and building resources" (p. 189).

Hopefully as teachers become better prepared and more confident in being able to recognise and provide for gifted students from ethnic minority groups the negative attitudes and practices mentioned as a problem in the previous section will be lessened.

Bevan-Brown (2000a) also suggests teachers critically examine their attitudes, teaching practices, lesson content, resources and organisational structures and procedures for unconscious bias, lowered expectations, unequal treatment of Māori students, cultural appropriateness and cultural content. Similarly, Reid (1992) exhorts teachers to:

Undertake a rigorous and searching self-evaluation of attitudes and beliefs that might be obstructing or distorting the view in the search for minority culture talent [and to] make a determined effort to see cultural differences, not as disadvantages or as limitations, but as positives (p. 57).

Multidimensional identification methods and procedures. Keen (2002a) advocates ‘multidimensional and flexible’ identification methods. This call is supported in the literature (Bevan-Brown, 1993, 1994, 1996, 2002; Galu, 1998; McAlpine & Reid, 1996) although it should be mentioned that there is controversy over the appropriateness and effectiveness of various methods and measures used within the multidimensional approach. For example, there is disagreement over the use of peer nomination in the literature. Reid (1990, 1992) maintains that negative peer pressure acts against its successful use in identifying gifted and talented Māori. However, this was not substantiated in either Jenkins’ (2002) or Bevan-Brown’s (1993) research. The findings of both studies support peer nomination as a valid and useful identification strategy. Jenkins (2002) noted that participants in her research:

...viewed peers as having a significant role in the recognition and acknowledgement (albeit informal) of other students’ gifts/abilities ... “our Māori students are really comfortable about saying ‘oh such and such would be good at that’ or ‘you should do that because you’re good at that:” they naturally recognise and encourage each other’s skills and talents (Māori Director of Learning) (p.58).

Interestingly, the children referred to in Jenkins’ quote were in a culturally supportive environment with teachers they knew and trusted – the prerequisites of successful peer nomination advocated by Bevan-Brown (1993) and supported by Galu (1998): “It would appear the key to any peer nomination work with Māori and Polynesians is preparation and groundwork to gain the respect and trust of the child” (ibid p.40).

Reid (1990, 1992) and Bevan-Brown (1994, 1996) do concur about parent nomination. Both writers maintain that it is not a promising strategy for identifying gifted Māori students although the reasons they base this conclusion on are quite different. However, Bevan-Brown (1993, 1994, 1996) does recommend whānau nomination explaining that while some parents may feel whakamā about nominating their own children as gifted:

It is quite acceptable for an aunt, uncle, older brother, sister, cousin, nanny or Koro to do so. Kaumātua in particular have a lifetime’s experience of caring for young children and can readily identify their mokopuna who have special abilities. Kōhanga reo kaiako and whānau, bilingual support groups and rūnanga members could also play a role in advising teachers about the Māori children with special abilities they know of – if they are asked! (Bevan-Brown, 1994, p. 6)

Similarly, Galu (1998) concludes that “in traditional Māori and Polynesian families the elders including grandparents, uncles and aunts are probably more appropriate to sing the child’s praise than the parents” (p.35).

In respect to self-nomination Reid (1992) maintains it is an ineffective method because of: “abilities disguised in the interests of maintaining group solidarity, conformity and codes of conduct, whakahihī-whakaiti considerations, poor academic self concept, low self esteem, whakamā

concept/phenomenon, threat of isolation, withdrawal from peer group” (p.57). However, Galu (1998) supports the use of self nomination providing that guidance, protocol, sensitivity and empathy with Māori are present.

Teacher nomination has been previously criticised because of many teachers’ majority cultural bias and ignorance of multicultural perspectives of giftedness. However, with the increased pre-service and in-service education mentioned previously, teacher nomination may become more informed in the future. In addition, the accuracy of teacher nomination may be improved by the use of appropriate rating scales and checklists to guide and inform observation. The literature supports the use of instruments such as McAlpine and Reid’s (1996) Teacher Observation Scales which rate children on learning, social, leadership, creative thinking, self-determination and motivational characteristics. Unfortunately no multicultural scale is included in these scales. However, checklists and indicator charts which focus on the characteristics of gifted and talented Māori, Polynesian and multicultural students have been developed by Cathcart and Pou (1992); Milne (1993); Boswell (2003b); and Taylor (2002). These are promising additions to the battery of identification tools available in New Zealand.

Criticism of culturally biased tests has also been mentioned previously. However, Galu (1998) suggests that creativity and open-ended tests can be helpful in identifying gifted Māori and Polynesian children. He also advocates for the use of matrix identification models on the basis of the holistic, multidimensional approach these instruments embody.

A method of identification that does show promise for Māori and other Polynesian students is demonstrated in a research by Rawlinson (1999). This study consisted of a treatment group of 108 Year 4, 5 and 6 children who participated in a classroom enrichment programme based on Renzulli’s Enrichment Triad and a control group of 72 students who received their normal classroom programme. Teachers were asked to rate students before and after the eight week research programme. While teachers’ recognition of students’ special abilities increased over this time period, T-tests showed that for the treatment group this was highly significant while the control group’s increase was not significant. In addition, significant increases in teachers’ recognition of children’s special abilities were made for Pacific Island students and students in middle and lower SES groups. This did not happen for the control group. Rawlinson (1999) concludes:

Results suggest that moving from narrow identification strategies to a more inclusive programming approach can be a powerful catalyst in either promoting teacher recognition of children’s special abilities and/or enhancing children’s demonstration of their special abilities. If we are really committed to supporting groups of children who are under represented in gifted and talented programmes, changing the direction of our identification processes, and providing more inclusive enrichment programmes, which support a range of different learning styles, could be a promising approach for Pacific Island children and those in lower socio-economic groups (p. 4).

In conclusion, it is acknowledged that multidimensional identification incorporates a wide variety of identification strategies. Only those that have been commented on in the literature in relation to gifted minority students in New Zealand have been mentioned in this section.

Curriculum models and programmes. A wide range of curriculum models and programmes are used internationally. In New Zealand Rawlinson’s (1999) previously mentioned programme based on Renzulli’s Enrichment Triad proved successful with Polynesian students. Similarly, Polynesian students were found to be particularly successful in a further research study that combined strategies from Renzulli’s Enrichment Triad Model, Treffinger’s Model for Increasing Self Direction, Betts Autonomous Learner Model and Feldhusen’s Three Stage Enrichment Model (Rawlinson, 1996). Rawlinson explains that these models all promote the principles of scaffolding and increased inner autonomy – components she considers vital in any gifted provision.

Renzulli’s Enrichment Triad is also supported by Galu (1998) who states that this model...

...appears to suit Māori and Polynesian students because it provides social and cultural interaction within mixed ability classrooms. Students do not have to be separated from cultural peers and the identification issue fades away. This has a positive effect as all students still can believe they are special and not “dumb.” This for Māori and Polynesians who may already have low self-esteem and concepts, is crucial. (p. 51)

While not specifically designed for gifted education, the Curriculum Integration model proposed by Beane (1997) has also proven successful in providing for gifted Māori students (Jenkins, 2002). Milne (2001, cited in Jenkins, 2002) explains that the Curriculum Integration Model's problem solving approach allows Māori students to pose questions relevant to themselves, “their iwi, cultural traditions, land, colonisation, politics or the implications of the Treaty of Waitangi” (p. 47).

Although not a programme or model, the use of mentors and role models is another approach that is recommended for gifted Māori and Polynesian students (Bevan-Brown, 1993, 2000b, 2003; Fitzgerald & Keown, 1996; Galu, 1998; Henderson, 2003; McKenzie, 2001). A participant in Bevan-Brown's (2000b) investigation into provisions for gifted and talented students in kura kaupapa Māori explained:

Once a particular talent is identified we look for someone within the whānau who can take the child under their wing and nurture that talent. Their job is to encourage and teach. The whānau member can come to the kura and work with the child and maybe others or perhaps the child will go out of the kura to work with that person. This can be done in school time, after school or at the weekend. It doesn't really matter. It depends on what is most appropriate and what opportunities arise.

Greater parental, whānau and community involvement. Bevan-Brown (1993, 1994, 1996, 2002) calls for greater involvement of parents, whānau and the Māori community in the education of gifted Māori children. Participants in her 1993 research suggested a number of ways this could be achieved including: increased home-community-school consultation and involvement in relevant decision-making, parent/whānau/community nomination as a component of the identification process, involvement as resource people, advisers, volunteers, audiences, mentors and role models (preferably people gifted children could ‘whakapapa into’); and as participants in programme evaluation. Bevan-Brown (2000b) found that in kura kaupapa Māori, parents, whānau and community members were regularly being involved as resource people and mentors to extend children in their areas of particular strength.

Doidge (1990); Galu (1998); McKenzie (2001); and Rymarczyk Hyde (2001) also advocate for greater communication with and involvement of parents, whānau and Māori and Polynesian communities. Talking specifically of mentorship, Galu (1998) noted that “for some Polynesians who have severed links with their elders or grandparents back in the islands this provision seems very appropriate” (p. 59).

Equity measures. The literature contains a number of equity-related suggestions to ensure students from ethnic minority groups are provided for. For example, Galu (1998) recommends a quota system for these students to ensure their representation in gifted and talented programmes. This was also raised as an issue by participants in Keen's (2002) research.

Rawlinson (1996) suggests that the gate-keeping pre-requisites for some gifted programmes be abolished for underachieving and under-represented gifted minority students. Rather than waiting for these students “to demonstrate a set number of *gifted behaviours*” they should be included in initial enrichment tasks as:

inclusion may be all that is needed to strengthen children's academic self concept and enhance their confidence to demonstrate special abilities. In terms of equity it is the educator's responsibility to explore alternative teaching strategies which may support these children (p. 356).

Similarly, Doidge (1990) recommends that challenging behaviour should not serve as a barrier to participation in appropriate programmes: “It may well be that their behaviour will improve as a result of becoming involved in Māori activities” (p. 39). These practices are in line with Bevan-Brown’s (1993, 1994, 1996) and Galu’s (1998) recommendation to recognise potential as well as demonstrated performance.

However, Jenkins (2002) goes one step further. She maintains that strategies such as adopting inclusive notions of giftedness and adding a Māori dimension to existing provisions and practices are not enough to bring about significant changes to a mainstream education system that disadvantages gifted Māori students. To gain equity for these students Jenkins believes that “fundamental shifts are required to break down the power imbalances and subordination inherent within the mainstream context for Māori” (p.62). Similarly, Bevan-Brown (2002) found that “for long-term, widespread improvements to be achieved, genuine power sharing and societal-level changes in ideologies, systems and circumstances that disadvantage Māori are needed” (p.i).

Finally, and in summary, in a six year long research Bevan-Brown (2002) consulted with hundreds of Māori parents, whānau and teachers as well as special education, disability and Māori organisations and service providers about how Māori children with special needs could have these needs met in a culturally appropriate, effective way. She also analysed relevant New Zealand literature to discover what elements contributed to successful programmes for Māori children with special needs. While this research focused on Māori children with special needs in general rather than gifted and talented Māori students in particular, its findings are relevant given that this latter group were, as mentioned previously, considered by Māori participants to be children with special needs. The study concluded that:

...programmes and services should be based on Māori perspectives of special needs [including Māori concepts of giftedness] and incorporate Māori concepts, knowledge, skills, attitudes, language, practices, customs, values and beliefs; focus on areas of importance, concern and benefit to Māori; involve and empower Māori parents, whānau and the Māori community and the learners themselves; be of a high quality; accessible; result in equitable outcomes for Māori learners; and be delivered by people with the required personal, professional and cultural expertise (p. i).

SCHOOLWIDE ORGANISATION AND PROCEDURES: EVALUATION, PROGRAMME AND POLICY DEVELOPMENT, PROFESSIONAL DEVELOPMENT AND TEACHER EDUCATION

Evaluation

The overall purpose in programme evaluation is to determine the effectiveness of provisions in meeting the needs of gifted and talented students and for the purpose of improvement or enhancement of those provisions. As McCulloch (2001) states, “Inherent in the evaluation process is the chance for growth and change” (p. 7). She further states that the planning behind and implementation of the evaluation of gifted and talented education programmes should be a reflection of commitment – a demonstration of the priority placed upon creating and maintaining quality educational opportunities for gifted and talented students. Yet, as this review of the literature has demonstrated, evaluation of programmes is one of the most neglected areas in gifted and talented education (Callahan, 2001a; Tomlinson & Callahan, 1994; Reid, 1996). Weakness of evaluation skill among educators, lack of time and funding required for meaningful evaluation, complex problems posed in appropriately evaluating the kinds of learning outcomes typical of programmes for the gifted, and fear of public discussion of programming for gifted learners where funding for gifted education is tenuous are some of the reasons for the paucity of effective evaluation practices in programmes for the gifted (Tomlinson, Bland, Moon, & Callahan, 1993).

Within New Zealand, the evaluation of gifted and talented programmes is considered a “necessary aspect of gifted education” (Ministry of Education, 2000, p. 58). It is reliant, however, upon the development and implementation of a comprehensive programme which broadly incorporates a

school-based definition, related characteristics, appropriate identification methods, and differentiated provisions (McAlpine, 1996; Ministry of Education, 2000; Reid, 1996). Without clear articulation and understanding of these elements, evaluators will be left with the perplexing question of “How can we evaluate programmes for students when the school has not clearly defined who it is serving, under what circumstances, and to what end?” (Callahan, 1993, p. 608). Therefore, evaluation is interrelated to all other elements of a school’s gifted and talented education programme. Just as the outcomes should impact upon the programme, the programme will play a strong role in the evaluation.

Evaluations of gifted and talented programmes are therefore designed to assess the effectiveness of all the components: from the definition to the programme itself, resources, teachers, written policies and procedures, and so on. But what are educators looking for in this evaluation? Maker (1993) outlined the indicators of quality in provisions for gifted and talented students as follows:

- Appropriate – content, processes, products, and learning environment ‘matched’ to age, abilities, learning styles, types of giftedness, prior experiences, and gifted behaviours.
- Articulated – schoolwide, long-term, monitored, comprehensive plans.
- Clear – clarity at all levels and in all aspects (i.e., identification, strategies, assessment, etc) and regularly communicated to stakeholders.
- Consistent – both with the school’s philosophy and in the interrelationships amongst programme components.
- Comprehensive – a continuum of approaches which will meet cognitive, affective, physical, social, emotional, and cultural needs.
- Responsive – flexibly adaptable based upon continuous evaluation.
- Unique – programmes are dependent upon the uniqueness of each individual child and fitted to his or her goals.
- Valid – based upon ‘tested’ models, strategies, etc and/or continually evaluated.

In New Zealand it would be important to add to this ‘culturally appropriate and relevant,’ applying this to all aspects of the gifted and talented programme.

The Ministry of Education (2000) recommends formative and summative evaluation of programmes. Under this umbrella, the National Association for Gifted Children in the United States (2003) describes four different types of evaluations: incoming evaluations (when a new staff member takes on overall coordination and responsibility); transition evaluations (when students are exiting a programme to move into another level of schooling); year-end evaluations; and on-going evaluations.

Tomlinson and Callahan (1994) describe four stages of programme evaluation:

1. Planning the evaluation should begin during programme development or review;
2. Designing data collection and analysis, and ensuring that there is a match between the evaluation goals and questions and the data collection methods;
3. Conducting the evaluation; and
4. Reporting findings to the appropriate audiences and following up on recommendations.

They provide a detailed explanation and plan for programme evaluation with useful questions to be discussed and considered at each stage of the evaluation.

The literature recommends that programme evaluations utilise a team approach, and that evaluations are inclusive of the many stakeholders in gifted education (Ministry of Education, 2000; Reid, 1996; Tomlinson & Callahan, 1994). As the Ministry of Education (2000) points out, “The use of a

cooperative team approach is helpful because it allows an evaluation to be worked out together and evaluation tasks to be shared” (p. 54). If a school is utilising a schoolwide approach to gifted education this will be easily accomplished. Furthermore, the evaluation needs to incorporate those people both within and outside of the school who are involved or impacted: parents and whānau; community members; and gifted and talented students. By including many different stakeholders in the evaluation process, there is potential for gaining and building networks of support both within and outside of the school and this better ensures that the evaluation findings and recommendations will be implemented (Tomlinson & Callahan, 1994).

Tomlinson and Callahan (1994) recommend that schools establish an evaluation steering committee, and though this committee might incorporate those individuals with a vested interest in gifted education, they believe that it is also of value to include others in order to gain varied perspectives. They also recommend the inclusion of ‘qualified evaluators’ – individuals with experience and knowledge in the evaluation process, but also understandings of gifted education. The roles and expectations of the members of this team should be clearly defined and confidentiality must be assured.

The evaluation of a comprehensive programme for gifted and talented students will potentially generate a multitude of questions, and these different questions will be of greater or lesser importance to different stakeholders (Reid, 1996). For example, teachers might want to know the impacts upon students’ learning, parents might be most concerned about their child’s social and emotional welfare, or the Board of Trustees might query the financial viability. However, as the National Association for Gifted Children in the United States (2003) points out, “The primary stakeholders in gifted education are the students” (no page given). If that is the case, then the greatest measures of programme effectiveness will be the affective, cognitive, and cultural outcomes for gifted and talented students.

Therefore, evaluation of gifted and talented programmes measures two elements in conjunction with one another: the outcomes for students and the programme’s effectiveness (Taylor, 2000). These two elements are linked because the outcomes for gifted and talented students contribute to the overall effectiveness of the programme. Taylor (2000) provides an adaptation of Rimm’s evaluation model which combines programme evaluation and student assessment by evaluating input (i.e., resources), process (i.e., identification and differentiated programmes), and output (i.e. student and school achievement of goals and objectives). These elements work together and their analysis should lead to decision-making about future programme initiatives and directions. Taylor (2000) provides comprehensive forms for utilising this model and incorporating an action plan into the evaluation.

Three important considerations in the assessment of outcomes for gifted and talented students are identified by Callahan and Moon (2003): the goals and objectives of the programme; the philosophical integration or segregation of the curriculum for gifted and talented learners; and the programme model of delivery (i.e., withdrawal programmes, mentorships, etc). They also discuss the importance of ensuring that the assessment measures are tied to important cognitive and affective outcomes, as well as ensuring that the types of assessment tools are appropriate given the purpose and nature of the outcomes. Van Tassel-Baska (2002) adds to these the importance of using multiple and varied measures of assessment which incorporate both long-term and short-term outcomes assessment. Winebrenner (2000) and Van Tassel-Baska (2002) also state that the method and nature of assessment should be decided upon at the time of designing the outcomes, and Callahan (2001c) advocates that these should be openly communicated with gifted and talented students, ensuring they are aware of the criteria for assessment.

Callahan and Moon (2003) believe that for some student outcomes traditional forms of assessment are appropriate. For example, if the purpose in assessment is to determine students’ recall of knowledge and comprehension of ideas, they suggest a ‘paper and pencil’ assessment as appropriate. Taylor (personal communication, December 10, 2003) reports that in New Zealand teachers are utilising the many different assessment tools intended for all students, for example the Assessment Resource Banks developed by the New Zealand Council for Educational Research, as pre- and post-assessment for gifted and talented students. Van Tassel-Baska (2002) stresses the importance of using pre- and post-

assessment as measures of instructional need, as well as growth. The advantages of using traditional assessment, as either pre- or post-assessment measures, are outlined by Callahan (2001c) and centre around the ease of administration.

However, if the outcomes of learning are in-depth, complex understandings or integrated knowledge, alternative assessments are suggested in the literature (Callahan, 2001c; McAlpine, 2000a; Winebrenner, 2000; Callahan & Moon, 2003; Van Tassel-Baska, 2002). Furthermore, they state that sometimes the performance of a task is more important than 'knowing' something, in which case alternative assessment is more appropriate. Finally, they describe the need for alternative assessment in the measurement of real-world applications of ideas and information to real tasks and situations. Riley (1997) states that when differentiating, appropriate performance-based assessment methods should be utilised, and these include rubrics, portfolios, and checklists based on the products created.

Performance-based assessment for gifted and talented learners may range from unstructured and largely student determined to highly structured and largely based upon a teacher-directed set of goals and objectives (Callahan & Moon, 2003). McAlpine (2000a) discusses the use of portfolio, authentic, and self-assessment within the New Zealand context, stating that these are appropriate for gifted and talented students given their focus upon higher level thinking, self-reflection, metacognition, goal-directness, and preferred learning styles.

Callahan and Moon (2003), Callahan (2001c), Stephens and Karnes (2001) and Van Tassel-Baska (2002) recommend the use of rubrics for assessing student outcomes. These allow for a range of tasks and criteria for assessment. As Van Tassel-Baska (2002) explains, "In contrast to a conventional rating scale, a rubric is intended to give a more descriptive, holistic characterization of the quality of students' work" (pp. 68-69). Callahan and Moon (2003) outline two steps in designing a rubric for gifted and talented students: determining the dimensions for scoring the task; and setting performance levels from highest to lowest. However, as Van Tassel-Baska (2002) makes clear, the purpose here is not to simply give students quantitative feedback, but to provide an avenue for highly informative and useful verbal discussion between the teacher and student. Callahan (2001c) states, "... students are entitled to feedback about their growth and achievements in response to the learning activities and in relation to expected outcomes and levels of performance" (p. 255).

Portfolios are another alternative assessment measure appropriate for gifted and talented students (Callahan, 2001c; McAlpine, 2000a; Van Tassel-Baska, 2002). McAlpine (2000a) states that the most common type of portfolio used in New Zealand schools is a student portfolio, or working portfolio, which places emphasis upon students' best performances. In relation to portfolios, Van Tassel-Baska (2002) states, "... they can serve as a basis to examine effort, improvement, processes, and achievement, as well as to meet accountability demands" (p. 69). Furthermore, she believes that a portfolio can assist in the identification of individual student's strengths and needs, particularly if the criteria for making judgements of the students' work are utilised.

The use of self, peer and teacher rating scales of student products is another method of assessment described in the literature (Callahan, 2001c; McAlpine, 2000a; Renzulli & Reis, 1985; Van Tassel-Baska, 2002). McAlpine (2000a) believes that the use of rating scales by different individuals (i.e., teacher, peer, and self) is enhanced when used in combination, or triangulation, with one another. Stephens and Karnes (2001) suggest that other people might also rate student products and performances, and these may include audience members, topic experts, parents, mentors, or school administrators. Renzulli and Reis (1985) provide a Student Product Assessment Form (SPAF) which provides an overall assessment of the quality, aesthetics, utility and function of students' products. Similarly, Callahan (2001c) has created a student self-assessment rating scale.

Finally, the assessment approach should be developed at the same time as the outcome in order to maintain unity of purpose and to ensure that the proposed outcome can in fact be satisfactorily assessed (Winebrenner, 2000). Incorporating assessment into the teaching-learning process is essential to creating an authentic process (McAlpine, 2000a). Although assessment of gifted and talented

student outcomes is briefly discussed in the literature, as outlined above, this is an area which warrants further investigation, particularly within New Zealand's educational context.

The National Certificate of Educational Achievement (NCEA) was introduced in 2002 for senior secondary students. Students are assessed using a combination of internal and external assessments, with more than half the assessment for regular school subjects by exam. Internal assessment is used where the learning being assessed is unsuited to external examination; examples of these include investigations, research and practical performance. Beginning in 2004 New Zealand Scholarship will be implemented with the intention of extending "our best secondary students" and enabling "top scholars to be identified and acknowledged" (New Zealand Qualification Authority, 2003, no page given). New Zealand Scholarship aims to "assess a student's ability to synthesis and integrate concepts – to apply higher level thinking based on in-school and independent learning" (New Zealand Qualification Authority, 2003, no page given).

Scholarship does not focus on students simply acquiring more knowledge, rather it provides opportunity for students to demonstrate, within complex situations, higher level critical thinking, abstraction and generalisation and the ability to integrate, synthesise and apply knowledge, skills, understandings and ideas. This is crucial for gifted adolescents who may demonstrate their giftedness through using information in unusual and innovative ways. Depending on the area of study, students achieving scholarship standard will display a range of:

- comprehensive content;
- effective communication;
- original or sophisticated solutions, performances or approaches;
- critical evaluation; and
- flexible thinking in unfamiliar/unexpected contexts (Ministry of Education, *Scholarship Reference Group Reports (10 May 2003)*).

Within assessment for NCEA, provision of opportunities to allow standards to be achieved while encouraging high level learning outcomes needs to be considered. As Archer (2003) suggests, achievement standards for NCEA can be achieved while still participating in differentiated educational experiences. For example, in music levels 1-3 achievement standards, performance assessments could be combined with performance competitions and performance could be presented on a second instrument. By providing students with a number of performance opportunities, they can then choose their best performance for overall assessment of the achievement standard. Archer believes that students then need to be reflective performers and assess their own work.

Methods for evaluating the programme effectiveness might include classroom observation, teacher diaries and anecdotal records, interviews, questionnaires, and focus groups. As the Ministry of Education (2000) points out, the effectiveness of different methods will vary depending upon the purpose in the programme evaluation and the goals of the programme itself. Therefore, it is recommended that multiple sources of data collection be employed (Ministry of Education, 2000; Reid, 1996; Tomlinson & Callahan, 1994). Also, these sources of information should be both quantitative and qualitative in their nature (Tomlinson & Callahan, 1994).

Each program for gifted learners varies as a result of program philosophy, context, and demographics. Thus it is important that each evaluation be tailored appropriately for local needs. Nonetheless, adherence to general best practices for evaluating education programs does increase the usefulness of evaluation findings (Tomlinson & Callahan, 1994, p. 44).

According to the standards for effective programmes developed by the National Association for Gifted Children (1998), educators undertaking systematic evaluations are considerate of the following:

- Information collected reflects the needs and concerns of stakeholders;
- Sufficient time, staff and resources are budgeted for regular evaluation procedures;
- Instruments and methods are valid and reliable;
- Individual data is held confidential;
- Evaluation prompts reflect on specific goals of the programme and
- Results of evaluations are made available district-wide to further efforts of programme development and improvement.

Callahan, Tomlinson, Hunsakar, Bland, and Moon (1995) concluded that the following recommendations were essential to successful programme evaluations:

- Make evaluation procedures a part of planning from the earliest stages of programme development and develop a specific plan for the use of evaluation findings.
- Develop clear programme descriptions and goals utilizing multiple data sources (e.g., teachers, parents, students, administrators, school board members).
- Provide adequate funding and time for evaluations while preparing staff for conducting and analyzing the results of the evaluation.
- Clearly identify all audiences who have an interest in or need for evaluation results and involve them in the evaluation process.
- Develop or select assessment tools that address the complex issues of measurement that characterize outcomes of gifted programmes.
- Use a variety of data gathering methods designed to reflect the unique structure and goals of programmes for gifted learners (i.e., out-of-level testing, portfolio assessment, product rating with demonstrated inter-rater reliability).
- Disseminate reports to all appropriate audiences in a timely fashion and with recommendations designed to encourage follow-through.

Tomlinson and Callahan (1994) add to these essential ingredients, the importance of assuring that resources are allocated to support the evaluation process. These include time, financial provisions, and people. Moon (1996) states that it is critical that in conducting programme evaluations, there is an understanding of the principles and skills of evaluation; that longitudinal evaluation of student outcomes be a priority; and that human and financial resources are available to support the evaluation. He strongly urges schools to consider and provide professional development in the area of programme evaluation by way of ‘practical, hands-on coursework.’ Tomlinson and Callahan (1994) further recommend that the evaluation process itself should be transparent and consistently visible to all stakeholders.

Van Tassel-Baska, Leonhard, Glenn, Poland, Brown, and Johnson (1999) outline an evaluation of the curriculum of a specialised secondary school in the United States which exemplifies the rewards of an evaluative process of this nature and the importance of sharing those findings. They report that upon completion of the review, the report was shared with all stakeholders, and as a result, action was immediately taken. “The consensus was that the report captured the school’s needs and that the recommendations were not only meaningful and helpful, but also achievable within the recommended timeframe” (Van Tassel-Baska et al., 1999, p. 370).

Reid (1996) states that comprehensive evaluation is a “complex and professionally demanding task” (p. 386). And yet, accountability is a necessity if educators are to effectively meet the needs of gifted and talented students. As Moon and Rosselli (2000) point out, although evaluation may be a difficult process, it is vitally important as it ensures programme ‘excellence and vitality.’ Thus, there should be

a link between programme evaluation and programme improvement (Avery, Van Tassel-Baska, & O'Neill, 1997).

Only through constant vigilance, examination, and disclosure of key program practices can local programs identify and confront shortcomings. It is through such scrutiny and the subsequent program changes that the integrity of gifted education is retained and strengthened (Avery et al., 1997, p. 130).

Also, evaluation should be an ongoing, continuous, cyclical process where new insights and questions will be constantly created (McCulloch, 2001).

Policy and Programme Development

The Ministry of Education (2000, 2001) strongly urges schoolwide development of programmes for gifted and talented students involving the entire school community – administrative and teaching staff, Boards of Trustees, parents/whānau, other community members, and perhaps gifted students themselves. While schools may elect to create a committee to direct or steer the gifted programme (Ministry of Education, 2000), input should be sought from all interested parties. As the Ministry of Education (2000) states, “It is essential that the programme is ‘owned’ by the school community” (p. 8). This is because gifted education should complement, rather than be in conflict with, the school culture and its ethos.

It is advisable to establish a committee to direct the development and implementation of the school’s gifted programme (Ministry of Education, 2000; Riley, 2000c). Often a school’s gifted programme evolves from the work of an individual staff member (Ministry of Education, 2000); however, this may lead to resistance from other staff members to be involved, a short-term programme life, or even teacher burnout (Riley, 2000c). To ensure longevity and support, the school should decide what individuals can and should contribute to orchestrating programme planning. In creating a committee, schools should think about administrative and teaching expertise, cultural considerations, and parental and community involvement (Riley, 2000c). Selection of committee members should include criteria such as willingness and enthusiasm, interest, expertise, and leadership capabilities. Riley (2000c) further recommends the following representation on an organising committee or coordinating team: members of the administration and/or Board of Trustees; teaching staff representative of various levels and/or curriculum areas; parents/whānau of gifted students; community members with experience and/or interest in gifted students; and gifted students, dependent upon age and experience. The Ministry of Education (2000) urges schools to include a member of the school’s senior management team. In the United Kingdom’s *Guidance on Teaching the Gifted and Talented* (2003), schools are advised to ensure that someone is responsible for leading and managing programme development.

Moon and Rosselli (2000) describe the skills needed by programme coordinators: ability to manage change; planning skills; and programme design strategies. For as they say, “Strong change facilitation strategies lead to broad-based support for gifted and talented programs and program longevity; strong planning and design skills lead to coherent, theoretically sound programs” (pp. 506-507). They further elaborate that the change facilitation strategies of utmost importance are those of advocacy for gifted and talented students and innovative leadership. George (1997) outlines the responsibilities of the role of the school’s coordinator:

- Initiation for the formulation and revision of the school policy;
- Consultation with senior management and all staff;
- Coordination of identification of gifted and talented students;
- Maintenance of a high level of awareness of gifted education attitudes and information both nationally and internationally, disseminating this to teachers, parents, and so on, and advising staff of professional development opportunities;
- Coordination and oversight of provisions for gifted and talented students;

- Liaison with parents and the community;
- Initiation and maintenance of management systems; and
- Regular monitoring and follow-up of progressions and developments in schoolwide gifted education programmes.

Moon and Rosselli (2000) add to this other responsibilities, such as managing the budget, teaching, and providing professional development. The role and responsibilities of the coordinator will, of course, be dependent upon each school's programme and plans for gifted and talented education, as well as management structure.

However, this person should not necessarily be acting in solitude. Moon and Rosselli (2000) describe two 'types' of leadership: 'champions' and 'broad-based advisory groups.' In New Zealand, the latter seem to be preferred for the reasons previously outlined. The purpose for the committee (or advisory group) should be to establish a working plan for programme development and implementation. This plan should set the parameters around the tasks to be undertaken – the goals and objectives for the programme (Ministry of Education, 2000). Additionally it should specify who is responsible for what tasks. A time line may be established, as well. Riley (2000c) adds to this that school's approaches to programme development and implementation should be seen as long-term commitments, rather than quick fixes. She recommends a two to three year implementation plan with realistic, prioritised goals and objectives. Within the development of a plan, schools might consider the following steps:

1. Needs or gap analysis;
2. Programme development;
3. Programme implementation; and
4. Evaluation and revision (Riley, 2000c).

The final step, evaluation and revision, is an important aspect of programme development and must be considered in the early stages. As the Ministry of Education (2000) states in relation to developing a programme plan, "This part of the process is very important because it not only sets the direction for a school's efforts but also provides criteria against which these efforts can be evaluated" (p. 8). McCulloch (2001) advises that during the planning or development stage, schools should 'make room' for how evaluation findings will be utilised.

Taylor (2001), the Ministry of Education (2000), and Riley (2000c) consistently identify the first step in a school's planning for gifted education should be to analyse the school's current provisions and practices. In a sense this is an audit of the school's provisions, policies, and provisions (Quality and Curriculum Authority, 2003). Taylor (2001) poses two key questions which schools can reflect upon: "What are we doing? What else do we need to do?" (p. 5). The Ministry of Education (2000) suggests that an analysis of this nature will also assist schools in planning programmes of professional development. Riley (2000c) warns that without a close examination of current practices and future directions gifted programmes may quickly become fragmented, one-off additions to the total school picture. The purpose in a needs assessment is to gather as much information as possible within the school's context so that programmes can be tailored to that context (Moon & Rosselli, 2000).

Riley (2000c) outlines the various aspects a school might consider in its analysis:

- Student needs: Definition and identification of learning needs;
- Student opportunities: Current provisions and future directions;
- Professional strengths and interests: Contributions and development;
- Resources: Human, physical, and financial;

- Community and parental contributions: Expertise, provisions, support, and resources; and
- Policy: Development, revision.

Additionally, cultural responsiveness is an important aspect that must be considered.

Boyd (1992) further elaborates upon the components outlined by Riley, matching the types of assessment methods to each element of the analysis. Moon and Rosselli (2000) suggest several methods of assessment which would suit a school's needs analysis: document analysis; review of the literature; surveys; interviews; observations; and analysis of student records. Taylor (2001) provides a questionnaire format which schools can use for this analysis, and it encompasses key questions related to the above-outlined list. George (1997) provides a questionnaire which has been developed for secondary schools to use in determining identification and provisions on a departmental basis. As Riley (2000c) states, "From the starting point of a needs analysis, schools begin to discover not only the holes or gaps in adequately meeting the needs, but also the positive provisions already in place. Only in moving from strength to strength, can schools provide a comprehensive, differentiated education for gifted students" (no page given). Perhaps rather than viewing this type of analysis in negative terms, a more positive approach would be to call it a 'strength analysis' – beginning here would be much more rewarding (Taylor, 2001).

In the development of the programme, Riley (2000c) suggests that schools should use the results of their analysis to set goals and objectives, but should also 'explore' the possibilities by networking with colleagues, visiting other schools, seeking advice from school advisers, reading books and journals, as so on. As she states, "A natural tendency for schools may be to act quickly, getting programmes into place, but if the provisions are not thoroughly investigated and well-researched, the provisions may prove flimsy and inadequate" (no page given). The Education Review Office (1998a) reports that schools which have developed successful programmes are those which have undertaken this thoughtful and time-consuming developmental work.

Part of this developmental work is the creation of a shared philosophy (Ministry of Education, 2000; Moon & Rosselli, 2000; Riley, 2000c; Taylor, 2001). In New Zealand, schools are given the latitude to develop programmes within each local context – in fact they are encouraged to do so. Therefore, it is critical that schools take time to discuss the conceptual, political, and cultural issues which revolve around gifted and talented education. This includes debate and discussion about equity and excellence; cultural beliefs, attitudes, and values; theories of learning; and so on. However, in New Zealand, whilst schools are given the 'go ahead' to develop their own programmes, the Ministry of Education (2002) has developed a set of underlying principles of gifted and talented education (see the introduction of the literature review). Therefore, although each school should create a shared philosophy this should be informed by the Ministry's principles. Each school community, through discussion and debate, should translate these principles within their specific context – and if these do not 'fit' then they must advocate for more effective national policies (Moon & Rosselli, 2000).

Committees must also come to a consensus regarding identification and provisions – the pragmatic side of the school's philosophical debate. Mills and Ablard (2003) provide a guide to assist educators in making important decisions about the validity of an idea and the effectiveness of the initiative linked to that idea. They suggest that schools first need to determine the validity and usefulness of a particular identification strategy or programme, and secondly, the feasibility and benefits of its implementation need consideration. Callahan (2001a) suggests that in the decision-making process regarding identification and provisions, educators should pose these questions:

- What evidence is there of effectiveness?
- How do we define effective?
- What differences are there in student achievement?
- What is the validity and reliability of the assessment tools used?

- Is there evidence that this approach is more effective than other options?
- Is there evidence that this approach is appropriate for gifted and talented students, or is it good for all students?

Gallagher (2002) provides a matrix to assist schools in the decision-making process. He suggests that schools evaluate the various options based on factors of cost, personnel needs, track record, public acceptance, support, and other issues important to the school.

The Ministry of Education (2000) recommends that schools develop a policy for gifted and talented education; however, anecdotal evidence indicates that schools are abandoning policies and now working towards the development of procedural documents, action plans, and development plans. The point is: by getting some guidelines for the programme in writing, provision may prove more comprehensive and enduring (Ministry of Education, 2000). Additionally, the process of policy development may help clarify a school's aims and rationale, while concurrently giving direction and guidance (Cathcart, 1996). Taylor (1996) describes the preparation of a policy as a 'thinking through process.' Taylor (2001) suggests that some New Zealand schools develop a separate policy and procedural documentation. Whatever decision a school may make, it is vitally important to remember that a policy does not guarantee appropriate identification and provision (Ministry of Education, 2000), but it does go some way toward showing a school's commitment to gifted and talented students (Cathcart, 1996). As Taylor (1996) points out, once a policy is written, the Board of Trustees is accountable for its implementation, and this increases the likelihood of the development of a coordinated approach to gifted education. Gallagher (2002) views gifted education as a 'cool' problem which may be overlooked, as opposed to 'hot' problems such as bullying, special needs education, drugs or violence, which take the forefront. Therefore, he strongly recommends that the only way gifted education will be addressed is if it is mandated via policies.

Several New Zealand writers describe the components of a school's written documentation for gifted and talented students (Cathcart, 1996; Riley, 2000c; Taylor, 1996, 2001). In summary, these include the rationale, purposes, and guidelines regarding the school-based definition of giftedness and talent, identification methods, programme design and structure, professional involvement and development, community and parental involvement, resourcing, and programme evaluation. The Quality and Curriculum Authority in the United Kingdom (2003) add to this the importance of describing the school's plans for facilitating student transfer and transitions through their schooling. They recommend that information regarding individual student's abilities, programmes, and progress be communicated through discussion or documentation. Chessman (2003) outlines the nature of state and territorial policies in Australia, all of which include the aforementioned components, but also have a list of resources and contact people. As she states, the policies vary greatly in the level of detail. Riley (2003) provides a checklist for schools, with questions to consider in developing these written procedures.

As with all school policies, Riley (2000c) suggests that these be made available as discussion documents for the entire school community. Consultation and collaboration are one reason for this, but it is also important to understand that this should occur in order to increase levels of community awareness about gifted and talented education (Chessman, 2003). Chessman also believes that the development of stronger home-school partnerships ultimately optimises student development. Conversely, Holz, Deismann, and Watters (1998/99) describe the development of the GATE Way programme in Queensland which intentionally did *not* include parents. They explain that this was a deliberate policy. "The school believes that the programme needs to be well grounded and a common vision adopted. Strategies to acquire evidence that a child is gifted or talented must be in place before parents' expectation or hopes are addressed" (p. 35).

Taylor (2001) reminds educators that school policies are a continually evolving process – therefore it is important to remember to evaluate and revise the policy as part of the programme evaluation (Riley, 2000c).

Cathcart (1996) states that, “someone needs to check the policy is actually implemented!” (p. 128). Riley (2000c) points out, that once consensus has been established and support garnered for the developmental aspect of the programme, an assumption is made that the intended programme will match the delivered programme. She states, “This is the most complex step undertaken because it involves transforming written plans into real action and creating change for teachers and students” (no page given). As programmes are being implemented, consideration should be given to the following: professional development, awareness and responsibilities; the selection, costs, and evaluation of physical and human resources; a flexible working plan outlining responsibilities and charting progress; programme monitoring; and allowance for adjustments and adaptations (Riley, 2000c). Chessman (2003) recommends modelling and sharing of best practice as a necessity in ensuring policy becomes an ‘effective reality.’ She further recommends that in the implementation of school policies, consideration should be given to the establishment of an on-going reference group to oversee and monitor progress. A school’s coordinating team or committee could serve in this role. As she states, “The instigation of specific and systematic initiatives could further enable effective translation of policy into practice” (p. 7).

One of the most neglected areas of gifted education is programme evaluation (Reid, 1996; Callahan, 2001a). However, evaluation is essential in order to move programmes forward in a positive direction, and to make well-informed decisions for growth and change (Riley, 2000c). A thorough examination of every aspect of gifted programmes, from definitions to instructional practices, should be undertaken, with the involvement of the entire school community. Asking pertinent questions related to programme development and implementation, should lead schools to revision or modification. If evaluation is used for this purpose, this final step should feed back into programme development and implementation, creating a circular pattern. As Riley (2000c) states, “Gifted programmes that truly meet the needs of children, through qualitatively differentiated educational experiences, are constantly evolving” (no page given).

Te Kete Ipurangi The Online Learning Centre and the Education Review Office (1998a) provide examples of school policies and programmes which schools may consider in their development and implementation. However, as the Education Review Office (1998a) advises, “... each school needs to take its own environment into account” (p. 40).

Teacher Education and Professional Development

An integral component in the development and implementation of gifted and talented programmes is professional development. In New Zealand, “Many teachers have the willingness to cater for the needs of these students, but lack the knowledge and skills to be able to do so successfully” (Moltzen, 1998/99, p. 62). Moltzen’s sentiments are echoed throughout the literature, and as the literature review has suggested the effectiveness of identification of and provisions for gifted and talented students is heavily reliant upon teachers. The Working Party on Gifted Education (2001) called for more opportunities for professional development, and in response the Ministry of Education (2002) has committed itself to furthering the knowledge and understandings of New Zealand teachers. The initiatives have resulted in an increase in the number of school advisers in gifted and talented education (12 positions nationwide); a national coordination team to facilitate effective communication and collaboration between gifted education advisers and teacher educators; and a recommendation to the Teachers Council that all pre-service programmes in teacher education should include content related to meeting the needs of all students, including those with gifts and talents. Additionally, a series of hui for advisers and teacher educators is being facilitated by the national coordination team. Several hui have been held in 2002 and 2003, and more are planned for 2004 and 2005.

The recommendations and initiatives are based upon the premise that *all* teachers are teachers of gifted and talented students. The current educational trend for inclusive education means that most gifted and talented students are educated in the mainstream rather than in special classes for the gifted. If this trend is coupled with contemporary views of broad, wide-ranging concepts of giftedness and talent, then as Gross and Slep (2001) point out, all teachers will have gifted and talented students in their classrooms. This situation maximises the importance of educated teachers who are able to recognise

giftedness and talent and offer differentiated instruction. A proponent of inclusive education, Sapon-Shevin (1994/95) believes that inclusion means providing ongoing support for teachers and breaking down the barriers of professional isolation. This also means preparing and supporting teachers to teach in ways that will benefit the learning of all students, including those who are gifted and talented. In fact, some argue that professional development in gifted and talented education enhances educational opportunities for *all* students (Clark, 1997; Gosfield, 2002; Renzulli, 1994). Gifted education has long been a laboratory for innovative educational practices and as a result it is now recognised that many of the strategies originally designed for gifted and talented students are now considered appropriate for all students (Croft, 2003; Shore & Delcourt, 1996).

Secondly, these initiatives acknowledge that, "... gifted education is seldom addressed (beyond a chapter, a one-off lecture, an optional paper), within pre-service education" (Ministry of Education, 2000, p. 10). This extends to in-service professional development, as a 'much-neglected' area (Working Party of Gifted Education, 2001). This has all come to the forefront in recent years with "a significant increase in the awareness of schools and teachers of the need to provide more effectively for their gifted and talented students" (Working Party on Gifted Education, 2001, no page given). The Ministry believes that one way to build the capability of schools in meeting their obligations to gifted and talented students, as well as other diverse groups, is to provide professional development.

The recommendations and initiatives raise questions regarding what skills, competencies, and qualities effective teachers of gifted and talented students require, and how those might be gained. This section gives an overview of the possible answers to those questions. However, as with other elements of this review of the literature, the empirical research related to the qualities, abilities, and skills needed by teachers in order to effectively meet the needs of gifted and talented students is limited. As Clark and Zimmerman (2002) state, "Most of what has been written about teachers for gifted students is 'armchair speculation' rather than the result of research" (p. 164).

Teachers of gifted and talented students. The effective teacher of gifted and talented students requires a 'complex mix' of personality characteristics, knowledge and skills, professional attitudes, and teaching approaches and strategies (Vialle & Quigley, 2002). Among the competencies cited in the literature, many relate to personal characteristics and qualities. George (1997) describes the types of personal qualities which characterise the 'ideal' teacher of gifted and talented students: flexible; caring; responsive; humorous; enthusiastic; empathetic; creative; honest; dynamic; resourceful; and informed. These qualities are desirable for all teachers of all students. However, Croft (2003) maintains that additional teacher qualities are required to be responsive to the unique needs of gifted and talented students.

A teacher who is perceived as effectively identifying and meeting the needs of gifted and talented students:

- Has a broad general knowledge (Feldhusen, 1997; Maker, 1983), coupled with a sophisticated content knowledge in specific areas (Croft, 2003; Gallagher, 2000; Renzulli & Reis, 1986);
- Strives for high achievement or excellence (Feldhusen, 1997);
- Is highly intelligent (Feldhusen, 1997; Hansen & Feldhusen, 1994);
- Has cultural and intellectual interests (Feldhusen, 1997; Hansen & Feldhusen, 1994);
- Is enthusiastic about giftedness and talent (Feldhusen, 1997; Freeman, 1998; George, 1997; Hansen & Feldhusen, 1994; Kennedy, 1995; Vialle & Quigley, 2002);
- Relates well to talented people (Feldhusen, 1997);
- Is culturally appreciative, aware, knowledgeable, and understanding (Bevan-Brown, 1996);
- Understands and is able to relate the theory of gifted education to classroom practice (Bain, Bourgeois, & Pappas, 2003; Braggett, 1998b; Croft, 2003; Teare, 1997; Van Tassel-Baska, 1986c; Vialle & Quigley, 2002); and

- Is passionate about discipline, subject, or information being taught (Renzulli & Reis, 1986; Vialle & Quigley, 2002).

From the perspective of gifted and talented students, Vialle and Quigley (2002) cite a number of studies in which students have demonstrated a preference to prioritise the personal characteristics over the intellectual qualities of their teachers. Their findings confirm the American studies – their survey results showed that Australian gifted and talented students hold the personal and social characteristics of teachers in high regard. They caution that preliminary findings from the qualitative data suggest that students’ judgements in relation to the personal qualities of teachers are somehow linked to teachers’ intellectual characteristics and teaching strategies (Vialle & Quigley, 2002).

Riley (2000c) believes that for teachers to be effective in meeting the needs of gifted and talented students a shift in mindset is required. As she states:

We start by changing our title from teacher to facilitator. This requires a shift in our mindsets from being dispensers of knowledge, skills, and concepts to the role of facilitating learning ... To facilitate requires curiosity, acceptance of ambiguity, and flexibility. It means seeking answers as opposed to knowing answers. A facilitator of learning celebrates discovery, rather than being intimidated by it. Facilitating learning means sharing control, not having it. Facilitators are resourceful, creative risk-takers who nurture and guide individual learners (no page given).

The literature also reports the areas in which teachers require professional development in order to effectively work with gifted and talented students:

- The nature and variety of giftedness and talent, including characteristics (Chessman, 2003; Ministry of Education, 2000; Taylor, 1995);
- Identification processes and methods to establish and analyse students’ profiles of abilities (Chessman, 2003; Ministry of Education, 2000);
- Differentiated teaching and learning strategies for regular classrooms and other provisions (Chessman, 2003; Gosfield, 2002; Ministry of Education, 2000; Taylor, 1995);
- Identification and provisions appropriate for Māori students and those from other cultural backgrounds (Bevan-Brown, 1996; Taylor, 1995), as well as other potentially under-represented groups (Ministry of Education, 2000);
- Methods of evaluation and assessment to determine the effectiveness of identification and provisions (Tomlinson et al., 1993); and
- Skills in collaboration and consultation with other educators, as well as parents, and especially for teachers with roles of coordination or responsibility for and specialised teaching in gifted and talented programmes (Mainzer, Deshler, Coleman, Kozleski, & Rodriguez-Walling, 2003).

The combination of these skills and understandings is aimed at ensuring teachers have an understanding of the nature of giftedness and its relationship to what is taught and how it is taught. Kaplan (2003) describes this as a “triadic relationship between content or subject matter, pedagogy or teaching strategies, and the student population” (p. 165). She concludes that, “What is important is to understand that pedagogy is a response to who we teach and what we are teaching” (p.165).

Teacher education. “Gifted education is a different educational culture to regular classroom teaching and the identified competencies reflect clear differences between the instruction required for one group and the other” (Rowley, 2003, p. 2). It is because of these differences, that many educators call for specialised pre-service and in-service training in gifted and talented education. In New Zealand, Taylor (1995) states that specialist training would be appropriate for teachers taking leadership roles.

She also emphasises the importance of all teachers having a foundational understanding within their pre-service education. Croft (2003) believes that good general education teachers are not necessarily good teachers for gifted and talented students. She grounds this belief in the lack of teacher education at pre-service level.

Feldhusen (1997) states that we have the technology and knowledge to train teachers to work effectively with gifted and talented students:

To a limited extent our knowledge of the characteristics of good teachers of the gifted enables us to develop criteria and select teachers who will be able to meet the needs of gifted students in the classroom. Far more promising, however, is our understanding of the skills, competencies, and knowledge that teachers require in order to teach the gifted well. Armed with that information, we can design and conduct teacher education programs to prepare all teachers in the basics of working with the gifted and a cadre of highly trained and certified teachers to work with the gifted in special classes (p. 551).

Coleman and Gallagher (1995b) point out that teachers who work with gifted students should all be knowledgeable about these students and their special needs. Gallagher and Coleman (1993, cited in Coleman & Gallagher, 1995b) believe that to do this will require a move away from the traditional teacher training model to a model that has a more broad-based personnel preparation for administrators, educational support staff, and teachers who they believe all play a critical role in providing quality education for gifted students.

In 1998, the Education Review Office issued a report, *The Capable Teacher*, in which they identified a wide range of teacher capabilities. Those most important to gifted and talented students make reference to individual and differing learning needs and rates; appropriate objectives for teaching and learning; high teacher expectations; respectful and understanding classroom environments; instruction matched to student knowledge and experience; consistency between teaching objectives and policies, both local and national; and approaches and strategies for those in need of 'extension.' The more recent Ministry of Education best evidence synthesis on quality teaching for diverse students in New Zealand schools (Alton-Lee, 2003) concludes that up to 59% of the variance in student performance is attributable to differences between teachers and classes, with much less attributed to school levels (21%). The characteristics of quality teaching which are outlined by Alton-Lee are relevant to gifted and talented students, particularly those which necessitate responsive teaching. In light of our teacher education programmes, do we ensure these competencies and qualities – not just for teaching all students, but for teaching our gifted and talented students?

In his critique of gifted education in Australia and New Zealand, Braggett (1998b) asserts that although the situation is improving, both countries have been slow to comprehensively provide for gifted education at the pre-service level. Other Australian writers would agree (see for example, Chessman, 2003; Gross & Sleap, 2001). During a recent Ministry of Education hui for teacher educators and advisers (October 2003), representatives of seven colleges of education presented information regarding their programmes. From these four different 'models' of teacher education in gifted and talented arise:

1. The integration of gifted and talented education across a variety of papers and programmes (e.g., professional practice, curriculum studies).
2. Inclusion of a module or component on gifted and talented education in a compulsory special education paper.
3. An optional, stand-alone paper in gifted and talented education, usually in the 3rd year of pre-service education.
4. Postgraduate papers and specialist qualifications.

Whilst all of these are promising practices, and growth is reported in the Colleges, the bottom line regarding compulsory pre-service teacher education remains that described by the Ministry of Education in 2000: it is seldom addressed. Interestingly, the current picture differs little from that painted by Taylor's (1995) investigation of pre-service teacher education. Although Taylor saw encouraging signs of increasing interest, she also reported that pre-service teacher education was rather limited, short-term and optional. As Braggett (1998b) points out, school educators require both pre-service and in-service professional development in gifted education.

In-service professional development. As the Ministry of Education (2000) states, "Professional development is an essential ingredient in developing, implementing, and maintaining effective programmes for gifted and talented students" (p. 10). They further acknowledge a lack of pre-service education and recommend schoolwide collaborative and consultative in-service professional development as an important element of a school's gifted and talented programme. The Ministry of Education emphasises the importance of professional development which is "tailored to the nature and needs of the individual school" (p. 11) and which includes all stakeholders.

In New Zealand, the advisers in gifted and talented education through School Support Services provide a unique model of professional development. As stated earlier, the Ministry of Education increased the number of full-time advisory positions in 2003 from four to 12, and in 2003 established a National Coordination Team through the University of Waikato. The 12 advisory positions represent more than 20 gifted and talented advisers from throughout the country who provide professional support to schools by working with whole school staff or individual teachers. The National Coordinators act as a conduit for collaboration and communication between and amongst advisers and teacher educators. This review of the literature did not yield any international systems of nationwide professional development which mirrored this approach.

In a study by Johnsen et al. (2002) teachers were taught to differentiate the regular class curriculum for gifted students and the factors that influenced the teachers to change their practice were documented. The article raises five factors needed for successful professional development:

1. It is important to involve all of the stakeholders likely to be affected by the change;
2. The professional development must simulate the desired practices so that the participating teachers will own the innovation and thus be motivated to effect the changes;
3. Practices need to be clearly defined so that the teacher is able to transfer these into the classroom;
4. Teachers should have a part in decision making about the type and degree of change that needs to be incorporated into their classrooms; and
5. Ongoing support (both material and human) is necessary for teachers to make changes (p. 45).

According to Plunkett and Harvey (1999) teachers need to ensure that they feel fully involved in the programme as a whole and communication within the group needs to be facilitated. In order to achieve this they suggest that informal meetings are held with interested groups; school staff sharing the aims and activities of the programmes; teachers participate in professional development activities; and regional meetings are held where teachers working in similar programmes can get together.

The National Association for Gifted Children (1998) provides a set of standards for professional development in gifted education. The rubric identifies four guiding principles: a comprehensive staff development programme must be provided for all school staff involved in the education of gifted and talented students; only qualified personnel should be allowed to teach gifted and talented students (this includes all teachers, as well as specialists); school personnel require support by way of resources and funding; and staff must be given time to prepare and develop differentiated learning opportunities. The issues of opportunities for professional development, funding to support it, and time to implement the

practices are re-iterated in the perceived barriers to effective practice in gifted and talented education in New Zealand (see for example, Riley, 2003; Keen, 2001, 2002a, 2003).

Does professional development and teacher education in gifted education make a difference? A few studies have answered this question. This review of the literature located two New Zealand-based action research studies exploring professional development models for regular classroom teachers (Meuli, 1997; Strang, 2001). Meuli introduced a collaborative consultative model which uses a consulting teacher to deliver in-service training in gifted education to two teachers. Through diaries, interviews and questionnaires, the teachers involved provided feedback regarding this approach to professional development. Meuli concluded that the model met the needs of the teachers and had perceived positive effects upon their classroom practice. However, she warns, the cost and time commitments of such an approach could prove difficult barriers to overcome.

Strang's (2001) research was similar. Using an action research model, she acted as a 'professional friend' to three regular classroom teachers with the aim of assisting them in becoming more reflective practitioners as they implemented differentiated practices for gifted and talented students. She concluded that there was a need for more professional development programmes in gifted education in New Zealand. Strang outlines several critical elements: schoolwide collaboration; school-based and needs-driven provisions; further exploration of the 'critical friend'; and collaborative focus group approaches to professional development.

Plunkett and Harvey (1995) found from their study of 100 teachers (50 control and 50 interest group) a significant difference in the confidence levels of teachers with specialised training with regard to identification of, and curriculum provision for gifted and talented students compared to teachers with regular training. They also found that teachers who have an interest in the education of the gifted perceived a greater need for specialised training in this area. It is argued that postgraduate training is the most effective manner for ensuring that the needs of gifted and talented students are met.

Overseas, other studies related to the effectiveness of professional development in gifted and talented education are reported. For example, Sullenger and Cashion (2000) report the findings of a follow-up study of 50 Canadian teachers who attended an intensive four-week summer institute on gifted and talented education. One year after their attendance, the participants indicated little perceived change or effect upon their teaching or beliefs regarding gifted and talented students. Many indicated that the researchers should contact them in a year's time. Interestingly, two years after their professional development experiences, the teachers reported that the strategies for gifted and talented students were being implemented in their classrooms, and that their attitudes and beliefs regarding these students had positively changed. As the authors conclude, "... the amount of time needed to implement and become comfortable with new teaching approaches and strategies is vastly underestimated" (p. 22).

Hansen and Feldhusen (1994) found teachers with specialised training were more effective than teachers without such training. The study included a total of 82 teachers, 54 trained in gifted education and 28 untrained. The teachers trained in gifted education demonstrated greater teaching skills and developed more positive class climates than did teachers who had no training in gifted education. Students of teachers trained in gifted education reported greater emphasis on higher level thinking skills and discussion.

Copenhaver and McIntyre (1992) report the findings of a study which investigated the perceptions of giftedness held by 85 teachers who were enrolled in a postgraduate course in gifted education in relation to their years of experience and professional development in the field. Significant differences were found: more experienced teachers readily identified negative behaviours associated with giftedness, whereas those with less experience viewed these as signs of bad behaviour rather than giftedness; and primary school teachers were more apt to identify these negative behaviours than their secondary school counterparts but did so in a way potentially detrimental to their students. The authors call for more teaching level-specific professional development opportunities in pre- and in-service education, as well as a focus upon the potential manifestation of negative characteristics associated with giftedness and talent.

THE NATURE AND EXTENT OF IDENTIFICATION AND PROVISIONS FOR GIFTED AND TALENTED STUDENTS IN NEW ZEALAND SCHOOLS

As this review of the literature demonstrates, much of the ‘research’ in New Zealand is based upon descriptive reports. However, there are several studies (Keen, 2000, 2001, 2002a, 2002b, 2003; McAlpine, 1993; Moltzen, 1992; Riley, 2003) which have been conducted over the last 15 years which delve into the nature and extent of provisions for gifted and talented students. Although each of these studies examined different elements of gifted and talented education, with different pockets of New Zealand educators, the findings begin to paint a picture of the common practices in gifted and talented education. Those related to identification, provisions, and school organisation are reported here to provide readers with a backdrop upon which to better consider and understand the purposes and findings of this research report.

In 1991, McAlpine conducted a national survey of New Zealand schools which queried the ‘current state of affairs’ in gifted education, at that time. (Findings are reported in McAlpine, 1993.) The study was supported by the New Zealand School Trustees Association and 997 schools responded. The findings are summarised as follows:

- Sixty-three per cent of responding schools indicated that they had a policy for students with special needs and 45% of schools made reference to gifted and talented students in special needs policies.
- Nineteen per cent of the respondents reported special, separate policies for gifted and talented students.
- Thirty-one per cent of respondents indicated that “all classes” were “involved in some form of provisions, e.g. enrichment programmes, IEPs” (p. 11).
- Eighty per cent of responding schools stated that gifted and talented students were provided programmes within regular, mainstreamed classrooms.
- In relation to enrichment and acceleration, 74% of schools reported that their major emphasis was on enrichment and 56% reported that they ‘employed’ acceleration.
- Of the responding schools, 428 indicated a need for: assistance in relation to resources for funding, space, staff, etc; teacher education (pre-service and in-service); and information about strategies for teaching gifted and talented students.

McAlpine (1993) acknowledged the limitations of survey research of this nature and recommended that these findings would be enhanced by interviews and visits to schools. He also describes difficulty in determining the accuracy of these findings, which is complicated by the different meanings associated with different terms (e.g., enrichment and acceleration, special programmes, and provisions). Finally, the quality of the implementation of policies or programmes is inevitably not reported or investigated in research of this nature. However, McAlpine’s findings did give an indication of the overall picture of gifted and talented education in late 1991.

Moltzen (1992) reports findings of a similar study which investigated, via questionnaire, the policies and provisions of schools in the Waikato district. He surveyed all schools in the district, receiving responses from 121 schools (100 primary, 21 secondary). His findings were similar to McAlpine’s; however, in some cases the terminology used by the two researchers differed and makes comparison difficult. Nonetheless, Moltzen reported:

- Thirteen per cent of respondent schools included recognition of gifted and talented students in their school charters; 25% of primary schools and 18% of secondary schools had policies specific to gifted and talented students. Interestingly, of schools which addressed special abilities in their charters, 41% also reported having policy statements.

- Fifty-eight per cent of responding schools indicated “special programmes for children with special abilities” (p. 7). Of these, withdrawal programmes were the favoured provision at both primary and secondary school, although a range of opportunities were reported. Approximately 8% of respondents were utilising individualised education plans for their gifted and talented students.
- Thirty per cent had a budget for gifted and talented education ranging from \$25 to \$2,000, but averaging approximately \$500; 52% had a staff member responsible for gifted and talented education; and professional development for gifted and talented education was most frequently reported as a low priority.

Moltzen (1992) concluded that the results were positive and encouraging. However, he warned that less than half of the schools in the district responded, “and it could well be argued that principals of schools who have something significant to report are much more likely to respond than those who haven’t” (p. 10).

A more recent survey was conducted in 2002 by Riley (reported in 2003). She surveyed all rural schools in New Zealand to investigate identification, the needs of educators, and the benefits and obstacles of rural education in relation to gifted and talented students. Of the 642 schools surveyed, 206 responses were received; Riley acknowledges the low response rate (33%) but reports that the sample is representative of rural schools in New Zealand. The findings of her study indicated that:

- Sixty-seven per cent of responding schools reported multiple measures of identification (two to three methods), although it is difficult to determine if these are utilised in conjunction with or separate from one another.
- Seventy per cent of respondents reported identification of special abilities by way of some form of assessment (formal and informal) and 63% reported teacher observation and nomination. Other reported methods of identification included: parent information and nomination (23%); peer nomination (less than 1%); self nomination (1%); and support services, such as Resource Teachers for Learning and Behaviour, Special Education Services, school advisers and private providers (7%).
- Participants were asked how well they perceived provisions for gifted and talented students in rural schools: 37% reported ‘very well’; 28% ‘not so well’; 22% ‘it all depends’; 7% ‘as well as can be expected’; and 6% ‘could do better.’
- Finally, the responding principals indicated a need for professional development (38%), resources (32%), and New Zealand developed models and strategies for gifted and talented students (25%). Principals also indicated a need for funding, time, additional staff, outside professional support, and networking for students and teachers.

Keen (2000, 2001, 2002a, 2002b, 2003) conducted a two-year study involving 68 education providers in the Otago, Southland, and Bay of Plenty regions. Keen’s study investigated many different elements of gifted and talented education from the viewpoints of educators at early childhood, primary, intermediate and secondary levels; parents of gifted and talented students; and the students themselves – in rural and urban regions and diverse socio-economic areas. His major findings in relation to identification, provisions, and schoolwide organisation are reported here:

- Giftedness was defined ‘normatively’ (in relation to expected performance for a particular age group) by 80% of participating educators and 70% of parents, but the respondents clearly differed in their views of what constituted giftedness, and many felt unable to define the concept.
- Reported identification methods differed for levels of schooling: early childhood centres and primary schools demonstrated preference for teacher observation coupled with behavioural

profiles or cumulative work folders, whereas secondary schools were more inclined to utilise standardised assessment measures. The least frequently utilised identification methods were parent, whānau, self, and peer nomination.

- Across all types of provisions, enrichment was preferred by responding schools. Acceleration was reported as less likely, and when it was utilised it was primarily used in single subjects for primary age students and ‘whole-class streaming’ at secondary level. Withdrawal groups were viewed favourably by primary and secondary respondents, but perceived as difficult to implement at secondary level.
- Participating schools called for more resources, specifically finances to assist with teaching and learning materials; teacher time for programme preparation and delivery; and professional development.

These four studies begin to shed some light upon the nature and extent of identification and provisions for gifted and talented students in New Zealand. The common themes indicated across the studies show:

1. Identification is reliant upon teachers and assessment, and seldom takes account of the opinions of parents, whānau, gifted and talented students, or their peers.
2. There is a preference for enrichment-based provisions, mainly in the regular mainstream classes, but often complimented by withdrawal or pull-out programmes.
3. Roughly a quarter of schools in the early 1990s had written policies specific to gifted and talented students.
4. Educators have consistently called for resources (i.e., professional development; physical, human, and financial) to assist in the development of programmes for gifted and talented students.

However, the timeliness; sample size and demographics; terminology or language; and focus or purpose of each study makes generalisations in today’s schools unwise. As The Working Party on Gifted Education (2001) stated, “... a clearer picture is required of what exists currently and of specific issues and needs ...” (p. 26). The aim of the literature review is to situate gifted and talented education in New Zealand within the landscape of national and international theory and research. In this context, the questionnaire aims to provide clarity in relation to the current nature and extent of identification and provisions for gifted and talented students in New Zealand schools.

Questionnaire

This purpose of the questionnaire to all New Zealand schools was to answer the following research questions:

How common is policy or specific school-wide plans for provisions to meet the needs of gifted and talented learners in New Zealand schools?

What types of methods are stated in school-wide policies or plans as being used to identify gifted and talented learners and their needs?

What types of approaches are used in schools to provide for the needs of gifted and talented students?

Are there any patterns (i.e., differences between regions, between high and low decile schools, for different ethnic groups) in provision of support for gifted and talented learners?

Given the broad and wide-ranging nature of contemporary concepts of giftedness and talent, coupled with the lack of current research related to the nature and extent of identification and provisions in New Zealand, the decision was made to survey all schools in hopes of gaining a national picture.

The Process

This section describes the process undertaken in the development, administration, and analysis of the questionnaire.

Development of the questionnaire. In the first week of February 2003 the research team drafted an initial questionnaire. The research team was aware of the need for the questionnaire to mirror the core principles of the Ministry's policy in gifted education (Minister of Education, 2002). The team was also cognisant of other ideal practices the questionnaire needed to probe: a broad and inclusive concept of giftedness; the interrelationship between a school's definition, identification, and provisions; and the range of flexible, multicategorical and multimethod approaches to identification and provision (Ministry of Education, 2000).

The questionnaire was sent electronically to members of both advisory groups for feedback in relation to the content, language, format and layout, and ease or difficulty of use. Feedback was received from fifteen members of the virtual advisory group and six members of the smaller formal group.

During this same period of time the questionnaire was piloted in schools in the Manawatu region. Six contributing primary, three full primary, one intermediate, three secondary schools, and one kura kaupapa Māori were visited by members of the research team. These represented rural and urban, single sex and co-educational, low to high decile, culturally diverse, and large and small schools. Additionally, schools were at various stages in their identification and provision for gifted and talented students. A team member met with the principal and/or gifted education coordinator, who completed the questionnaire during the meeting. They were asked to comment on the questionnaire's content, language, format/layout and ease of use.

Based upon the piloting and advisory group feedback, the research team made substantial changes to the questionnaire. These are summarised below:

1. In response to the need for more information regarding the extent or degree of policies, identification, and provisions, some questions were elaborated upon, and additional open-ended questions added. Several general questions were added regarding use of enrichment and/or acceleration strategies and classroom and community-based provisions.

2. In consultation with the administrative assistant, the decision was made to create two tables (one for identification, another for provision) for ease of data coding. This also allowed for different probes into extent and degree as related to identification and provision. Additionally, the questionnaire was formatted for data coding, and as a consequence, this formatting lengthened the questionnaire substantially.
3. In response to concerns over terminology related to areas of giftedness, the decision was made to use the six broad areas most often reported in the international literature – academic/intellectual, creative, social/leadership, the arts, physical/sports, cultural/ethnic. A place for respondents to indicate any ‘other’ areas was also included.
4. The question order was changed, in the hope of creating a less threatening set of questions and encouraging a positive response rate. Additionally, several filter questions were added.
5. In regard to identification methods used and provisions offered, the decision was made to limit those to the last twelve months. This was in response to the pilot study which indicated that schools often changed their approaches over short periods of time (i.e., from one year to the next).

The revised questionnaire was then sent out to the small advisory group for further comment. There was considerable on-going discussion over the terminology used for ‘areas of giftedness,’ with the Ministry of Education representatives raising concerns over their appropriateness. Two options were discussed at length: to eliminate all areas of giftedness and allow respondents to indicate in their own words those identified and provided for in their school setting; or to come to an agreement on an appropriate set of terms. The decision was made to use the following areas of ability: intellectual/academic (in any of the essential learning areas); creativity; expression through visual/performing arts; social/leadership; culture-specific abilities and qualities; expression through physical/sport; and other (please specify). These terms were also clarified on the back of the covering letter.

The development and revision of the questionnaire involved a considerable amount of consultation and time. As a result, the questionnaire was not distributed to schools as early as intended.

Distribution of the questionnaire. During the second week of March the questionnaire and a cover letter were mailed (with a freepost self-return envelope) to 2689 schools in New Zealand requesting their return by the 25th of March. The letter and questionnaire are in Appendix B. The cover letter outlined the purpose of the questionnaire and respondents’ rights as stated in the Massey University Code of Ethical Conduct. A follow-up email was sent to all schools the last week of March, thanking those who had replied and requesting replies from those who hadn’t done so. The deadline for submission of questionnaires was extended to the 11th of April in hopes of increasing the response rate. Other measures taken to enhance the rate of response included information passed on to principals’ and educators’ workshops by the Project Director, and the willingness of the advisory group members to encourage schools in which they worked to respond.

Analysis. Upon return, the questionnaires were coded and a database created. Open-ended responses were transcribed. The data from the questionnaires were ‘cleaned up’ through an examination of each written response in relation to the coded responses. Using SPSS 11.5 for Windows the quantitative data were analysed using descriptive statistics to determine frequencies of responses. Crosstabs analyses of different variables were undertaken to determine patterns amongst responses, for example the relationship between a school type and provision. The open-ended responses were coded to common themes, and these were cross-checked by members of the research team.

Limitations. It is important that the results of the questionnaire be considered with an understanding of the possible limitations. Firstly, there is a potential for bias amongst the responding sample; in other words, schools which *are* identifying and providing for gifted and talented students might be more likely to respond than those which are not. Secondly, the questionnaire results give an indication of the extent of identification, provisions, and policies/procedures, but by the very nature of a close-ended

questionnaire the quality of these in practice is indeterminable. Related to this, it is important to remember that the questionnaire results are self-reported data – different people interpret the same questions from a variety of perspectives. Thirdly, from a cultural perspective, a questionnaire is not the most desirable approach to research. In fact, feedback from a kura kaupapa Māori involved in the piloting of the questionnaire was that it was not relevant to their school. As acknowledged at the outset of the research, they felt that questions specific to kura kaupapa Māori should be developed for a second questionnaire which could be either administered face-to-face or by mail (dependent on the preference of individual kura). Unfortunately, neither the research time frame nor funding allowed this suggestion to be actioned. Finally, the limitations of survey research in general are relevant.

Sample

Questionnaires were mailed to the 2689 schools in New Zealand recorded in the Ministry of Education database (July 2002). This number represented all schools in New Zealand, including private and special schools. Ten of the questionnaires were returned due to schools having since closed or inaccuracies in the addresses. Nineteen questionnaires were returned by schools who did not wish to participate. The majority of those were special schools. In total 1285 completed questionnaires were returned, a response rate of 48.0%. Twelve schools returned completed questionnaires but did not include their Ministry of Education school code, and so have not been included in the analysis (1273 responses analysed).

School type. The return rate is lower than desirable; however, analysis of the sample demographics in comparison to all schools in New Zealand indicates that the sample is representative. Table 4 shows the frequency of responses by school type.

Special schools are under-represented in the sample; however, as noted above, ‘blank’ responses were received from 16 special schools and are not included. These included special schools for students with profound disabilities and health camps, and the returned surveys included statements which indicated that the administrators did not believe gifted and talented students would be present in their population.

Table 4. School Types.

School Type	Ministry of Education Database July 2002		Respondents	
	Frequency	Percent	Frequency	Percent
Contributing	830	30.9	435	34.2
Full Primary	1217	45.3	568	44.6
Intermediate	132	4.9	71	5.6
Secondary (Year 7-15)	90	3.3	38	3.0
Secondary (Year 9-15)	238	8.9	111	8.7
Special School	47	1.7	9	.7
Composite	128	4.8	38	3.0
Correspondence School	1	.0	1	.0
Restricted Composite (Year 7-10)	6	.2	2	.2
Total	2689	100.0	1273	100.0

For the purposes of the questionnaire analysis, the schools have been grouped as follows:

- Primary: Contributing and Full (1003 schools, 78.8%)
- Intermediate (71 schools, 5.6%)
- Secondary: Years 7-15; Years 9-15 (149 schools, 11.7%)
- ‘Other’: Special Schools; Composite; Correspondence School; Restricted Composite (50 schools, 3.9%)

Geographic regions. The responding schools are representative of all geographic regions in New Zealand, as shown on Table 5 (Correspondence School not included.)

Only slight regional differences occur between the sample and New Zealand as a whole. Furthermore the representation of North and South Island schools is equivalent to the national figures.

Table 5. Geographic Regions.

Region	Ministry of Education Database July 2002		Respondents to Questionnaire	
	Frequency	Percent	Frequency	Percent
Auckland	517	19.2	253	19.9
Bay of Plenty	156	5.8	69	5.4
Canterbury	327	12.2	166	13.0
Gisborne	57	2.1	23	1.8
Hawkes Bay	145	5.4	76	6.0
Manawatu-Wanganui	223	8.3	116	9.1
Northland	156	5.8	64	5.0
Otago	165	6.1	65	5.1
Southland	102	3.8	53	4.2
Taranaki	115	4.3	52	4.1
Waikato	322	12.0	145	11.4
Wellington	263	9.8	127	10.0
West Coast	46	1.7	16	1.3
Chatham Islands	3	.1	1	.1
Marlborough	32	1.2	15	1.2
Nelson	24	.9	13	1.0
Tasman	35	1.3	18	1.4
Total	2688	100.0	1272	100.0

Approximately 836 schools in New Zealand are classified as rural, comprising 31.1% of all schools. The respondents to the questionnaire were similarly grouped, with 30.2% of the sample from rural schools.

Decile ratings. The Ministry of Education has developed a Targeted Funding for Educational Achievement indicator, commonly known as a ‘decile rating.’ The rating is intended to be a measure of socio-economic disadvantage, and is based upon several dimensions:

- Equivalent Household Income;
- Parents’ Occupation;
- Household Crowding;
- Parents’ Educational Qualifications;

- Income Support Payments Received by Parents; and
- Māori and Pacific Islands Ethnicity (Ministry of Education, 1997).

The combination of these dimensions results in each school being ranked into deciles 1 (lowest socio-economic group) to 10 (highest socioeconomic group). Each decile rating comprises approximately a tenth (10.0%) of New Zealand schools.

Table 6. Decile Ratings.

Decile	Ministry of Education Database July 2002		Respondents to Questionnaire	
	Frequency	Percent	Frequency	Percent
1	268	10.0	95	7.5
2	269	10.0	110	8.6
3	266	9.9	116	9.1
4	263	9.8	115	9.0
5	266	9.9	142	11.2
6	254	9.4	131	10.3
7	258	9.6	135	10.6
8	264	9.8	118	9.3
9	268	10.0	147	11.5
10	263	9.8	147	11.5
No Decile Given	50	1.8	17	1.3
Total	2689	100.0	1273	100.0

All school deciles are represented in the sample as shown on Table 6. There is a slight under-representation of low decile schools and over-representation of high decile schools, with 45.4% of the sample comprised of schools with deciles 1-5 (compared with the national population of 49.5%); 53.2% with deciles 6-10 (compared with the national population of 48.6%).

Ethnicity. Individual data regarding ethnicity, and specifically that of gifted and talented students, was not collected from schools. However, given how decile ratings are constructed, the school's decile does give an indication of ethnicity. The Ministry of Education (July 2002) reports that 87.0% of students in decile 1 schools are Māori or Pacific Island students, contrasted by just 5.0% in decile 10 schools.

School size. Schools of all sizes responded to the questionnaire as can be seen in Table 7. Nearly half the schools in the sample (48.1%) had rolls of less than 200 students, and this is a slight under-representation of the 52.7% in the Ministry of Education database. Conversely, the sample includes 54 of the 95 schools having over 1000 students, and this is a slight over-representation. The Correspondence School is listed separately due to its large enrolment of approximately 9135 students (Ministry of Education, July 2002 database).

Table 7. School Roll.

School Roll	Ministry of Education Database July 2002		Respondents to Questionnaire	
	Frequency	Percent	Frequency	Percent
0-99	885	32.9	374	29.4
100-199	532	19.8	238	18.7
200-299	378	14.1	191	15.0
300-399	286	10.6	145	11.4
400-499	184	6.8	94	7.4
500-599	160	6.0	95	7.5
600-699	82	3.0	45	3.5
700-799	33	1.2	16	1.3
800-899	37	1.4	17	1.3
900-999	16	.6	3	.2
over 1000	95	3.5	54	4.2
Correspondence School	1	.0	1	.1
Total	2689	100.0	1273	100.0

COORDINATION OF GIFTED AND TALENTED EDUCATION

Questionnaire respondents were asked to provide information regarding the school's organisation and coordination of gifted and talented education. There were two key questions: *Who takes responsibility for the education of gifted and talented students? What written policies and procedures support the education of gifted and talented students?* Close-ended and open-ended questions were posed so that the extent and nature of overall organisation and coordination could be determined.

A Person Responsible for Gifted and Talented Education

Respondents in the majority of schools (72.6%) indicated that a person within the school takes responsibility for gifted and talented education. Only 27.3% of schools have not allocated this role. When asked who had responsibility for gifted and talented education, an array of different individuals or groups of individuals was reported. Approximately 29% of respondents indicated that the responsibility lies with the principal, and some of these signalled their dual role as a teaching principal. As one respondent stated:

Sole charge ... therefore responsible for everything!

Approximately 24% of responding schools delegate responsibility to a teacher; 23% to the deputy or associate principal; and 6% to staff working in special education (i.e., learning support coordinators, Resource Teacher of Learning and Behaviour – RTL B, Special Educational Needs Coordinator – SENCO). A team approach to responsibility was reported by 15%, who indicated that many of these were partnerships of dual combinations: principal and teacher; associate principal and teacher; special needs coordinator and principal; etc. Some schools reported teams of three or more and a very small number stated “all staff.” Other individuals cited with responsibility (3%) were heads of department, gifted education coordinators, guidance counsellors, and teacher aides.

Committee/Coordinating Team for Gifted and Talented Education

The majority of schools (57.5%) reported that they do not have a committee or coordinating team for gifted and talented education. The remaining 541 schools, or 42.5% of the sample, do have a committee or coordinating team. An examination of school types shows that 41.2% of primary schools, 66.2% of intermediate schools, 47.0% of secondary schools, and 22.0% of other schools are taking a team approach to coordination. Rural schools are far less likely to have a committee: 21.1%

of these schools reported one, whereas 78.9% did not. This is contrasted by committees in 51.7% of schools classified as urban.

Figure 4 shows an analysis of the number of schools by decile that report having a committee or coordinating team. Higher decile schools more frequently reported the existence of an organising committee or team than lower decile schools. For example, 32 of the 95 decile 1 schools that responded reported a committee (representing 33.7% of responding decile 1 schools). In comparison, 85 of the 147 decile 10 schools reported having a committee (representing 57.8% of responding decile 10 schools). Of the sample, 40.0% of schools rated deciles 1 to 5 indicated a team approach; 44.4% of schools in deciles 6-10 indicated the same.

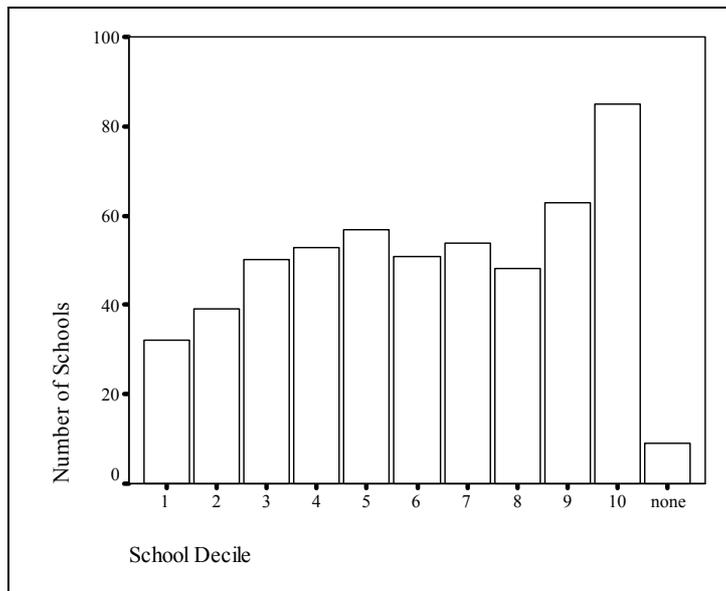


Figure 4. Schools with Committee/Coordinating Team for Gifted and Talented Education by Decile.

Membership of Committee/Coordinating Team

The make-up of schools’ gifted and talented education committees is predominantly comprised of educators, with little representation from parents and community members. As Table 8 shows, of the 541 schools reporting committee structures, only 4.6% and 2.6% included parents and community members respectively. Senior administrative staff (principals and associate/deputy principals) are the most frequently cited members.

Table 8. Membership of Gifted and Talented Committees/Coordinating Teams.

Committee/Team Members	Frequency	Percent
Principal	373	68.9
Associate Principal/ Deputy Principal	357	66.0
Designated Teacher of Gifted and Talented	250	46.2
Special Needs Coordinator	246	45.5
Other	169	31.2
Learning Support Coordinator	87	16.1
Head of Department	53	9.8
Parent	25	4.6
School Counsellor	22	4.1
Community Member	14	2.6

Respondents indicating heads of department as committee members were asked to supply the department in which these were located. Of the 53 respondents who did so, the majority simply specified that this person was a senior teacher or syndicate leader. Within curricular areas, responses were received across the essential learning areas, with the most frequent representation from English, mathematics, and science respectively. Less frequently cited areas were social studies, health and physical education, technology, the arts, and language respectively. Others specified ‘all areas’ and some signalled the involvement of special educators.

When asked what ‘other people’ comprised the membership of coordinating teams, 120 of the 169 respondents stated that these were interested teachers. Only nine schools included representation from the Board of Trustees on the committee. Many other categories of educators within the schools were less frequently reported: teacher aides; Resource Teachers of Learning and Behaviour; and members of senior management. Some schools have community members serving and these include gifted education advisers, academics, Ministry of Education liaison officers, and private providers. Only two schools specifically stated the inclusion of whānau, and one school included a student representative.

Of schools that reported having a committee or coordinating team, the number of members ranged from one to eight, with most schools (83.8%) reporting between two and four members (mean of 2.94 members). Eighty-seven point seven percent of decile 1 – 5 schools reported committees of two to four members; whereas, 81.4% of decile 6 – 10 schools reported teams of two to four members. Slight differences were reported among different school types with committees: memberships of two to four people were reported by 87.8% of primary schools; 83.0% of intermediate schools and 78.6% of secondary schools. Of the rural schools with committees or teams the most frequently reported number of members was two (42.2%).

School Policies and Procedures

Schools were asked to report written policies and procedures which specifically address gifted and talented students. Many schools reported that gifted and talented students are addressed in more than one policy or procedural document. As Table 9 shows, gifted and talented students are most readily included in special needs policies, with 75.3% of schools indicating that these policies specifically address gifted and talented students. Fewer schools (27.9%) had policies developed specifically for gifted and talented students; however, 15.4% reported that these policies are in the process of being developed. Thirty-six point five percent of schools reported having an implementation plan, procedures booklet, and/or action plan for gifted and talented students, with a further 30.8% developing one or more of these procedural documents. In written comments, many schools indicated that they were ‘moving away’ from policies and more toward the development of written procedures. Only 51 schools (4.0%) indicated that other written policies included gifted and talented students (This is not represented in Table 9). When asked to elaborate upon the ‘other’ written policies, respondents indicated that these were barriers to learning, assessment, and acceleration policies.

Schools were also asked to indicate the curriculum delivery documents which address gifted and talented students. The majority of respondents reported that ‘all’ curriculum delivery documents address gifted and talented students. A smaller group reported that gifted and talented students were addressed in only some curriculum documents, and these were predominately in the areas of literacy and numeracy.

Table 9. Written Policies and Procedures.

Written Policy or Procedure	Yes		No		Currently Being Developed	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Gifted & Talented	355	27.9%	722	56.7%	196	15.4%
Special Needs	959	75.3%	281	22.1%	33	2.6%
Equity	668	52.5%	591	46.4%	14	1.1%
Learning Support	297	23.3%	933	73.3%	43	3.4%
Implementation Plan	186	14.6%	928	72.9%	159	12.5%
Procedures Booklet	122	9.6%	1058	92.7%	93	7.3%
Action Plan	156	12.3%	977	89.0%	140	11.0%
Curriculum Delivery	420	33.0%	779	61.2%	74	5.8%

A policy specific to gifted and talented students. An analysis by school type shows that 50.7% of intermediate schools have policies specifically for gifted and talented students, contrasted by 25.3% of primary schools, 36.2% of secondary schools, and 22.0% of other schools. At primary level 14.6% are developing policies for gifted and talented education, with the same task underway in 22.5% of intermediate schools, 20.8% of secondary schools, and 6.0% of other schools. Policies specific to gifted and talented students were reported by 16.4% of rural schools and 32.8% of urban schools.

As Figure 5 shows there are differences between decile ratings in relation to the existence of a specific policy for gifted and talented students. Eleven of the 95 (11.6%) responding decile 1 schools have policies specific to gifted and talented students contrasted by 61 of the 147 (41.5%) decile 10 schools. Twenty-two point one percent of decile 1-5 schools and 32.6% of decile 6-10 schools reported having policies. However, similar numbers of schools are developing policies: 15.1% in deciles 1-5; 15.6% in deciles 6-10.

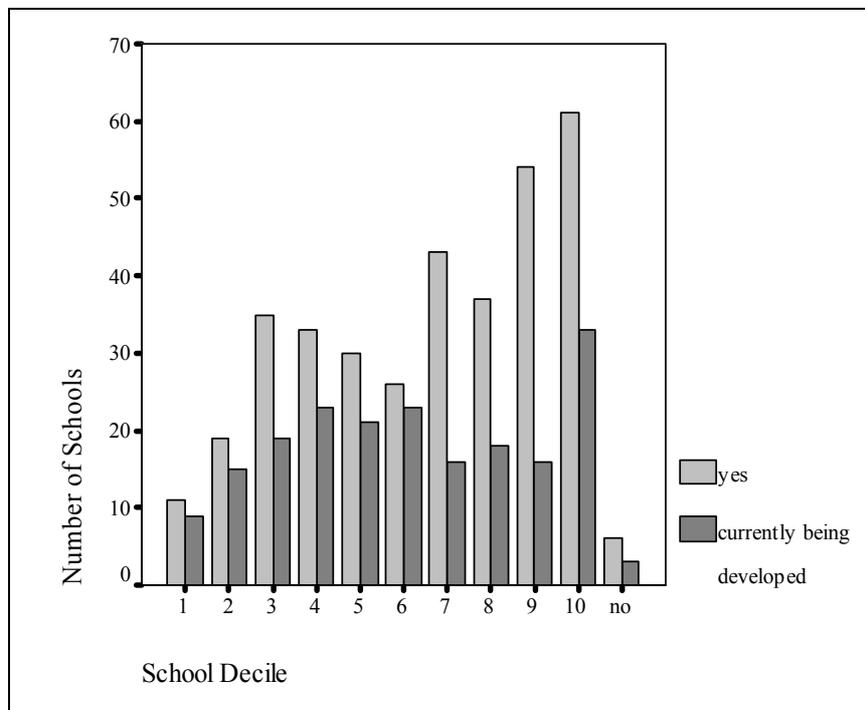


Figure 5. Number and Decile of Schools Developing or Having a Policy Specific to Gifted and Talented

There seems to be a relationship between having a coordinating committee or team and a school policy for gifted and talented education: 41.0% of schools taking a team approach indicate also having a policy; whereas, only 18.2% of schools without overall coordination have a policy. Likewise, 21.3% of team-coordinated schools are developing a policy, compared to 11.4% of those schools without an overall organising group.

The nature of policies and procedures. Schools were asked to provide information regarding the nature of all written policies and procedures which specifically address gifted and talented students. The responses from the 728 schools are shown in Table 10. The most frequent issues addressed within policies and procedures are the identification practices (32.8%), rationale (32.2%), and goals and purposes (30.3%) for gifted and talented education. Similarly, 30.3% of schools reported having a register of gifted and talented students as part of their written documentation. Very few schools (11.4%) include curriculum or programme models in written policies and procedures. Twenty-six schools indicated that other components were addressed in written documentation. These primarily reflected the elements probed by the questionnaire; however, some responses were perhaps unique. These included statements regarding a school's cluster group; learning styles; teaching strategies; spiritual abilities and qualities; meeting individual needs; a report form for parents; and employment of personnel to coordinate gifted and talented programmes (each of these was reported once).

Table 10. Organisational Components Addressed in Written Policies and Procedures.

Component	Frequency	Percent
Rationale	411	32.3%
Goals or Purposes	384	30.2%
School-based Definition	352	27.7%
Identification Practices	418	32.8%
Programming Options	334	26.2%
Curriculum or Programme Model	145	11.4%
Professional Development	281	22.1%
Funding	347	27.3%
Monitoring and Evaluation	314	24.7%
Register of Identified Students	386	30.3%

An analysis of the 728 schools responding to this question shows that 62.8% address between one and five components in their policies. Thirty-two point two percent report that five to nine of these components are addressed. Only 39 schools (5.4%) reported that all 10 areas are included in written documentation.

Issues Related to Coordination of Gifted and Talented Programmes

Schools were invited to make further comment regarding written policies and procedures for gifted and talented education. Approximately 325 (25.6%) respondents made comments. Of these a large number (90) reported that policies and procedures for gifted and talented students were currently being developed or under review. Respondents described schoolwide, ongoing processes, and many indicated collaboration with and support from a gifted and talented adviser. These responses were generally positive, and forward-thinking. As two respondents commented:

Currently in the hands of gifted and talented committee for review and upgrading. It's a long journey and we ain't there yet!

We plan to do much more – good things take time!

Some schools felt that they were just getting started and had much more work to do, but were utilising the professional development support to get on the 'right track.' The following comments demonstrate this:

We are very much in our conception phase at the moment and have been working with our GATE Adviser ... HUGE AREA – very challenging but definitely moving forward.

Being a member of the gifted focus group with (adviser's name) is an asset to our school. Everyone is on board and evidence can be seen in all classrooms.

The concept needs a lot of attention. By sending one lead teacher to be trained by GATE and a whole school initiative for 2004 we have recognised the issue and are planning to address it ... We feel very committed to the equity in GATE students, but professional development needs to be whole school and well planned for worthwhile change to happen.

Approximately 55 other respondents acknowledged the need to develop and implement written policies and procedures, but gave little indication of intentions of doing so in the near future. A few respondents commented that the completion of the questionnaire had begun to influence their views, and they acknowledged that there was "...a lot of work to do still."

Other schools, however, appear to be struggling with how and where to begin policy development and implementation. Approximately 20 schools indicated the need for assistance in the development of policies and procedures. For example, one respondent described three different approaches which have been implemented and seemingly abandoned, concluding with:

There just doesn't seem to be a right way!

Another stated:

We are still conflicted about how to proceed.

Another respondent voiced similar frustration, but perhaps for different reasons:

Have sent away and received Ministry handbook. Have yet to read and develop this area – on the to do list – as I am a new principal – probably won't happen this year. Currently overloaded!

Time was just one of the potential barriers to policy and procedure development which was voiced by respondents. Others mentioned funding and resources:

We are developing, however, it's a lonely place on your own. Staff are keen but it is all a matter of time and energy levels especially with NCEA, etc. Funding would help!

Of the 30 respondents who mentioned funding, some expressed concerns over inequity:

Schools need FTTE resourcing to enable such programmes to occur. If the Government is serious about these, then it will have to deliver extra teachers to do it. We struggle to deliver special needs within the pathetic funding levels we get as a decile 10 school. It already costs us 2/3 more than we are given to deliver. There is nothing left for gifted and talented.

Other similar comments included phrases like, "Funding is the issue!," "Doing this on zero budget," and "totally dependent on contributions." Nine respondents indicated that policies were not relevant, but how they are put into practice was of key importance. There seemed to be reluctance by these respondents to develop and implement, "Yet, another policy?!"

Approximately 20 of the respondents gave more detail in their responses to questions regarding identification and provisions, and another 21 clarified responses related to their policies. A small minority used the space to make general comments regarding their views of giftedness and talent, and amongst those there is evidence that the myths surrounding giftedness do still exist: several indicated

all children are gifted, and by contrast, another indicated that there were no gifted students in their school.

This last comment seems to summarise the responses:

It is a long and lonely journey to implement policies and procedures but I feel that after a long while, we are finally making progress in the right direction. It is excellent to have the gifted and talented advisers to offer support, advice and guidance. It would be a miracle to have funding for the programming for gifted and talented students.

Summary: Coordination of Gifted and Talented Education

The coordination of gifted and talented education, as reported by the schools in this sample which allocate such responsibility, is primarily that of school administrators and senior staff. Less than half of the respondents reported having a committee or coordinating team for gifted and talented education. In comparison to other school types, intermediate schools most frequently report a team approach; whereas rural schools, possibly by their very nature, are unlikely to have a committee or coordinating team. The decile rating of a school may also influence overall coordination. High decile schools reported a team approach more often than lower decile schools. Committees or teams are predominately comprised of educators, with minimal representation of parents or the community. Most teams have between two and four members. Gifted and talented students are most frequently addressed in special needs policies. However, many schools are currently addressing, or recognise the need to address, the development and implementation of written policies and procedures specific to gifted and talented education. Policies of this nature are more commonly reported in intermediate schools than other schools, and in schools which take a team approach to coordination. A small number of schools report comprehensive policies and procedures for gifted and talented students, with the largest numbers of policies addressing the rationale, identification, goals and purposes, and a register of identified gifted and talented students. Issues related to funding, time, and resources are reported as common barriers to overall coordination of gifted and talented programmes; however, some schools are utilising gifted and talented advisory support in the development of gifted and talented education policies and procedures.

SCHOOL-BASED CONCEPT OR DEFINITION: GIFTED AND TALENTED

Schools were asked whether they had a school-based concept or definition of giftedness and talent, and if so, to provide it. The intention of the questionnaire was to determine both the extent and nature of school-based concepts or definitions.

The Extent of School-Based Concepts or Definitions of Giftedness and Talent

In regard to having a school-based definition, 46.7% of schools reported having one and 53.3% do not. An analysis by school level shows that school-based definitions are most common in intermediate schools (60.6%) and least common in 'other' schools (36.0%). Forty-five percent of primary schools and 55.7% of secondary schools reported having a school-based definition.

Thirty-six point five percent of rural schools and 51.2% of urban schools reported a school-based definition. Table 11 shows an analysis of school-based definitions by decile. As it shows, more decile 6 – 10 schools (50%) reported having a definition than decile 1 – 5 schools (42.7%).

An analysis in relation to schools using a team approach to coordination shows that 66.0% of these schools have a school-based definition of giftedness and talent; whereas, only 32.5% of schools without this structure have a definition. Similarly, 76.3% of schools having a gifted and talented policy also have a school-based definition; whereas, only 32.0% of schools without a policy have a definition. Of schools currently developing policies, 47.4% have a definition and 52.6% do not.

Table 11. School-Based Concept or Definition by School Decile.

		school has concept/definition of giftedness and talent		Total
		yes	no	
DECILE 1	Count	29	66	95
	% within DECILE	30.5%	69.5%	100.0%
2	Count	39	71	110
	% within DECILE	35.5%	64.5%	100.0%
3	Count	61	55	116
	% within DECILE	52.6%	47.4%	100.0%
4	Count	58	57	115
	% within DECILE	50.4%	49.6%	100.0%
5	Count	60	82	142
	% within DECILE	42.3%	57.7%	100.0%
6	Count	64	67	131
	% within DECILE	48.9%	51.1%	100.0%
7	Count	63	72	135
	% within DECILE	46.7%	53.3%	100.0%
8	Count	52	66	118
	% within DECILE	44.1%	55.9%	100.0%
9	Count	80	67	147
	% within DECILE	54.4%	45.6%	100.0%
10	Count	80	67	147
	% within DECILE	54.4%	45.6%	100.0%
99	Count	9	8	17
	% within DECILE	52.9%	47.1%	100.0%
Total	Count	595	678	1273
	% within DECILE	46.7%	53.3%	100.0%

The Nature of School-Based Definitions of Giftedness and Talent

Respondents were asked to provide their school-based definition. A range of responses was received; however, many were not definitions or concepts. For example, approximately 66 schools described identification procedures; another 49 stated that definitions were being developed; and 25 made related comments. Behaviours or characteristics associated with giftedness and talent were provided by approximately 24 respondents. Ten respondents stated that “all children are gifted.” Finally, four schools indicated that definitions varied amongst teachers or departments, and as such, there was not a school-based definition. These respondents did not provide any of the different definitions, for example, two respondents wrote:

... on a subject by subject base – it’s a bit dodgy!

Our teachers have their own concepts in their minds. Nothing formal.

Upon analysis of the definitions provided, several recurring themes arise: multicategorical concepts or definitions; gifted and talented students performing, or with the potential to perform, at exceptional levels in relation to their peers; acknowledgement that giftedness and talent is found in all societal groups; and gifted and talented students’ need for a differentiated educational experience. It is important to note that most definitions included one or more of these elements; however, only a small number of school-based definitions included ‘all the pieces of the puzzle.’

Multicategorical concepts or definitions. Of the 300 schools who did provide a definition or concept, the majority (approximately 251) acknowledged gifts and talents in one or more areas. Some definitions did not indicate specific areas, but simply stated ‘any’ area. Others were quite specific and reflected the areas of giftedness and talent outlined in the array of definitions and concepts outlined by the Ministry of Education (2000). A few definitions were contextually based, acknowledging the special character of the school. For example, one multicultural Catholic school stated:

... we acknowledge the special abilities that our children may have within the cultural and spiritual domains.

Included in this group of multicategorical definitions were adaptations to or the adoption of Renzulli's *Three-Ring Concept of Giftedness* (47) and Gardner's *Multiple Intelligences* (18). Thirteen schools utilise Gagné's *Differentiated Model of Giftedness and Talent*. One school stated that it used the Marland definition. Approximately 25 schools stated that their definitions were based upon the Ministry of Education handbook (2000) or initiatives document (2002), both of which acknowledge multicategorical definitions. However, the handbook does not give a definition of giftedness and talent, but rather a wide range of possible definitions and as such it is unclear exactly how these schools are defining giftedness. As one respondent stated:

Hazy – follow Ministry of Education guidelines.

Only five schools reported uni-dimensional definitions of giftedness and these were all based upon academic giftedness only.

Exceptionality in relation to peers. Approximately 144 schools provided definitions which acknowledge the exceptional abilities of gifted and talented students in relation to their peers. Of these, 25 definitions indicated benchmarks of performance which ranged from one to four years above their chronological-age and the top 1-15% of students in their age group. These definitions included phrases like, "above the norm," "beyond their age," and "above what is expected." Adjectives such as exceptional, advanced, above-average, extraordinary, high, superior, and outstanding are used to describe gifted and talented students in relation to their peers. Some definitions described students who "stand out," "shine," "show flair" or "bubble up." Only a few definitions acknowledged exceptionality in relation to other factors, such as experience, culture, and environment.

Potential and performance. Approximately 23 schools provided definitions which appear to be performance-based only. These definitions made reference to students who "display" their abilities and "excel consistently." However, approximately 63 definitions acknowledged both potential and/or performance. For example, one school's definition states:

This may be potential rather than actual.

As another definition acknowledged, gifted and talented students:

... have the potential to go beyond the known.

Inclusive of all groups in society. Only eight definitions recognised the presence of giftedness across different ethnic, socioeconomic, cultural, and gender groups, and amongst those with disabilities. An example of an inclusive statement of this nature, taken from one definition, is:

They may be found in both sexes, all cultures, from all socio-economic groups and from the disabled population.

Another definition states:

These students are recognised and represented in all economic, ethnic, cultural and racial backgrounds.

A differentiated education. Approximately 21 definitions indicated the need for gifted and talented students to be provided with a differentiated education. As one definition states:

The uniqueness of the gifted renders them particularly vulnerable and requires modifications to parenting, teaching, and counselling in order for them to develop optimally.

Some schools recognised the potential ‘mismatch’ between the educational needs of gifted and talented students and ‘regular’ provisions. For example, one definition included this statement:

Gifted and talented children ... need specific educational programmes that most schools are unable to provide through their normal curriculum delivery.

Some of the definitions reported were inclusive of all of the elements previously described:

Exceptionally able children who possess an innate capacity to perform at an exceptionally high level when they are part of an environment that challenges them, gains their commitment and provides them with opportunities to learn and practice. They may be found in both sexes, all cultures, from all socioeconomic groups and from the disabled population. Children may display abilities in the areas of general intellectual ability, specific academic aptitudes, creative and productive thinking, visual and performing arts, social leadership or psychomotor ability.

We welcome and celebrate the fact that there are gifted and talented students in all areas of school life – academic, creative, sporting, and social. They come from all backgrounds and show above-average ability and/or commitment in one or more areas. They have particular personal and learning needs which we need to identify and nurture, in the same way that we respond to specific needs of other identified groups.

Gifted and talented students have significantly different learning needs from other students. Māori perspectives and values must be included when defining, identifying and providing programmes. Gifted and talented students may require emotional and social support to realise their potential. As teachers we must recognise potential as well as demonstrated ability and plan and implement programmes which provide rich and challenging experiences for these students.

Summary: School-Based Concept or Definition of Giftedness and Talent

Less than half of the responding schools reported a school-based concept or definition for gifted and talented students. Factors such as school type, decile, and locality (rural/ urban) seem to have some impact upon the existence of a school-based definition. Intermediate schools and higher decile schools (6-10) most frequently report school-based concepts or definitions – in relation to other school types and deciles. Overall coordination and written documentation to support gifted and talented education also increase the likelihood of schools having a concept/definition. However, in written responses many schools did not actually report a definition, but rather described identification procedures or behaviours associated with giftedness. The definitions which were reported were mostly multicategorical, acknowledging gifts and talents in one or more of a variety of areas. A small number of schools reported definitions which acknowledged not only multiple areas, but also recognised potential and performance, exceptionalism, inclusiveness, and differentiated educational needs.

FORMAL IDENTIFICATION OF GIFTED AND TALENTED STUDENTS

The questionnaire probed responding schools' identification of gifted and talented students. Firstly, it queried the extent of formal identification over the last 12 months. The nature of identification methods, areas of giftedness and talent identified, and year levels of identification were also of importance. This section begins by examining the 'big picture' of formal identification. It then examines the extent and nature of identification across areas of giftedness: intellectual/academic; creativity; visual and performing arts; social/leadership; culture-specific; and physical/sport. For the purposes of the questionnaire, these areas were defined for respondents as follows:

We recognise that giftedness and talent will mean different things to different people. However, for the purposes of this questionnaire, the following areas of ability are used as described below:

- **Intellectual/Academic** refers to students with exceptional abilities in one or more of the essential learning areas (i.e., language and languages, mathematics, technology, health and physical education, social sciences, science, the arts).
- **Creativity** refers to students with general creative abilities as evidenced in their abilities to problem-find and problem-solve, and their innovative thinking and productivity.
- **Expression through the Visual and Performing Arts** refers to music, dance, drama and visual arts.
- **Social/Leadership** refers to students with interpersonal and intrapersonal abilities and qualities which enable them to act in leadership roles.
- **Culture-Specific Abilities and Qualities** refers to those valued by the student's cultural or ethnic group, including traditional arts and crafts, pride in cultural identity, language ability and service to the culture.
- **Expression through Physical/Sport** refers to students with excellent physical abilities and skills, as evidenced through sport and/or health and physical education programmes.

Within this framework, we also recognise that concepts of giftedness and talent must be contextualised, and in doing so your school's concepts may or may not 'fit' our categorisation. We recommend that in identifying your school's areas of ability you consider the major focus of your identification and provision. Alternatively, you may use the 'other' option, specifying the area of ability.

Schools were asked to report the methods of identification used for determining abilities in each of these areas. The following methods of identification were given: teacher observation/nomination; teacher rating scales/checklists; achievement tests; IQ tests; teacher-made tests; portfolios; auditions/performances; parent nomination; self-nomination; peer nomination; and whānau nomination. Additionally, respondents were asked to indicate the level at which identification occurred (i.e., schoolwide, NE-Year 2, Years 3-4, 5-6, 7-8, 9-10, 11-12 or a combination).

The Extent of Formal Identification

Schools were asked to indicate whether gifted and talented students had been formally identified over the last 12 months: 60.3% of schools reported that they had been; 39.7% had not. Amongst school types, 58.4% of primary schools, 78.9% of intermediate schools, 70.5% of secondary schools, and 42.0% of 'other' schools have undertaken formal identification. Formal identification was reported by 46.4% of rural schools and 66.4% of urban schools.

Table 12. Formal Identification by Decile.

Formal Identification of Gifted and Talented Students in Last 12 Months by Decile

			formally identified gifted and talented students in the last 12 months		Total
			yes	no	
DECILE 1	Count		43	52	95
	% within DECILE		45.3%	54.7%	100.0%
2	Count		54	56	110
	% within DECILE		49.1%	50.9%	100.0%
3	Count		66	50	116
	% within DECILE		56.9%	43.1%	100.0%
4	Count		72	43	115
	% within DECILE		62.6%	37.4%	100.0%
5	Count		86	56	142
	% within DECILE		60.6%	39.4%	100.0%
6	Count		81	50	131
	% within DECILE		61.8%	38.2%	100.0%
7	Count		84	51	135
	% within DECILE		62.2%	37.8%	100.0%
8	Count		76	42	118
	% within DECILE		64.4%	35.6%	100.0%
9	Count		100	47	147
	% within DECILE		68.0%	32.0%	100.0%
10	Count		94	53	147
	% within DECILE		63.9%	36.1%	100.0%
99	Count		12	5	17
	% within DECILE		70.6%	29.4%	100.0%
Total	Count		768	505	1273
	% within DECILE		60.3%	39.7%	100.0%

Table 12 shows an analysis of formal identification in relation to school decile. As school decile increases, so too does the likelihood of formal identification, with 55.5% of decile 1 to 5 schools and 64.2% of decile 6 to 10 schools reporting identification.

Schools employing a team approach to overall coordination of gifted and talented education are far more likely to formally identify students: 78% of schools with a coordinating group undertook formal identification; in contrast, only 47.3% of schools without a committee or coordinating group formally identified gifted students. In schools with a specific policy for gifted and talented students, 82.0% reported formal identification. The same pattern is seen in relation to school-based definitions, with 78.3% of schools reporting a definition also reporting formal identification; yet only 55.5% of those without a definition reported formally identifying gifted and talented students.

The Nature of Formal Identification

The frequencies for this section are based upon the 768 schools reporting formal identification. The areas of giftedness and talent and identification methods utilised in the last 12 months are reported.

Areas of giftedness and talent formally identified. As shown in Table 13 students were identified across all areas, with intellectual/academic giftedness the most frequently identified, and culture-specific abilities and qualities least frequently identified.

Table 13. Areas of Giftedness and Talent Formally Identified.

Areas of Formal Identification	Frequency	Percent
Intellectual/Academic (in any of the essential learning areas)	727	94.6
Expression through the Visual/Performing Arts	492	64.1
Creativity	487	63.4
Expression through Physical/Sport	486	63.3
Social/Leadership	473	61.6
Culture-Specific Abilities and Qualities	333	43.4

Forty schools (5.2%) formally identified students in other areas. These mainly focused upon behavioural characteristics such as curiosity, independence, motivation, and self-determination. Five schools reported identification in information and communication technologies and four reported identification in creative or lateral thinking. Two schools formally identify students with spiritual abilities and qualities. Identification in te reo Māori and bilingualism were included by two schools.

Schools reported identification across multiple areas of ability, with 48.0% identifying in more than four areas and 33.2% identifying two to four areas. Only 18.8% of the sample, had in the last year, formally identified gifted and talented students in only one area of ability. Seventy-five percent of intermediate schools which formally identify gifted and talented students indicated identification in more than four areas. This is contrasted by secondary schools, of which only 35.2% reported identification in more than four areas. Table 14 shows the number of identified areas of ability by school type.

Table 14. Number of Areas of Ability Identified by School Type.

School Type		One Area	Two to Four Areas	More than Four Areas	
Primary	Count	111	199	276	586
	% within	18.9%	34.0%	47.1%	100.0%
Intermediate	Count	4	10	42	56
	% within	7.1%	17.9%	75.0%	100.0%
Secondary	Count	26	42	37	105
	% within	24.8%	40.0%	35.2%	100.0%
Other	Count	3	4	14	21
	% within	14.3%	19.0%	66.7%	100.0%
Total	Count	144	255	369	768
	% within	18.8%	33.2%	48.0%	100.0%

Identification methods. Schools were asked to indicate the types and frequencies of methods of identification being used for formal identification. Their use was to be reported on a scale of 1 to 4, with 1 being ‘always’ and 4 being ‘never.’ However, many schools did not indicate this, but simply ticked the method used. For the purposes of this analysis schools reporting ‘always’ (1) or ‘sometimes’ (2), as well as those who just ticked the method of identification, have been coded as positive responses. Those reporting ‘rarely’ (3), ‘never’ (4), or who gave no response have been coded as negative responses.

The frequencies for this section are based upon the 768 schools reporting formal identification. Schools reported using the full range of identification methods, with the most commonly used method, across all areas, being teacher observation. Of the 768 schools formally identifying gifted and talented students, 96.9% reported use of teacher observation. The least frequently reported forms of identification were IQ testing (13.8%) and whānau nomination (18.6%). Table 15 shows the frequency of reported methods across all areas of ability.

Table 15. Identification Methods: All Areas of Giftedness and Talent.

Identification Method	Utilised to Identify Giftedness and Talent: All Areas	
	Frequency	Percent
Teacher Observation	744	96.9%
Achievement Tests	661	86.1%
Teacher Rating Scales	463	60.3%
Teacher-Made Tests	455	59.2%
Auditions/Performances	454	59.1%
Portfolios	384	50.0%
Parent Nomination	375	48.8%
Self-Nomination	301	39.2%
Peer Nomination	397	38.7%
Whānau Nomination	143	18.6%
IQ Tests	106	13.8%

Methods of identification, however, vary dependent upon the area of ability being formally identified. An analysis of the methods of identification and year levels of identification in relation to each area of ability gives a much clearer picture of formal identification of gifted and talented students over the last 12 months. This is reported in the following section.

Identification of Intellectual and Academic Gifts and Talents

This section reports the frequencies of responses from the 727 schools reporting formal identification of special abilities in intellectual and academic areas.

Nearly half of the 727 schools (47.3%) reported formal identification of intellectually and academically gifted students schoolwide. An analysis by school type indicates that 44.5% of the 553 primary schools undertaking formal identification are doing so schoolwide; 21.9% identifying in Years 3-4, 12.7% identifying in Years 5-6, and 5.2% identifying in Years 7-8. Fifteen point seven percent of primary schools did not indicate the year levels in which identification takes place. All of the 55 intermediate schools reported identifying schoolwide (Years 7 and 8). Of the 100 secondary schools reporting identification of intellectual/academic abilities 39.0% do so in Years 9-10. Seven percent reported identification in Years 7-8 and 2% in Years 11-12. Schoolwide identification was reported by 37% of the secondary schools. Fifteen percent of the secondary schools did not indicate the year levels. The 19 'other' schools gave a range of responses, however, a large number (42.1%) reported schoolwide identification. An analysis by decile rating shows that 44.7% of decile 1-5 schools and 49.1% of decile 6-10 schools are formally identifying academic and intellectual abilities schoolwide.

Table 16 shows the types of identification methods being used to identify intellectual and academic abilities by the 727 schools undertaking formal identification.

Table 16. Identification Methods: Intellectual/Academic.

Identification Method	Utilised to Identify Intellectual/Academic Giftedness	
	Frequency	Percent
Teacher Observation	684	94.1%
Achievement Tests	652	89.7%
Teacher-Made Tests	402	55.3%
Teacher Rating Scales	398	54.7%
Portfolios	314	43.2%
Parent Nomination	278	38.2%
Auditions/Performances	152	20.9%
Self-Nomination	134	18.4%
IQ Tests	96	13.2%
Peer Nomination	90	12.4%
Whānau Nomination	46	6.3%

As can be seen, the most often utilised methods are teacher observation (94.1%) and achievement tests (89.7%). Least frequently reported methods of identification are whānau nomination (6.3%) and peer nomination (12.4%). The number of identification methods being employed ranges from one method to multiple methods. However, almost half of schools (49.1%) indicated use of between two and four methods of identification. Only 4.6% of the schools formally identifying intellectual and academic abilities relied upon one method.

Identification of Creative Gifts and Talents

This section reports the frequencies for the 487 schools reporting formal identification of special abilities in creativity.

Approximately half of the 487 schools (51.7%) are formally identifying creatively gifted students schoolwide. An analysis by school type indicates that 48.9% of 380 primary schools undertaking formal identification of creative students are doing so schoolwide; 21.3% identifying in Years 3-4, 12.9% identifying in Years 5-6, and 4.2% identifying in Years 7-8. Twelve point six percent of primary schools did not indicate the year levels in which identification takes place. All 46 of the intermediate schools reported identifying schoolwide (Years 7 and 8). Approximately a third of the 46 secondary schools reporting identification of creative abilities do so in Years 9-10 (34.8%). Six point five percent report identification in Years 7-8 and 32.6% schoolwide. Twenty-six point one percent of the secondary schools did not indicate the year levels. ‘Other’ schools (n = 15) gave a range of responses, however, almost half (46.7%) reported schoolwide identification. An analysis by decile rating shows that 48.9% of decile 1-5 schools and 53.8% of decile 6-10 schools are formally identifying creative abilities schoolwide.

Table 17 shows the types of identification methods being used to identify creative abilities by the 487 schools undertaking formal identification. As can be seen, the most often utilised methods are teacher observation (95.5%) and teacher rating scales (49.9%) closely followed by auditions and performances (48.9%). The least frequently reported method of identification is IQ testing (4.7%). In comparison with identification methods used for determining intellectual and academic strengths and interests, the use of auditions and performances is more frequently utilised in identifying creative abilities, and reliance upon achievement test scores decreases.

Table 17. Identification Methods: Creativity.

Identification Method	Utilised to Identify Creative Giftedness and Talent	
	Frequency	Percent
Teacher Observation	471	95.5%
Teacher Rating Scales	243	49.9%
Auditions/Performances	238	48.9%
Portfolios	205	42.1%
Teacher-Made Tests	149	30.6%
Achievement Tests	102	20.9%
Peer Nomination	100	20.5%
Parent Nomination	175	13.9%
Self-Nomination	125	9.9%
Whānau Nomination	44	9.0%
IQ Tests	23	4.7%

The number of identification methods being employed ranges from one method to all methods. However, the majority of schools (50.6%) indicated use of between two and four methods of identification. Only 14% of the schools formally identifying creative abilities relied upon one method.

Identification of Gifts and Talents in Visual and Performing Arts

This section reports the frequencies for the 492 schools reporting formal identification of special abilities in the visual and performing arts.

Half of schools are formally identifying gifted and talented visual and performing artists schoolwide. An analysis by school type indicates that 45.5% of the 374 primary schools undertaking formal identification in the visual and performing arts are doing so schoolwide; 18.2% identifying in Years 3-4, 16.2% identifying in Years 5-6, and 4.5% identifying in Years 7-8. Fifteen point five percent of these primary schools did not indicate the year levels in which identification takes place. All intermediate schools (n = 46) reported identifying schoolwide (Years 7 and 8). Almost half of the 46 secondary schools reporting identification of visual and performing arts abilities do so schoolwide (44.6%), with 17.9% at Years 9-10, 5.4% at Years 11-12, and 26.8% not indicating the year levels. 'Other' schools gave a range of responses, however, the most common response reported was schoolwide identification (37.5%). An analysis by decile rating shows that 51.1% of decile 1-5 schools and 49.7% of decile 6-10 schools formally identifying visual and performing arts abilities are doing so schoolwide.

Table 18 shows the types of identification methods being used to identify visual and performing arts abilities by the 492 schools undertaking formal identification. As can be seen, the most often utilised methods are teacher observation (92.9%) and auditions and performances (68.5%). The least frequently reported method of identification is IQ testing (1.4%). Although whānau nomination remains an infrequently used identification method, it does increase slightly in relation to the identification of visual and performing artists.

Table 18. Identification Methods: Visual and Performing Arts.

Identification Method	Utilised to Identify Giftedness and Talent in Visual and Performing Arts	
	Frequency	Percent
Teacher Observation	457	92.9%
Auditions/Performances	337	68.5%
Teacher Rating Scales	208	42.3%
Portfolios	172	35.0%
Parent Nomination	164	33.3%
Peer Nomination	116	23.6%
Self-Nomination	155	12.2%
Whānau Nomination	58	11.8%
Achievement Tests	58	11.8%
Teacher-Made Tests	115	9.0%
IQ Tests	7	1.4%

The number of identification methods being employed ranges from one method to all methods. However, nearly half of schools (49.7%) indicated use of between two and four methods of identification. Only 16% of the schools formally identifying abilities in the visual and performing arts relied upon one method.

Identification of Social/Leadership Gifts and Talents

This section reports the frequencies for the 473 schools reporting formal identification of special social and leadership abilities.

Less than half of these 473 schools (41.9%) are formally identifying social and leadership abilities and qualities schoolwide. An analysis by school type indicates that 35.7% of the 356 primary schools undertaking formal identification are doing so schoolwide; 11.2% identifying in Years 3-4, 25.3% identifying in Years 5-6, and 13.5% identifying in Years 7-8. Fourteen point three percent of primary schools did not indicate the year levels in which identification takes place. All 48 of the intermediate schools that reported identifying social and leadership abilities are doing so schoolwide (Years 7 and 8). Secondary schools reporting identification of social and leadership abilities (n = 54) do so schoolwide (38.9%), with 9.3% at Years 9-10, 25.9% at Years 11-12, and 25.9% not indicating the year levels. 'Other' schools (n = 15) gave a range of responses, however, many did not indicate year levels of identification (40.0%). An analysis by decile rating shows that 38.1% of decile 1-5 schools and 44.6% of decile 6-10 schools formally identifying social and leadership abilities are doing so schoolwide.

Table 19 shows the types of identification methods being used to identify social and leadership abilities by the 473 schools undertaking formal identification. As can be seen, the most often utilised methods are teacher observation (95.6%) and peer nomination (46.5%). The least frequently reported method of identification is IQ testing (1.5%) and achievement tests (9.9%). Unlike other areas, the identification of social and leadership abilities and qualities appears to feature peer and self-nomination more readily.

Table 19. Identification Methods: Social and Leadership Abilities and Qualities.

Identification Method	Utilised to Identify Social and Leadership Abilities and Qualities	
	Frequency	Percent
Teacher Observation	452	95.6%
Peer Nomination	222	46.5%
Teacher Rating Scales	193	40.8%
Self-Nomination	172	36.4%
Auditions/Performances	140	29.6%
Parent Nomination	98	20.7%
Portfolios	80	16.9%
Teacher-Made Tests	74	15.6%
Whānau Nomination	54	11.4%
Achievement Tests	47	9.9%
IQ Tests	7	1.5%

The number of identification methods being employed ranges from one method to all methods. Over half of schools (52.8%) indicated use of between 2 and 4 methods of identification; however, 21.7% of the schools formally identifying social and leadership abilities and qualities reported reliance upon one method.

Identification of Culture-Specific Abilities and Qualities

This section reports the frequencies for the 333 schools reporting formal identification of culture-specific abilities and qualities.

An analysis by school type indicates that identification of culture-specific abilities and qualities is reported most frequently by primary schools (representing 236 of the 333 schools). Across all levels, the majority of schools (57.1%) are formally identifying culture-specific abilities and qualities schoolwide. An analysis by decile rating shows that 57.0% of decile 1-5 schools and 57.4% of decile 6-10 schools formally identifying culture-specific abilities and qualities are doing so schoolwide.

Table 20 shows the types of identification methods being used to identify culture-specific abilities and qualities by the 333 schools undertaking formal identification.

Table 20. Identification Methods: Culture-Specific Abilities and Qualities

Identification Method	Utilised to Identify Culture-Specific Abilities and Qualities	
	Frequency	Percent
Teacher Observation	303	91.0%
Auditions/Performances	182	54.7%
Parent Nomination	136	40.8%
Teacher Rating Scales	126	37.8%
Self-Nomination	126	37.8%
Peer Nomination	116	34.8%
Whānau Nomination	105	31.5%
Portfolios	71	21.3%
Teacher-Made Tests	61	18.3%
Achievement Tests	45	13.5%
IQ Tests	7	2.1%

As can be seen, the most often utilised methods are teacher observation (91.0%) and auditions and performances (54.7%). The least frequently reported method of identification is IQ testing (2.1%) and achievement tests (13.5%). Whānau nomination is more utilised in the identification of culture-specific gifts and talents than in other areas of abilities and qualities. Peer, self, and parent nomination are also relatively high.

The number of identification methods being employed ranges from one method to all methods. Nearly half of schools (45.5%) indicated use of between 2 and 4 methods of identification; however, 16.1% of the schools formally identifying culture-specific abilities and qualities reported use of only one method.

Identification of Physical/Sport Gifts and Talents

This section reports the frequencies for the 486 schools reporting formal identification of special physical and sport abilities.

Nearly half of the 486 schools (47.7%) are formally identifying physical and sport abilities schoolwide. An analysis by school type indicates that 52.5% of 367 primary schools undertaking formal identification of physical abilities are doing so schoolwide; 15.3% identifying in Years 3-4, 10.6% identifying in Years 5-6, and 2.5% identifying in Years 7-8. Nineteen point one percent of primary schools did not indicate the year levels in which identification takes place. All 48 of the intermediate schools reported identifying schoolwide (Years 7 and 8). Secondary schools reporting identification of physical and sporting abilities (n = 55) do so schoolwide (53.2%), with 2.1% at Years 7-8, 8.5% at Years 9-10, 6.4% at Years 11-12, and 29.8% not indicating the year levels. The 16 'other' schools gave a range of responses, with 30% indicating schoolwide identification and 30% not indicating year levels of identification. An analysis by decile rating shows that 51.3% of decile 1-5 schools and 45.8% of decile 6-10 schools formally identifying physical and sport abilities are doing so schoolwide.

Table 21 shows the types of identification methods being used to identify physical and sporting abilities by the 486 schools undertaking formal identification. As can be seen, the most often utilised methods are teacher observation (94.4%) and auditions and performances (55.8%) The least frequently reported methods of identification are IQ testing (1.6%) and achievement tests (11.3%).

Table 21. Identification Methods: Physical and Sport Abilities.

Identification Method	Utilised to Identify Physical and Sport Abilities	
	Frequency	Percent
Teacher Observation	459	94.4%
Auditions/Performances	271	55.8%
Teacher Rating Scales	225	46.3%
Parent Nomination	185	38.1%
Self-Nomination	178	36.6%
Peer Nomination	156	32.1%
Teacher-Made Tests	144	29.6%
Portfolios	76	15.6%
Whānau Nomination	61	12.6%
Achievement Tests	55	11.3%
IQ Tests	8	1.6%

The number of identification methods being employed ranges from one method to all methods. Nearly half of schools (47.8%) indicated use of between 2 and 4 methods of identification; however, 16.8% of the schools formally identifying physical and sporting abilities reported use of only one method.

Summary: Formal Identification of Gifted and Talented Students

The majority of responding schools reported formal identification of gifted and talented students. Formal identification is most commonly reported by intermediate schools, followed by secondary, primary, and 'other' schools respectively. As school decile increases, so too does the likelihood of formal identification. Other influences are overall coordination of gifted and talented education and locality (urban/rural). Intellectual and academic abilities are most frequently identified, however most schools report identification across multiple areas. Students with culture-specific abilities and qualities are least often formally identified in schools. Teacher observation is the most common means of identification across all areas. The area of special ability, however, does impact upon the utilisation of some identification methods. For example, whānau nomination is more readily used in the identification of culture-specific abilities and qualities; achievement tests in academic and intellectual areas; and auditions and performance in visual and performing arts.

PROVISIONS FOR GIFTED AND TALENTED STUDENTS

The questionnaire probed responding schools' provisions for gifted and talented students. This section begins by examining preferences regarding enrichment and acceleration, provisions within classrooms and the community, and the use of curriculum or programme models. Schools were also asked to indicate whether school-based provisions had been available for gifted and talented students in the last 12 months. The overall picture of the nature and extent of these provisions across all areas is described, followed by an examination of provisions for the different areas of giftedness and talent. Schools were asked to use the definitions for each area of special ability, as described previously in regards to identification.

Enrichment and Acceleration

The majority of the 1273 responding schools (61.4%) reported a preference for a combination of enrichment and acceleration approaches to provision for their gifted and talented students. However, for those schools not preferring a combined approach, enrichment is more favourably viewed, as 35.9% of schools indicated. Only 2.7% of schools reported a preference for acceleration. Seventy-two schools (5.7%) did not answer this question. An analysis by school level indicates that preferences for a combined approach or an enriched approach vary little across school types. However, 10.6% of secondary schools reported a preference for acceleration, compared with 1.6% of primary schools, 1.5% of intermediate schools, and 2.4% of other schools. Decile ratings of schools do not seem to influence these preferences, with 61.1% of decile 1-5 schools and 61.4% of decile 6-10 schools preferring a combined approach.

Classroom-Based Provisions

Classroom-based provisions for gifted and talented students are reported by 82.4% of the 1273 schools. Only 17.6% of schools indicated that no classroom-based provisions are made for gifted and talented students. An analysis by school type shows that 83.7% of primary schools, 90.1% of intermediate schools, 76.5% of secondary schools, and 62.0% of 'other' schools are making special provisions within classrooms to meet the needs of gifted and talented students. These provisions are reported by 76.0% of decile 1-5 schools and 87.8% of decile 6-10 schools. There is a contrast between decile 1 schools, of which 63.2% provide classroom-based opportunities, and decile 10 schools, of which 90.5% report provisions as is shown in Table 22. In rural schools, 78.4% report classroom-based provisions for gifted and talented students; 84.1% of urban schools reported classroom-based provisions.

Table 22. Classroom-Based Provisions by Decile.

	Classroom-based Provisions for Gifted and Talented Students	
Decile	yes	no
1	63.2%	32.8%
2	74.5%	25.5%
3	79.3%	20.7%
4	80.0%	20.0%
5	79.6%	20.4%
6	89.3%	10.7%
7	86.7%	13.3%
8	87.3%	12.7%
9	85.0%	15.0%
10	90.5%	9.5%
None	88.2%	11.8%
Total	82.4%	17.6%

Of the 1049 schools reporting classroom-based provisions for gifted and talented students, ability grouping within class was the most frequently indicated (86.8%). As Table 23 shows, the least frequently reported classroom-based provisions were the use of a consulting specialist teacher (24.1%) and diagnostic-prescriptive teaching (29.8%).

When respondents were asked to specify if they used any other classroom-based provisions not stipulated as choices in the questionnaire, a range of responses was given. However, a number of respondents misinterpreted this question, stating a range of provisions that were not, 'classroom-based.' Despite this, five main provisions emerged as 'other' classroom based provisions. These were Correspondence School enrolment, the employment of extra staff or specialist teachers (presumably to work in classrooms), specific in-class projects such as 'Kids in Charge' and enterprise projects, small group withdrawal (again, presumably working within classrooms), and specific classes for high ability students.

Table 23. Classroom-Based Provisions.

Classroom-Based Provisions	Frequency	Percent
Ability Grouping	911	86.8%
Independent Study	756	72.1%
Teacher Planning	442	42.1%
Learning Centres	415	39.6%
Individualised Education Plans	370	35.3%
Diagnostic-Prescriptive Teaching	313	29.8%
Consulting Specialist Teacher	253	24.1%
Other	134	12.8%

Community-Based Provisions

Community-based provisions for gifted and talented students were reported by 46.1% of the 1273 responding schools. An analysis by school type shows that 48.0% of primary schools, 54.9% of intermediate schools, 34.9% of secondary schools, and 30.0% of other schools are utilising community-based provisions for gifted and talented students.

Table 24. Community-Based Provisions by Decile.

Decile	Community-based Provisions for Gifted and Talented Students	
	yes	no
1	28.4%	71.6%
2	37.3%	62.7%
3	42.2%	57.8%
4	52.2%	47.8%
5	43.0%	57.0%
6	47.3%	52.7%
7	50.4%	49.6%
8	46.6%	53.4%
9	50.3%	49.7%
10	55.1%	44.9%
None	52.9%	47.1%
Total	46.1%	53.9%

As Table 24 shows, the likelihood of schools utilising community-based provisions seems to increase with decile rating: 28.4% of decile 1 schools utilise community-based provisions in contrast to 55.1% of decile 10 schools.

These provisions are reported by 41.2% of decile 1-5 schools and 50.1% of decile 6-10 schools. In rural schools, 37.8% report community-based provisions for gifted and talented students; 49.7% of urban schools report the same.

Of the 587 schools reporting community-based provisions, 40.9% indicate utilisation of the Correspondence School and 39.5% indicate using one-day-a-week programmes (e.g., One Day School, Gifted Kids Programme). School clusters or networks are reported by 25.0% of schools and other provisions within the community are reported by 29.6%. A variety of community-based provisions was named by respondents, and included support from tertiary institutions, school advisers, outside experts, holiday programmes and mentors. The most favoured support was the use of outside experts (including parents) and mentors in specific areas. Tertiary institutions provided the next most commonly-reported type of support and included support in areas such as philosophy and languages. Schools accessed support from gifted and talented advisers and also advisers in specific curriculum areas. Eight respondents cited information technologies such as websites and video conferencing. A few respondents made use of enrichment camps, holiday programmes, Rural Education Activities Programme (REAP), the local intermediate or high school, wananga, and community resources such as the city council, art gallery, museum and library.

Curriculum and Programme Models

The majority of schools (84.8%) do not report use of a curriculum or programme model as a framework for provisions for gifted and talented students. Only 15.2% of the responding schools reported use of a model. Intermediate schools most frequently report use of a curriculum or programme model, with 28.2% of these schools indicating such. In primary schools 14.4% indicate their use, 14.1% of secondary schools do so, and 18.0% of 'other' schools use a model. Of schools having a coordinating team or committee 25.7% report use of a curriculum model; whereas, of schools without a coordinating team or committee only 7.5% utilise a curriculum model. Thirty-three point eight percent of schools with a policy specific to gifted and talented students utilise a model; whereas only 6% of schools without a policy utilise a curriculum model.

Schools were asked to indicate the curriculum or programme models being employed in their schools. A range of responses was received, some of which clearly stated a curriculum model or models, but

many others did not. For example, 18 schools reported on their identification procedures; four schools simply wrote, “it all depends”; two stated that this was an area being developed; and two schools indicated that they were “using an adviser.” Approximately 20 schools replied with teaching strategies or provisions, as opposed to curriculum or programme models, and these included DeBono’s Thinking Hats, inquiry learning, critical thinking, action learning, integration, acceleration, ‘Challenge Club,’ and Successmaker. Two schools indicated use of the Ministry of Education handbook (2000) and three reported use of the New Zealand Curriculum Framework.

The most frequently cited model was the Enrichment Triad Model, which was reported by 44 schools. Additionally, fifteen schools utilise the Enrichment Triad in conjunction with another model: Multiple Intelligences (3); Autonomous Learner Model (6); Bloom’s Taxonomy (5); and the Autonomous Learner Model and REACH Model (1). One school reported use of the Schoolwide Enrichment Model. Another school employs the Revolving Door Model in conjunction with Multiple Intelligences.

The second most frequently cited model was the Autonomous Learner Model, as indicated by 26 schools. Additionally, one school reported its use in conjunction with Multiple Intelligences and another with one of the Purdue models (not clarified in the response). As cited above, the Autonomous Learner Model is also used by seven schools in association with the Enrichment Triad Model.

Multiple Intelligences was reported as the sole model employed by five schools, but also used in conjunction with Bloom’s Taxonomy by two schools, as well as in association with the models reported above. Six schools stated that they use models based upon Cathcart’s work; however, it is not clear from the responses if this refers to the REACH model or other works. Two specifically identified the REACH model, whereas the others simply made reference to Cathcart and/or the George Parkyn Centre.

Two schools report use of a variety of approaches, or as one of these respondent states, “a cut-and-paste approach.” Neither of these responses gives any indication which models are being utilised. However, six other schools describe an eclectic approach which integrates up to seven models and/or strategies. These include all of the aforementioned models and strategies, but also Krathwohl’s Taxonomy (affective), Williams’ Matrix, and conceptual themes.

School-Based Provisions for Gifted and Talented Students

Schools were asked whether school-based provisions had been available to gifted and talented students over the last 12 months. Respondents were asked to indicate the types of school-based provisions for each different area of special ability. The following provisions were given as options: cross-age grouping; withdrawal groups; cluster grouping; early entry; concurrent/dual enrolment; full-time special classes; mentorships; competitions; clubs or electives; virtual instruction; external exams; and outside experts. Additionally, respondents were asked to indicate the level at which identification occurred (i.e., schoolwide, NE-Year 2, Years 3-4, 5-6, 7-8, 9-10, 11-12 or a combination).

The extent of school-based provisions. The majority of the 1273 schools (63.6%) indicated that school-based provisions had been made for gifted and talented students in the last 12 months; 36.4% had not made such provisions. An analysis by school level indicates that 62.4% of primary schools, 88.7% of intermediate schools, 67.1% of secondary schools, and 40.0% of ‘other’ schools are providing school-based programmes for gifted and talented students. Table 25 shows an analysis of school-based provisions in relation to decile.

Fifty-seven point three percent of decile 1-5 schools and 68.7% of decile 6-10 schools reported school-based provisions. As decile increases, so too does the likelihood of school-based provisions: 73.5% of schools with a decile rating of 10 reported school-based provisions, in contrast to 44.2% of decile 1 schools. In rural schools, 52.6% reported school-based provisions and 68.3% of urban schools reported the same.

Table 25. School-based Provision by Decile.

Decile	School-based Provisions for Gifted and Talented Students	
	yes	no
1	44.2%	55.8%
2	52.7%	47.3%
3	61.2%	38.8%
4	66.1%	33.9%
5	59.2%	40.8%
6	62.6%	37.4%
7	66.7%	33.3%
8	66.9%	33.1%
9	72.8%	27.2%
10	73.5%	26.5%
None	70.6%	29.4%
Total	63.6%	36.4%

Seventy-eight point four percent of schools with a coordinating team or committee reported providing school-based programmes. However, of schools without a committee or coordinating team, only 52.6% report school-based provisions. Eighty-three point four percent of schools with a policy specific to gifted and talented students report school-based provisions; 51.4% without a policy report school-based provisions; and 72.4% of those developing policies report school-based provisions. In schools with a definition of gifted and talented, 75.5% indicate also having school-based provisions, 53.1% of schools without a definition report school-based provisions. Eighty-five percent of schools that have formally identified gifted and talented students in the last 12 months also indicate school-based provisions. Thirty point nine percent of schools that did not formally identify gifted and talented students in the last 12 months, reported school-based provisions.

The nature of school-based provisions. The frequencies for this section are based upon the 809 schools reporting school-based provisions for gifted and talented students. The areas of giftedness and talent and the specific school-based provisions utilised are reported.

Areas of giftedness and talent. As shown in Table 26 students were provided for across all areas, with the most frequently reported provisions for students with intellectual/academic abilities, and the least frequent for students with culture-specific abilities and qualities. In relation to formal identification, the same pattern was seen, with intellectual/academic abilities most frequently identified, and culture-specific abilities least frequently identified.

Thirty-one schools (3.8%) provided school-based programmes for students gifted and talented in other areas. However, only six of these reported the areas and these included: languages (2); school competitions; information and communications technologies; art; and thinking skills.

Table 26. School-Based Provisions: Areas of Giftedness and Talent.

Areas for Which Provision is Made	Frequency	Percent
Intellectual/Academic	765	94.6%
Visual/Performing Arts	466	57.6%
Physical/Sport	462	57.1%
Creativity	433	53.5%
Social/Leadership	370	45.7%
Culture-Specific	294	36.3%

Schools reported provisions across multiple areas of ability, with 40.0% providing special programmes for two to four areas of ability. Similarly, 36.5% indicated programmes for more than four different types of special abilities. However, 23.5% made provisions for only one area of ability.

Table 27. Number of Areas of Ability Provided for By Schools.

		One Area	Two-Four Areas	More than Four Areas	
	Count	150	262	214	626
	% within	24.0%	41.9%	34.2%	100.0%
	Count	6	11	46	63
	% within	9.5%	17.5%	73.0%	100.0%
	Count	30	45	25	100
	% within	30.0%	45.0%	25.0%	100.0%
	Count	4	6	10	20
	% within	20.0%	30.0%	50.0%	100.0%
	Count	190	324	295	809
Total	% within	23.5%	40.0%	36.5%	100.0%

Table 27 shows the number of areas for which provisions are made by school type. As it indicates, of all school levels, intermediate schools are most likely to be providing special programmes in four or more special ability areas, as reported by 73.0% of schools at that level.

Types of provisions. The frequencies for this section are based upon the 809 schools which reported school-based provisions. Schools reported programmes which spanned the continuum of possible provisions for all areas of special abilities. Table 28 shows the frequency of reported school-based provisions across all areas of giftedness and talent.

Table 28. School-Based Provisions: All Areas of Giftedness and Talent.

School-Based Provision	Utilised for Gifted and Talent: All Areas	
	Frequency	Percent
Withdrawal Group	626	77.4%
Competitions	537	66.4%
Cross-Age Grouping	525	64.9%
Outside Expert	433	53.5%
External Exams	416	51.4%
Clubs or Electives	349	43.1%
Cluster Grouping	306	37.8%
Mentorships	194	24.0%
Virtual Instruction	164	20.3%
Concurrent/Dual Enrolment	150	18.5%
Full-time Special Class	76	9.4%
Early Entry	67	8.3%

Of the 809 schools providing school-based programmes for the gifted and talented, 77.4% reported withdrawal programmes. Cross-age grouping and competitions were also readily reported, by 64.9% and 66.4% of respondents respectively. The least frequently cited provision was early entry (8.3%) and full-time special classes (9.4%). School-based provisions, however, vary dependent upon the area of ability. An analysis of the types of provisions and year levels of provision in relation to the area of ability gives a much clearer picture of school-based provisions for gifted and talented students.

Provisions: Intellectual/Academic. This section reports frequencies from the 765 schools which provided school-based programmes for intellectually and academically gifted and talented students.

Thirty-nine point two percent of the 765 schools indicated provisions for intellectually and academically gifted and talented students across all levels of the school. An analysis by each school type indicates that although 34.8% of the 589 primary schools are making schoolwide provisions; 24.3% provide special programmes in Years 3-4, 17.8% in Years 5-6, and 4.9% in Years 7-8. Eighteen point two percent of primary schools did not indicate year levels for provisions. For the 95 secondary schools, 36.8% reported schoolwide provisions and 41.1% reported provisions for some year levels. The arrangements varied between schools, but the tendency reported was special provisions at Years 9 and 10 only. Twenty-two point one percent of the secondary schools did not report year levels. All 63 intermediate schools reported schoolwide provisions and seven of the 18 'other' schools indicated the same.

Table 29 shows the frequencies for the provisions made by schools for intellectually and academically gifted and talented students. As the table shows, the most frequently cited provision for gifted and talented students with exceptional intellectual or academic abilities is withdrawal groups (67.6%). Over half of the schools report the use of cross-age grouping (52.7%), competitions (54.4%), and external exams (50.7%) for academically/intellectually gifted students. Early entry is the least frequently provided (7.0%).

Approximately half of the 765 schools (52.8%) provided two to four special programmes for intellectually and academically gifted and talented students. Only 11.8% provided a sole provision.

Table 29. Provisions: Intellectual/Academic Gifted and Talented.

School-Based Provision	Utilised for Gifted and Talent: Intellectual/Academic	
	Frequency	Percent
Withdrawal Group	547	67.6%
Competitions	440	54.4%
Cross-Age Grouping	426	52.7%
External Exams	410	50.7%
Cluster Grouping	267	33.0%
Outside Expert	241	29.8%
Clubs or Electives	202	25.0%
Virtual Instruction	154	19.0%
Concurrent/Dual Enrolment	143	17.7%
Mentorships	91	11.2%
Full-time Special Class	62	7.7%
Early Entry	57	7.0%

Provisions: Creativity. This section reports frequencies from the 433 schools which provided school-based programmes for creatively gifted and talented students. Forty-one point one percent of the schools indicated schoolwide provisions for creatively gifted and talented students. An analysis by each school type indicates that although 37.5% of the 328 primary schools are making schoolwide provisions; 26.5% of those provide special programmes in Years 3-4, 13.7% in Years 5-6, and 3.0% in Years 7-8. Nineteen point two percent of primary schools did not indicate year levels for provisions. Forty-six point five percent of the 43 secondary schools did not report year levels, but schoolwide provisions were reported in 23.3% of the secondary sample. Provisions for the remaining 27.9% of the secondary schools varied between schools, but the tendency reported was to provide special programmes for creatively gifted and talented students at Years 9 and 10 only (23.3%). All 50 intermediate schools reported schoolwide provisions. Amongst the 12 'other' schools, eight did not indicate year levels.

Table 30 shows the frequencies for the provisions made by schools for creatively gifted and talented students. As the table shows, the most frequently cited provision for gifted and talented students with exceptional creative abilities is withdrawal groups (69.1%). Again, early entry is the least frequently provided (3.0%). In comparison to school-based provisions for intellectual/academic abilities, the provision of an outside expert increases for creatively gifted students.

The majority of the 433 schools (57.2%) provided two to four special programmes for creatively gifted and talented students; however 25.8% relied upon only one provision.

Table 30. Provisions: Creatively Gifted and Talented.

School-Based Provision	Utilised for Gifted and Talent: Creativity	
	Frequency	Percent
Withdrawal Group	299	69.1%
Cross-Age Grouping	194	44.8%
Outside Expert	187	43.2%
Competitions	154	34.6%
Clubs or Electives	141	32.6%
Cluster Grouping	96	22.2%
Mentorships	50	11.5%
Virtual Instruction	47	10.9%
External Exams	35	8.1%
Concurrent/Dual Enrolment	22	5.1%
Full-time Special Class	19	4.4%
Early Entry	13	3.0%

Provisions: Visual and performing arts. This section reports frequencies from the 466 schools which provided school-based programmes for gifted and talented students in the visual and performing arts. Forty-one point four percent of the schools indicated schoolwide provisions for intellectually and academically gifted and talented students. An analysis by each school type indicates that although 36.8% of the 348 primary schools are making schoolwide provisions, 21.3% provide special programmes in Years 3-4, 16.4% in Years 5-6, and 4.6% in Years 7-8. Twenty-one percent of primary schools did not indicate year levels for provisions. Schoolwide provisions were reported by 35.4% of the 48 secondary schools, and 18.8% reported special programmes for creatively gifted and talented students at Years 9 and 10 only. All 55 intermediate schools reported schoolwide provisions. Of the 15 'other' schools, nine did not indicate year levels.

Table 31 shows the frequencies for the provisions made by schools for gifted and talented students in the visual and performing arts. As the table shows, the most frequently cited provision for gifted and talented students with abilities in the visual and performing arts is withdrawal groups (61.2%), outside experts (45.5%), and cross-age grouping (44.4%). Early entry and dual/concurrent enrolment are the least frequently provided (2.4% and 2.6% respectively). The use of clubs or electives increases slightly in relation to other areas of ability.

Table 31. Provisions: Gifted and Talented in the Visual and Performing Arts.

School-Based Provision	Utilised for Gifted and Talent: Visual and Performing Arts	
	Frequency	Percent
Withdrawal Group	285	61.2%
Outside Expert	212	45.5%
Cross-Age Grouping	207	44.4%
Clubs or Electives	177	38.0%
Competitions	148	31.8%
Cluster Grouping	72	15.5%
Mentorships	41	8.8%
External Exams	21	4.5%
Virtual Instruction	21	4.5%
Full-time Special Class	18	3.9%
Concurrent/DualEnrolment	12	2.6%
Early Entry	11	2.4%

The majority of schools (55.2%) provided two to four special programmes for gifted and talented students in performing and visual arts; however, 32.2% relied upon only one provision. The provision of one special programme for visual and performing arts is more likely than it is for intellectually and academically gifted and talented students (for which only 11.8% of schools reported one provision).

Provisions: Social and leadership. This section reports frequencies from the 370 schools which provided school-based programmes for gifted and talented students with social and leadership abilities and qualities. Twenty-eight point nine percent of the 370 schools indicated schoolwide provisions for gifted and talented students with social and leadership abilities and qualities. An analysis by each school type indicates that although 21.6% of the 278 primary schools are making schoolwide provisions, 7.6% provide special programmes in Years 3-4, 27.7% in Years 5-6, and 16.9% in Years 7-8. Twenty-six point three percent of primary schools did not indicate year levels for provisions. Schoolwide provisions were reported by 20.5% of the 43 secondary schools; however, 28.2% reported provisions at Years 11-12 only. All of the 43 intermediate schools reported schoolwide provisions. Of the 10 'other' schools, six did not indicate year levels.

Table 32 shows the frequencies for the provisions made by schools for gifted and talented students with social and leadership abilities. As the table shows, the most frequently cited provision for gifted and talented students with exceptional social and leadership abilities is withdrawal groups (54.1%) and cross-age grouping (40.0%). Early entry is the least frequently provided (1.6%). The opportunity for mentorships to develop social and leadership abilities (28.3%) increases in relation to other areas of giftedness and talent.

The likelihood of the provision of more than one special programme opportunity seems to decline for students with social and leadership abilities and qualities in relation to other areas of special ability. Of schools making provisions for this area, 46.7% reported only one provision. However, 46.7% did indicate two to four provisions for students with special social and leadership abilities and qualities.

Table 32. Provisions: Social and Leadership Abilities and Qualities.

School-Based Provision	Utilised for Gifted and Talent: Social and Leadership	
	Frequency	Percent
Withdrawal Group	200	54.1%
Cross-Age Grouping	148	40.0%
Mentorships	105	28.3%
Outside Expert	99	26.8%
Clubs or Electives	75	20.3%
Competitions	44	11.9%
Cluster Grouping	35	9.5%
Virtual Instruction	16	4.3%
External Exams	15	4.1%
Full-time Special Class	9	2.7%
Concurrent/Dual Enrolment	8	2.2%
Early Entry	6	1.6%

Provisions: Culture-specific abilities and qualities. This section reports frequencies from the 294 schools which provided school-based programmes for gifted and talented students with special culture-specific abilities and qualities. Forty-four point six percent of these schools indicated schoolwide provisions for gifted and talented students in this area. Given that 27.6% did not indicate year levels of provision and the responding number is so small, an analysis by school type has not been conducted.

Table 33 shows the frequencies for the provisions made by schools for students with culture-specific abilities and qualities. As the table shows, the most frequently cited provision for gifted and talented students with culture-specific abilities and qualities is withdrawal groups (56.8%) and outside experts (52.0%). The use of outside experts increased slightly in relation to other areas of ability. The majority of schools (59.0%) indicated offering two to four provisions for students with culture-specific abilities and 28.1% relied upon one provision.

Table 33. Provisions: Culture-Specific Abilities and Qualities.

School-Based Provision	Utilised for Gifted and Talent: Culture-Specific Abilities and Qualities	
	Frequency	Percent
Withdrawal Group	167	56.8%
Outside Expert	153	52.0%
Cross-Age Grouping	145	49.3%
Clubs or Electives	128	43.5%
Competitions	94	32.0%
Cluster Grouping	41	13.9%
Mentorships	39	13.3%
External Exams	16	5.4%
Full-time Special Class	14	4.8%
Virtual Instruction	12	4.1%
Early Entry	10	3.4%
Concurrent/Dual Enrolment	9	3.1%

Provisions: Physical/Sport. This section reports frequencies from the 462 schools which provided school-based programmes for gifted and talented students with exceptional physical and/or sporting abilities. Thirty-four point four percent of the schools indicated schoolwide provisions for these gifted and talented students. An analysis by each school type indicates that although 26.9% of the 346

primary schools are making schoolwide provisions, 23.7% provide special programmes in Years 3-4, 22.3% in Years 5-6, and 3.5% in Years 7-8. Twenty-three point seven percent of primary schools did not indicate year levels for provisions. Schoolwide provisions were reported by 36.7% of the 49 secondary schools and 36.7% did not indicate year levels. All 52 intermediate schools reported schoolwide provisions. Of the 15 'other' schools, eight did not indicate year levels.

Table 34 shows the frequencies for the provisions made by schools for gifted and talented students with physical/sport abilities. Competitions feature as the most frequently cited provision (64.5%), followed by outside experts (51.0%).

Unlike other areas of ability, withdrawal groups do not appear to be the most readily relied upon provision for students with physical/sport abilities. The majority of schools (61.1%) reported two to four provisions for students with special physical and sporting abilities; however, 26.1% of the schools indicated reliance upon one method.

Table 34. Provisions: Physical/Sport Abilities.

School-Based Provision	Utilised for Gifted and Talent: Physical/Sport	
	Frequency	Percent
Competitions	298	64.5%
Outside Expert	236	51.0%
Withdrawal Group	219	47.4%
Clubs or Electives	181	39.2%
Cross-Age Grouping	179	38.7%
Cluster Grouping	53	11.5%
Mentorships	52	11.3%
External Exams	16	3.5%
Early Entry	15	3.2%
Full-time Special Class	15	3.2%
Virtual Instruction	7	1.5%
Concurrent/Dual Enrolment	5	1.1%

Summary: Provisions for Gifted and Talented Students

The majority of schools indicated a preference for a combination of enrichment and acceleration approaches to provision. Amongst schools not preferring both, enrichment is more favourably viewed. Classroom-based provisions are reported as more commonly utilised than school-based or community provisions. Of the classroom-based provisions, ability grouping was the most frequently reported approach, and a consulting teacher and diagnostic-prescriptive teaching the least frequent. Classroom-based and community-based provisions are reported as being utilised more often by urban, high decile, primary, and intermediate schools. These community-based provisions include the Correspondence School and one-day-a-week programmes. A small minority of schools report a curriculum or programme model, and of those the Enrichment Triad Model is most commonly cited. Almost two-thirds of schools reported school-based provisions, with these most likely in place for students with intellectual and academic gifts and talents. Of the six areas of ability, culture-specific abilities and qualities are the least frequently provided for. Most schools report provisions for two to four areas of ability. Across all areas, with the exception of physical and sporting abilities, withdrawal programmes are cited as the most frequent provision. Competitions are most readily utilised for students with physical and sporting abilities. Special classes and early entry are the least frequently reported provisions across all areas of giftedness and talent.

ISSUES RELATED TO FORMAL IDENTIFICATION OF AND PROVISIONS FOR GIFTED AND TALENTED STUDENTS

Respondents were given the opportunity to make any comments regarding their school's identification and provisions for gifted and talented students and 560 respondents chose to do this. The majority of these comments were a further explanation of the information they had provided in the section of the questionnaire related to identification and provision (238 comments). Of interest however, were a number of other comments that highlighted a range of issues for schools in relation to their identification and provision practices.

Ninety-four respondents commented on either their school's lack of attention to the identification of and provisions for gifted and talented learners, or the fact that they were just starting to develop policies and practices in this area. For most of these respondents, this was an area of concern to them, and their comments indicated a genuine desire to improve. Many pointed out that this was to be a staff development focus this year or next and policies were in the process of being developed:

We don't do much at this stage as we are focusing on other school priorities, but we try to deal with individual students as/when they appear rather than actively seeking them out. We need to improve in this area.

I need to know more in this area. Have enrolled for a course in 2003...

We are still learning, trialing and coming to grips with this part of our school programme.

Our school is at present working on a policy for the gifted and talented. A teacher has been designated as in charge of this development and there are five more staff members on a focus team. The policy will include identification procedures, criteria, a gifted and talented register. Ways we will cater for these children are yet to be decided. However, we are trialing some methods for this year.

A number of these respondents asked for help:

A developmental area for 2003. Any ideas gratefully received!

Kia Ora, it is one thing to identify our gifted and talented tamariki, but how are we going to cater for their needs, given our school size and locality? How do we go about addressing this concern? Can you help?

A number of respondents indicated that while they were still developing programmes, they had accessed support and help in this area:

We are aware that we need to develop this area and are receiving guidance from xx (name of support person).

We are currently reviewing and updating our provisions...and also receiving follow-up advice and assistance from xx (name of support person).

The next most common theme identified was a lack of funding and/or resources to provide for gifted and talented students (55 comments). While many of these comments were general in nature, some respondents did stipulate specific issues. These main issues centred around lack of trained staff and/or funding to employ specialist teachers, large class sizes, not enough teacher release time (particularly in primary schools), and lack of funding for professional development:

Funding and staffing is our biggest handicap. We believe that able children should be funded through the school. In a decile 10 school we simply do not have the possibilities to meet these children's needs satisfactorily without some additional funding and staffing.

Resource provision, staffing, is a major obstacle to providing programmes to the extent that we wish to, and also to sustaining the programmes. In 2002 we were fortunate to have a little “surplus staffing” that was used. In 2003 it doesn’t look as though we can provide such programmes.

For two respondents from kura kaupapa Māori schools, lack of culturally appropriate resources were identified as an issue:

There is another aspect for kura kaupapa Māori. The kura kaupapa is interested in this but there are no resources available for these gifted children.

A number of respondents who commented on the lack of funding and resources, made reference to the inequitable distribution of funding between those students with learning and behaviour difficulties, and those students with gifts and talents. Some pointed out that they believed there should be the same amount of staffing and resources for gifted and talented students as there presently is for students with other special needs. For example:

I would like the same amount of staffing and resources set aside for “special needs” (ORRS, Autistic, etc) pupils, included in educational budgets for gifted and talented children. We do very little because we have no resources or staffing.

It bloomin’ well annoys me (and other teachers) that all our ‘special needs’ funding goes to the bottom end rather than the top end. We need a lot more recognition, funding, emphasis, etc placed upon our gifted students. We know the talents our kids have, we just want the time and resources to develop them.

As always, this area comes down to money and I hope to see more put into it as we pour resources into our low achievers and fight for funds for the high achievers.

One respondent made the suggestion that because they were a decile 10 school and received less money for students with special needs, perhaps they should receive more money for students who were gifted and talented:

As a decile 10 school, getting less per pupil for SEG (presuming we have fewer children with learning or behavioural difficulties) I think, logically we might have more gifted pupils.

The next most common theme identified (31 comments) was associated with small and/or rural schools. On the one hand respondents indicated that small schools were at an advantage in identifying and providing for gifted and talented students. One reason cited was that all children were on individual programmes and therefore, it was easier to provide for gifted and talented learners. One respondent explained it as:

We are a small school and most children work at independent levels in their class group. This makes it easier to set different programmes for gifted children.

Other advantages of small schools were that it was considered easier to identify gifted and talented students when the school roll was small. Also, because of the family atmosphere, older students often acted as mentors to younger ones:

Our school is very small so the gifted and talented students are easily identified.

We are a small school that works as a whole unit. Older children mentor and provide encouragement to help the younger ones. Teachers are able to observe and encourage any emergent skills or abilities.

On the other hand, there were an equal number of respondents who felt that their size and isolation acted as a disadvantage in meeting the needs of gifted and talented students. Reasons cited were that their isolation acted as a barrier to accessing courses and outside support, few staff numbers meant a lack of flexibility of staffing and low school rolls made it difficult to group like ability students:

Three years ago, I used the Correspondence School maths programme and two years ago, a student used a computer programme. Both were very appropriate but the students preferred to be part of a class group and didn't really enjoy having a separate programme. In a small school such as ours it is hard to make a group of such students as there may only be one or two at any level and they might not be gifted in all subjects.

We have courses in Northland (GATE) and access to advisers through Team Solutions but we are isolated and children can't access these.

Case Studies

To add richness to this research, case studies of ten schools were undertaken. This element of the research is in response to the research question:

What can be learned from the provisions for gifted and talented learners in New Zealand schools that have the characteristics associated with effectiveness identified in the literature?

The purpose in the case studies was to gain deeper insight and understanding of how schools identify and provide for gifted and talented students. Therefore, this component of the research is not evaluative – promising practices are illuminated in each of the ten schools, not ‘exemplary’ or ‘best’ practices. The aim of the case studies is similar to that of a zoom lens: to get a picture of gifted and talented education in New Zealand that is sharper and more ‘close up’ than that which the literature review and questionnaire results create.

The Case Study Process

This section describes the process of this phase of the research: development, implementation, analysis, and potential limitations.

Development of research process and protocols. At a meeting in April with the advisory group and Ministry of Education, it was decided that ten case study schools would be selected and visited for the purposes of:

- Informal observation;
- Review and/or collection of written policies and procedures;
- An in-depth interview with the coordinator; and
- A focus group interview with a cross-section of teachers.

The in-depth interview with the coordinator was designed to probe their ‘journey,’ schoolwide organisational strategies, effective identification and provisions and barriers to those, identification and provision for underserved populations, community and parental involvement, programme evaluation, future directions, and advice for other schools. The focus group interview with a cross-section of teachers was designed to probe the school’s philosophy, schoolwide involvement, and promising practices and barriers. By gathering and analysing the school’s written policies and procedures, as well as informally observing the school environment, the findings could be triangulated. Additionally, triangulation was obtained by interviewing different people in each school.

The interview protocol was developed by the research team in consultation with the advisory group. The nature of the questions was guided by the review of the literature and the questionnaire results. These were piloted in early June with in-depth interviews and focus group interviews in three schools (one primary, one intermediate, and one secondary) in the Manawatu region to determine their appropriateness and usability, as well as to gather feedback regarding ambiguity and relevance. Additionally, these pilots gave an indication of the time required for interviews, as well as an indication of their usefulness to practitioners in the field. Three team members visited each of these schools, and this also assisted in decision-making regarding the final questions and processes for school visits. The final interview questions are included in Appendix C.

The selection of the sample. The questionnaire invited respondents to participate as case study schools and approximately 170 schools indicated their willingness to do so. The advisory group and research team worked together to determine the criteria for selection and these included:

- Schools that reported comprehensive approaches to identification, provision, and policies/procedures;
- Schools utilising ‘promising’ practices and different approaches to identification and provisions;
- Schools representative of as wide a sector as possible – levels or types, a range of deciles, rural and urban, geographic regions, and cultural/ethnic make-up; and
- Schools available and willing to be visited during a timeframe dictated by the research deadlines.

An examination of the questionnaire responses of the schools willing to be visited was undertaken by the research team with these criteria in mind. The majority did not report comprehensive identification and provisions; in fact, many were seeking assistance in programme development. Of schools which met the above-mentioned criteria, 19 were selected. These schools were approached via e-mail to determine their availability and willingness and to probe provisions one-step further by posing the question:

Please describe your most promising provisions in relation to gifted and talented students.

From those responses 10 schools were selected. These schools were invited to participate and their rights as participants outlined in accordance with the Massey University Code of Ethical Conduct (see Appendix D). Informed consent was gained from each school’s Board of Trustees, as well as each individual participant.

Case study visits. Each school was visited by two members of the research team during the last week of June and early July. One team member acted as the lead interviewer. Interviews with the coordinator were conducted upon arrival and these lasted approximately one and a half hours. The research team members also spent time with the coordinator visiting classrooms and being introduced to teachers and students. When written documents were available within the school, these were gathered and/or reviewed. At the end of the school day focus group interviews of approximately one hour duration were held with groups of 6-8 teachers selected by the school. Participating schools were specifically asked to select teachers representing a range of levels within the school, as well as different perspectives. They were explicitly asked to include staff members who actively took part in gifted education, but also those without a vested interest. All interviews were tape-recorded, and the second team member took notes when appropriate. The interview questions were sent in advance, along with information sheets and consent forms for each individual staff member. Based upon the questionnaire responses and answers to the question regarding promising practices, a profile was designed for each school and during the visit these were checked for accuracy by the coordinator.

Analysis. The interviews were transcribed and these, alongside written documents and written notes, were analysed by the research team. Content analysis of the interviews was conducted using pre-ordinate and emerging themes. The pre-ordinate themes were based upon the purpose in the interviews which was to gain a deeper insight into how schools identify and provide for their gifted and talented students. These included:

1. The school’s journey: development and implementation of identification and provisions;
2. The factors which acted as catalysts or ‘enablers’ to identification and provisions;
3. The factors which acted as barriers to identification and provisions;
4. Schoolwide organisation and philosophy to identification and provisions;
5. Promising identification practices deemed ‘successful’ by schools, as well as the difficulties experienced;
6. Promising provisions deemed ‘successful’ by schools, as well as the difficulties experienced;

7. Measures to ensure identification of and provisions for potentially under-represented groups of gifted and talented students;
8. Evaluation methods and procedures; and
9. Advice for schools.

The lead interviewer conducted the initial analysis, linking the transcribed text to codes for each of these pre-ordinate themes, and then to emerging sub-themes. These were checked by and discussed with the second research team member. To preserve the anonymity of each school, though each school's profile and journey are presented individually, the themes arising from the ten case studies were then merged across the pre-ordinate themes, with emergent themes determined as those repeated within or across interviews. The participating schools were asked to check the profiles and journeys for accuracy.

Limitations. It is important that the results of the case studies be read against the backdrop of potential limitations. Firstly, the timeframe and resources allocated for this research project limited the sample to ten schools across the country. Therefore, it is difficult, in fact inadvisable, to generalise the findings to other schools in New Zealand. The time and resource constraints also limited the study in its methodology, and therefore only descriptive data are reported. This is not a study of the effectiveness of these provisions, nor of the ten participating schools; rather, it is hoped that the experiences of these schools will be of benefit and value to other schools in New Zealand. Secondly, though every effort was made to include a range of different schools, with a variety of provisions for gifted and talented students, these decisions were made based primarily upon self-reported responses to a close-ended questionnaire. Therefore, as the results will demonstrate, whilst many of the schools reported comprehensive schoolwide identification and programmes, in reality a different picture sometimes emerged. Again, the purpose in these case studies is to provide insight into the 'promising' ways in which New Zealand schools might identify and provide for gifted and talented students, not to place these schools on a pillar as exemplary or the best. Finally, while every effort has been made to ensure that the analysis was objective and the results presented are valid, the potential limitations of qualitative methodologies apply to this research.

Case Study Findings

This section reports the findings of the case study investigations. It begins by outlining the sample of schools to provide an understanding of the nature of each school and its identification and provisions. A profile of each school and description of the school's development and implementation is provided. This is followed by discussion of the pre-ordinate and emerging themes.

THE CASE STUDY SCHOOLS

To preserve the anonymity of the schools, each school is coded A to J. The demographic information about each of the ten schools is shown in Table 35. As it shows, the sample included three full primary schools, four contributing primary schools, one intermediate school, and two secondary schools. These schools were located in the Auckland (1), Bay of Plenty (3), Canterbury (1), Gisborne (1), Marlborough (1), Northland (1), and Wellington (2) regions. They represent a range of deciles, although no decile 1 or 2 schools were available; cultural and ethnic make-up; sizes; and promising practices. None of the ten case study schools are categorised by the Ministry of Education as rural schools.

Table 35. Demographics of Case Study Schools.

School	Type and Author	Decile	Roll	Ethnic Composition	Promising Practices
A	Full Prim: State	5	554	79% European 16% Māori 1% Pacific Island 3% Asian 1% Other	Cluster & Partner Schools; Schoolwide, Classroom-based Approaches
B	Full Prim: State-Integ.	10	218	59% European 4% Māori 8% Pacific Island 23% Asian 3% Other	Schoolwide Policy/Procedures
C	Full Prim: State-Integ.	6	62	74% European 13% Māori 2% Pacific Island 8% Asian 3% Other	Individualised Programmes; Recognition of Spiritual Gifts
D	Cont. Prim: State	8	293	82% European 16% Māori 1% Pacific Island 1% Asian 0% Other	Community-based Provisions
E	Cont. Prim: State	3	345	41% European 57% Māori 2% Pacific Island 0% Asian 0% Other	Partner & Cluster School; Schoolwide Inclusive Philosophy
F	Cont. Prim: State	3	469	40% European 56% Māori 1% Pacific Island 2% Asian 1% Other	Appointment of .6 Staff for Development of Programmes
G	Cont. Prim: State	4	431	54% European 39% Māori 2% Pacific Island 4% Asian 1% Other	Inclusive Schoolwide Enrichment Programme with Parental and Community Support
H	Inter: State	5	1159	74% European 23% Māori 2% Pacific Island 1% Asian 0% Other	Special Classes; Recognition of Diversity amongst Gifted
I	Sec: State Co-ed	5	1900	49% European 16% Māori 11% Pacific Island 10% Asian 5% Other	Special Classes and Mentorships
J	Sec: State Boys	10	1251	83% European 3% Māori 1% Pacific Island 13% Asian 0% Other	Professional Development; Schoolwide Articulation Plans

Each coordinator was asked to describe the school’s development and implementation of gifted and talented education programmes, and this ‘journey’ provides an overview of the school’s provisions. Each school’s journey in gifted education took different paths and routes, however, some common themes emerge: all of the schools viewed the process as ongoing, acknowledging that their identification and provisions were constantly evolving; each school was led by a strong advocate for gifted and talented students who had a professional and/or personal commitment; and although schools reported a range of identification and provisions in their questionnaire, the development and implementation of programmes outside the regular classroom were a strong focus of their discussions. Each school’s profile is provided and their journey is described individually in this part of the results.

Table 36. Profile of School A.

Overall Coordination	Coordinator	Deputy Principal		
	Committee	Deputy Principal, Principal, Learning Support Coordinator		
	Policies and Procedures	Gifted and Talented Policy and Implementation/Action Plan developed; Procedural Booklet being developed		
		Gifted and talented addressed in Special Needs and Learning Support policies; Curriculum Delivery documents addressing gifted and talented students is being developed		
		Rationale		✓
		Goals or Purposes		✓
		School-Based Definition		✓
		Identification Practices		
		Programming Options		
		Curriculum or Programme Model		
		Professional Development		✓
		Funding		✓
	Monitoring and Evaluation		✓	
Register of Identified Students		✓		
Definition	<i>Students who by virtue of outstanding abilities are capable of high performance.</i>			
Identification	Areas of Ability	Intellectual/Academic	✓	
		Creativity	✓	
		Visual and Performing Arts	✓	
		Social/Leadership	✓	
		Culture-Specific	✓	
		Physical/Sport	✓	
		Other		
	Methods	Identification is embedded in a responsive environment approach, which emphasises learning styles and multiple intelligences. Teacher observation and nomination relied upon for all areas. Other methods sometimes used depending upon area (e.g., audition for visual/performing arts; achievement testing for intellectual/academic). Peer nomination and teacher checklists being introduced this year.		
Age Levels	Schoolwide identification.			
Provisions	Nature	Combination of enrichment and acceleration. There is no curriculum or programme model.		
	Classroom-Based	Ability grouping, learning centres, independent study, curriculum compacting, individualised education plans, and teacher planning.		
	Community-Based	Cluster with other local schools for enrichment-oriented withdrawal programmes for Years 4-6. Establishing partnership with local secondary school for support and mentoring for Years 7-8.		
	School-Based	Schoolwide cross-age grouping for social/leadership, culture-specific and physical/sport. Withdrawal groups for Years 3-8 for intellectual/academic, creativity and visual/performing arts. Cluster grouping for Years 3-8 for intellectual/academic, creativity and visual/performing arts and schoolwide for culture-specific. Mentorships for Years 3-8 for intellectual/academic, creativity and visual/performing arts and schoolwide for physical/sport. Competitions for intellectual/academic, creativity, visual/performing arts and physical/sport; establishing debating competitions with other Year 7-8 schools. Virtual instruction and external exams for Years 3-8 intellectual/academic. Second languages (German, Spanish, Japanese, Māori) for Years 7-8, with plans to include Years 4-6 in 2004. Outside experts used for all areas except social/leadership Biennial whole school production, and alternate Performing Arts Festival, for visual/performing arts.		

School A's Journey

This medium-sized, semi-rural, full primary school began its journey four years ago. Key members of staff were interested in looking at opportunities for gifted and talented students within the school. The impetus initially came from one particular family with exceptionally gifted children and recognising how they were fostering their children's talents. The teacher presently responsible for gifted education in the school (the Deputy Principal) attended a gifted and talented meeting for parents and teachers and was subsequently spurred into action. "One of the things I really wanted to promote and get underway was the gifted and talented programme so that became one of my goals for the year."

A small group of interested teachers (including the Deputy Principal of School A) decided that one way of providing for gifted and talented students in the area was through a network of local schools – a 'cluster.' A meeting was held and a proposal put forward in 2001 for a group of schools in the area to provide accelerant-learning programmes for gifted and talented students. The objective was to utilise teachers' strengths. A cluster of four schools was involved in 2002 with an initial focus on mathematics in Term One for students from Years 3 to 6. A mathematics problem-solving programme was provided with the support of a university adviser and appropriately skilled and interested teachers from the cluster schools. Funding came from each school contributing the equivalent of two days teacher release. This paid for teacher release, the contracting of 'experts,' consumables and the purchase of resources to establish a shared resource bank available to each school.

The next learning area that was targeted was literacy in Term Two. Once again a programme was put together for the Years 3-6. A published author, a literacy adviser from the university, and staff experts provided support. Following this, in Term Three a programme in the arts was offered, once again using external support and some of the teachers from the cluster schools. To complete the year's programme environmental science was provided. Links were made with the community to support these initiatives. By the end of the year it was felt that the school had "made a contribution to supporting the needs and meeting the needs of those children" though concern was expressed that they were "not getting them all."

Each school was able to nominate between four and six students for the different initiatives. The students were selected based on records such as PAT results and student work using indicators such as creativity. There was a realisation that the teachers needed to spread the net widely as it was felt that the same children were being selected. However, it was acknowledged that "we got it a bit wrong because our selection process probably wasn't as good as it could have been but we decided that we were here to learn and if we got it wrong, we got it wrong and we'd learn for the next time."

At a meeting of Board of Trustees, representatives and principals from the cluster schools, a report was presented to inform them of the programme and to encourage their further support of the cluster initiative. In 2003 another school joined the cluster. Numeracy and literacy have continued to be targeted in the cluster programme using outside experts as well as staff from the participating schools. Arts and science are also on the agenda. Schools in a neighbouring region have heard about the cluster programme and are considering setting up a similar model.

Staff, students and parents have been involved in the evaluation process. Students are encouraged to share their day's experiences and products with their own class and schoolwide in assemblies and publications, also with parents and the community through class newsletters. This is part of the school's approach to celebrating students' successes.

A school policy was developed in 2002 with consultation from staff and community and a committee was formed. The Deputy Principal has responsibility for special needs and gifted and talented students. The teachers have been encouraged to consider definitions of gifted and talented at a personal and team level. The school is beginning to develop a register of gifted and talented students and a more formal process of identification. "It's a stepping stone that we haven't quite reached yet."

The schoolwide approach is to try and cater for gifted and talented students using a variety of strategies. There is an emphasis on independent learning, goal setting, learning centres, multiple

intelligences, inquiry learning, and higher-level thinking. Ability groups operate within classes and there is cross-age grouping for specific areas such as mathematics and reading. Students are also encouraged to enter competitions and to share their expertise (such as computer skills) with teachers and peers. Opportunities are presented for students to take the initiative and to develop social and leadership skills. Students who weren't initially recognised as gifted are "really taking it on board and flying."

The students in Years 7 and 8 learn a second language and other newer initiatives include establishing links with a local secondary school with the older students acting as mentors. There is a growing interest from local secondary schools in the identification of gifted and talented students and better liaison so that they are "building some of those bridges."

The school is proud of the school environment that recognises students' diverse needs and is making a concerted effort to identify the gifted and talented students. Through the cluster initiative and school provisions students are involved in learning experiences that enable them to pursue their own interest and passions. "Gifted children have a real opportunity to take something further down the path," the "kids who achieve are accepted and recognised." As the coordinator stated at the end of the interview:

I know we've got a long journey still but I feel we're doing something to offer [gifted and talented education].

Table 37. Profile of School B.

Overall Coordination	Coordinator	Associate Principal		
	Committee	Principal, Deputy Principal, Designated Teacher of Gifted and Talented Students		
	Policies and Procedures	Gifted and Talented, Special Needs, and Equity Policies Implementation Plan, (Programme Document), Action Plan and Procedures Booklet for gifted and talented students Special Needs Register includes gifted and talented students.		
		Rationale		✓
		Goals or Purposes		✓
		School-Based Definition		✓
		Identification Practices		✓
		Programming Options		✓
		Curriculum or Programme Model		
		Professional Development		✓
		Funding		✓
		Monitoring and Evaluation		✓
Register of Identified Students		✓		
Definition	<i>A multi-category concept which encompasses intellectual, creative, physical and leadership abilities, academic aptitude and abilities in visual and performing arts.</i>			
Identification	Areas of Ability	Intellectual/Academic	✓	
		Creativity	✓	
		Visual and Performing Arts	✓	
		Social/Leadership	✓	
		Culture-Specific	✓	
		Physical/Sport	✓	
		Other		
	Methods	A mini action plan outlines goals for identification and assessment. Use multi methods of identification of students for acceleration. Combinations of, or all of the following tools are used in identification: (a) teacher, parent, peer and self-nomination; (b) standardised tests (PAT, STAR reading test, BURT Spelling test); (c) pre and post classroom assessment, (d) rating scales; (e) student progress and behaviour observations; and (f) analysis of class work and completed projects.		
Age Levels	School-wide identification.			
Provisions	Nature	Enrichment and acceleration		
	Classroom-Based	Ability grouping, learning centres, independent study, curriculum compacting, IEPS, specialist teacher, and planning.		
	Community-Based	Correspondence School		
	School-Based	<p>Enrichment programme for Years 3-8 Acceleration programmes for Years 5-8</p> <p style="text-align: center;">Electives programme</p> <p>Schoolwide cross-age grouping for social/leadership, culture-specific and physical/sport. Withdrawal groups for Years 3-8 for intellectual/academic, creativity and visual/performing arts. Cluster grouping for Years 3-8 for intellectual/academic, creativity and visual/performing arts and schoolwide for culture-specific.</p> <p>Competitions for intellectual/academic, creativity, visual/performing arts and physical/sport; Whole school production, and alternate Performing Arts Festival, for visual/performing arts.</p>		

School B's Journey

This full primary school's journey began several years ago at the initiative of the Assistant Principal (AP) responsible for special education and the Deputy Principal (DP) responsible for gifted education. The DP in charge of gifted education completed a university paper in this area and "basically as a one person band" she organised and coordinated the programmes that were run in the school. When she left, the school's emphasis on gifted education diminished. However, two years ago, when the current DP began her new position at this school, the principal added the role of Gifted Coordinator to her job description. This was prompted by a "particularly strong push" from parents of gifted children. The principal was studying gifted education papers, and supported his new staff member to undertake professional development in this field too. Subsequently the Board of Trustees funded a gifted education paper within her Masters degree.

With the principal's support, the next step was to establish some common values and beliefs as to how the school would develop their gifted programme. For one term the staff became very involved in a great deal of background reading and talking around where they planned to go on their journey into gifted education. A committee was established which represents two thirds of the staff and a member of the Board of Trustees (BoT). A future goal of this committee is to appoint another representative (who is not already a Board member) from the parent community. All staff are given the opportunity to give feedback on school policies before they are ratified by the Board of Trustees. There is reciprocity of respect between the Board and teaching staff. With gifted education both parties feel they are moving forward together. For parents too, gifted education is one of their key areas of interest. Through the school's newsletter they are informed about each new programme to be offered, and invited to contact the Gifted and Talented Coordinator if they think their child is capable of participating in the programme.

The staff view each individual as having special abilities in different areas, but with limited knowledge initially about gifted education they relied on formal indicators and tests to identify specific children. They were (and still are) receptive to parent, peer and student nomination as a result of advertising the programmes due to be implemented. The team have moved forward and now employ a multi-method strategy to identify learners who are gifted and talented. It mainly involves testing, for example, standardised tests, thus the testing is weighted towards academic ability. The other weighting is on knowledge and understanding from the teacher, parent, and student self-nomination. Rating scales are rarely used, not because the team do not value this form of identification technique, but more because of the staff's lack of knowledge in using them. Currently too, work is being done around identification procedures to extend knowledge in this area. Before a new rotation of programmes begins, teachers provide the names of possible participants from their class and the gifted committee then prioritise those applicants. This involves lengthy discussions when teachers put forth their cases. Discussions are "always positive and everyone feels listened to." Therefore the school believes its most successful identification strategy has been teacher dialogue.

The staff decided to offer school-wide provisions based on teacher strengths as their "most effective way of delivering the curriculum." While utilising the strengths of the staff is an effective way to provide provisions, it can also be perceived as a limitation, that is, "one of the handicaps of that is that you are limited by the staff you have got and that again doesn't allow for some of the talents some of these children may have." Therefore rather than just identifying the skills of the staff and basing their provisions around those strengths, the staff are now trying to focus more on finding out what the students need and then acquiring the skills to meet those needs. The new focus requires them to "consider location, consider cost, consider the resources that we have but don't make anything excluded for those reasons." As a result two new initiatives (squash and drama) were recently added to the programme.

The philosophy of giving every child the opportunity to participate and to excel, whether it is through electives, enrichment, or extension programmes is thought to be working well in this school. While staff consider that they all try to provide enrichment and extension within their own class programmes, pooling their teacher strengths to offer enrichment and extension programmes out of class as well, ensures the curriculum is "even more deeply and fully taught." Enrichment provisions build on the

curriculum and enrich the students in day to day learning. The enrichment activities are designed so that the students are keen to come to school on Fridays to participate in this programme. The students are involved in all of the enrichment activities. This is different to their Electives Week where the students opt in to do a particular hobby or activity that is a new experience for them. The school's extension programme is about catering for those students identified as being the most able. Current extension areas for this rotation are maths, science, art, and writing. The extension programme is based upon teacher strength and school need at the time. One of the school's strategic planning goals for this year is to teach leadership skills, therefore a leadership extension programme was also operating at the time of the case study visit.

The most unsuccessful provision, or rather the one that needed the most modification, happened when the first Friday programme began with two programmes running side by side. The extension programme ran for two and a half hours and the enrichment programme ran for three and a half hours. Interestingly, the format was changed after the extension children lobbied the staff because they were disappointed to be left out of the enrichment. Currently the two programmes run at different times of the day.

The most promising practice is considered to be their combination of enrichment and extension with electives. These provisions allow all children to be involved in something "a bit special," yet does allow specific extension to really extend those more able children. Elective options also provide children with the choice to "really explore something for a decent amount of time," so these factors combine to contribute to a very successful programme that caters for the needs of all children, including those who are gifted and talented.

The special character of this school is also important to gifted and talented education. Being a Catholic school, children are given leadership roles for whole school liturgies and masses, plus classroom masses. Interpersonal skills at this school are valued and some children show skills in the area of caring. Children are identified in some areas of emotional intelligences, while recognising that the ones demonstrating knowledge of the Bible, for example, are academically able, rather than spiritually able. There is a perception too that the Catholic school philosophy helps to play a part in the way that staff commit to making the best provision they can for their students. This philosophy filters down to the children who are considered to be really good at recognising and promoting each other's abilities. The coordinator reported that do not have a "tall poppy syndrome" at this school.

A common thread throughout both the in-depth and focus interviews was the way that staff are prepared to move outside their comfort zone and engage in a little risk taking to make the programme succeed. Staff explained this as "we expect the children to do it so we should do it too."

Table 38. Profile of School C.

Overall Coordination	Coordinator	None	
	Committee	None – In this three teacher school all staff members take responsibility for gifted education provisions	
	Policies and Procedures	Gifted and talented provision addressed in Equity Policy and in curriculum delivery documents across all academic areas. There is no separate policy which addresses any of the areas listed below.	
		Rationale	
		Goals or Purposes	
		School-Based Definition	
		Identification Practices	
		Programming Options	
		Curriculum or Programme Model	
		Professional Development	
		Funding	
		Monitoring and Evaluation	
Register of Identified Students			
Definition	<i>Those who excel in specific areas usually identified through teacher observation, PAT tests and local cluster programme tests.</i>		
Identification	Areas of Ability	Intellectual/Academic	✓
		Creativity	✓
		Visual and Performing Arts	✓
		Social/Leadership	✓
		Culture-Specific	
		Physical/Sport	
		Other	
	Methods	Teacher observation and nomination used in all areas indicated above. In the academic/intellectual area achievement tests including PATs are always used, auditions/performances are used occasionally. Auditions/performances, teacher-made tests and portfolios are sometimes used for visual/performing arts.	
Age Levels	Students in Years 3-8 identified in the intellectual/academic area, those in Years 5-8 identified in areas of creativity, the visual and performing arts and social/leadership.		
Provisions	Nature	Use a combination of enrichment and acceleration	
	Classroom-Based	Independent study, individualised learning programme, individualised education plans.	
	Community-Based	Correspondence School and local cluster programme	
	School-Based	Individual programmes are run throughout the school, these are largely self-managed by the children and allow them to progress at their own level and rate. This system encourages gifted children to accelerate. Learning is broadened through additional activities and supplementary support from sources such as the Correspondence School. Dual enrolment in the Correspondence School has been/is used for children gifted in the intellectual/academic area in Years 3-4 and 7-8. Special programmes are established where appropriate.	

School C's Journey

This school's provision for gifted and talented children began with its establishment over 20 years ago. In fact it does not have a 'gifted programme' as such. Rather gifted and talented children are provided for within the context of the regular school curriculum. Every child in the school has an individualised programme in social studies, science, spelling, grammar, word building and, to a lesser extent, in mathematics. In these subject areas children use workbooks, described by the principal as "packets of individualised learning." These workbooks are the foundation of a Christian-based education system adopted by numerous Christian schools throughout the world.

Children work through the individualised material from level 1 to 85 (primary school) at their own learning rate. Consequently gifted and talented students can accelerate through the primary levels and proceed on to secondary level material in one or more subject areas. Children set their own daily learning goals and mark their own work. They have flexibility in choosing the order in which subjects

are tackled. Teachers provide assistance on request and monitor children's work on an on-going basis. They hold regular individual conferences where students' work is reviewed. If teachers note that the work is not challenging the children, they allow them to either "skip" levels or work on every second workbook to accelerate progress through the levels.

PAT tests, diagnostic tests and running records in reading alert teachers to children who are possibly gifted and talented. However, the main method of identification is through scheduled and incidental teacher observation. Indicators of giftedness staff look for include exceptional performance, high levels of interest and motivation, insightful questions and certain behaviours such as task persistence. With twice weekly school assemblies, school-wide activities, playground duty and interclass sharing of work, teachers get to know all the children in the school well:

You can watch the ones that shine in certain areas and you will recognise it and we'll find that nine times out of ten as we talk to each other about various kids we all say, "Hey, yeah, so and so's really good in this area" so you identify them that way.

The individualised learning system caters for children who are gifted "across the board" and for those who have gifts and talents in a narrow field. It also provides both acceleration and enrichment. Workbooks and similarly styled teacher-prepared units are used to broaden children's learning. Enrichment modules are available in a range of subjects including Hebrew, motor mechanics, bible study and animal science. Hands-on experiments and activities are included in individualised modules as are homework tasks and additional teacher-added enrichment content such as relevant videos.

The individualised learning system was not adopted specifically to benefit gifted and talented students. This is seen as a fortunate "by-product." The principal noted:

We established the school to serve the Christian community but one of the hallmarks of our Christian faith is that we're all individuals, we're all special to God, we're all unique, we all have special giftings if we can identify them and this system is consistent with that. We're not all put in one box, we're saying, we are all different, let's be different, let's celebrate our differentness.

Children work on their individualised programmes in the morning. In the afternoon music, physical education and sport, drama, art and topic work are covered in a more "conventional" style of teaching. Because the school is small, whole school activities and cross-class grouping are easily accommodated. The school provides for a wide range of gifts and talents including spiritual and emotional giftedness. Spiritual gifts are not taught as such but a supportive, responsive environment is provided to enable them to surface. When they do, they are acknowledged and reinforced. Interpersonal gifts such as outstanding compassion, leadership and service to others are also acknowledged and reinforced.

Gifted and talented children are also provided for via Correspondence School programmes. This year, one pupil is enrolled in secondary level mathematics and another is studying advanced English. Similarly, the local regional cluster group is used to extend gifted children. The student who qualified for involvement this year goes off-site for one and a half hours a week to work with gifted children from other schools in the surrounding district. There is also a pre-entry programme for younger children. Although the school has no-one presently attending this programme, they have had students qualify for inclusion in previous years.

A number of school-wide activities provide opportunities for gifts and talents to surface and be developed. These include a lunch-time talent search. The talent to be focused on is announced a week in advance. Children who wish to participate have a week to prepare themselves before performing. Talents covered include singing, chess, acting, instrumental items and puppets. Children also prepare speeches, the best of which are chosen to be performed at assembly. Finally, the school has previously participated in an annual, three day national Christian school convention. One hundred activities are

included. Teachers chose which activities children will participate in, these are prepared at school and performed at the convention. The best New Zealand students are chosen to perform in a similar event in Australia and from there the best go on to a convention in the United States.

Parents are very supportive of the school programme. They are involved as volunteer helpers, provide transport to regional cluster group classes and are drawn on as resource people in their areas of expertise.

In the future the school plans to establish after school music classes and would like to develop their provisions for children who are gifted in the dramatic arts. These plans are dependent on Ministry of Education or other funding sources. The school's underlying philosophy is based on the Christian principle that every child is gifted in some area and that the teacher's job is to identify and foster these gifts. Given this, their provisions for gifted and talented pupils are interwoven into the fabric of the school and so will continue as long as the school is in existence.

Table 39. Profile of School D.

Overall Coordination	Coordinator	Deputy Principal	
	Committee	Principal, Deputy Principal, Designated Teacher of Gifted and Talented.	
	Policies and Procedures	Gifted and talented students are specifically addressed in a gifted and talented policy. There is an action plan for gifted and talented students.	
		Rationale	✓
		Goals or Purposes	✓
		School-Based Definition	✓
		Identification Practices	✓
		Programming Options	✓
		Curriculum or Programme Model	
		Professional Development	✓
		Funding	✓
		Monitoring and Evaluation	✓
		Register of Identified Students	✓
Definition	<i>Children who demonstrate above average general and/or specific abilities, high levels of task commitment and creativity. An interaction of all clusters is needed.</i>		
Identification	Areas of Ability	Intellectual/Academic	✓
		Creativity	✓
		Visual and Performing Arts	✓
		Social/Leadership	✓
		Culture-Specific	✓
		Physical/Sport	✓
		Other	
	Methods	A range of identification approaches are used and vary according to the area of ability. For example achievement tests are used to identify intellectual/academic abilities. Auditions and performances are used to identify abilities in the areas of visual and performing arts. Teacher observation/nomination and peer nomination are the most commonly used methods of identification. IQ tests and teacher made tests are never used.	
Age Levels	Schoolwide identification.		
Provisions	Nature	Combination of enrichment and acceleration. Curriculum or programme models are not used.	
	Classroom-Based	Ability grouping, independent study, curriculum compacting, diagnostic-prescriptive teaching and consulting specialist teachers.	
	Community-Based	Rural Education Activities Programme, music tutors and toastmasters.	
	School-Based	<p>Cross-age grouping, withdrawal groups and outside experts are used for provisions in the areas of intellectual/academic; creativity; visual and performing arts; culture specific and physical sport.</p> <p>Cross age grouping, withdrawal groups and outside experts are used in the area of social leadership.</p> <p>Outside experts are used for performing arts.</p> <p>Competitions are used for intellectual/academic; visual and performing arts and culture specific.</p> <p>Clubs and electives are used in the areas of intellectual/academic, creativity and visual and performing arts.</p> <p>External examinations and tests are used in the area of intellectual/academic.</p>	

School D's Journey

While it is difficult to pinpoint the beginning of the journey for this school, this story begins in 1993 when the present coordinator of the gifted and talented programmes was appointed to the school. Not long after taking up the position, she attended two courses at an educational resource centre. She had always had an interest in meeting the needs of gifted and talented students, however, these two courses were the impetus for her desire to organise gifted and talented policy and practice at this school. Prior to this there was no formal structure for providing for gifted and talented students and many teachers were struggling on their own to make provisions within their classrooms.

The Board of Trustees at the school had set up a scholarship where, every two years, teachers could apply for five weeks paid leave to follow something of their professional interest. The teacher in charge of gifted and talented provisions in this school was awarded this scholarship to look at what was happening for children with special abilities in schools around New Zealand. She began by meeting with a university lecturer in gifted and talented education, who provided a range of reading material and suggestions for schools to visit. Visits were made to schools in Wellington, Tauranga and Auckland where she was able to observe practices in action and talk to teachers and principals about their provisions for gifted and talented learners. To be able to go into schools while teachers were working and observe and discuss their practices was considered the very best professional development.

It was the most wonderful professional development to actually be able to go into a school while they were working, sit and see what they were doing, look at their identification practices and it was just amazing.

At the conclusion of the scholarship period, a report was written for the staff and the Board of Trustees. They were very enthusiastic and the Board of Trustees decided to fund a .2 release per week (one day per week) for a teacher to coordinate gifted and talented programmes within the school. They also funded a budget of \$1000.00 per year.

Identification is considered one of the hardest aspects of meeting the needs of gifted and talented students. Initially, the school looked at a number of different identification methods but decided on teacher identification as the most valid. Near the end of the school year, staff are given a questionnaire which asks them to consider all the children in their class. This is in relation to Gardner's multiple intelligences as well as a range of other questions including affective qualities (such as motivation, social skills), behaviours (both positive and negative) originality and leadership. Staff identify the names of children who 'spring to mind' when thinking about each area of ability. Once children are identified, the information is given to their new teacher the next year. This is done again in March and again at the end of the next term, it is not just done once a year, it rolls over.

Identification needs to be on-going as they may react differently to different teachers – someone who "shines" with one teacher may not with another. There is also flexibility to add children who missed identification or who are late bloomers to existing groups.

There is a high level of consultation and discussion between teachers and this is seen as crucial in the identification process.

As well as teacher identification, when parents enrol their children, they are asked to fill in a form. One question asks if their child has any special talents, unusual accomplishments, special interests or hobbies and special opportunities that they may have had. The teacher in charge of gifted and talented programme gets a copy of this. If anything significant is identified the student is put on the gifted and talented register.

There is also a range of assessment and testing done throughout the school which contributes to identification for example, class tests and the PATs.

The programmes are fitted around the needs of the students. Once students and their areas of ability have been identified, decisions are made regarding the nature of the provisions. If there is a teacher at the school with an interest and ability in the area identified, they will be released by the .2 reliever (funded by the BOT for gifted education programmes) to take the programme. If there is not a teacher within the school, an outside person will be sourced and brought into the school. There is more than one programme running at any one time.

The gifted programmes occur on one set day each week (unless there is a one-off opportunity where students need to attend something usually outside the school). The time that a particular programme runs for, depends on the content. For example, the Otago Mathematics Problem Solving starts in February and runs until September with forty minutes every Thursday; whereas, a Year Two art programme lasted for four weeks. Examples of some sessions that have occurred include kapahaka, ICT, art, choir, *Young Leaders Day* (Wellington), Kiwi Sport Elite Sports Day, drama, speech and dance. Sessions are taught by teachers from the school, if they have the expertise, or if there is not a teacher with the expertise, someone is brought in from the community. A reliever, specifically employed to act in this capacity, releases teachers.

There is also a range of in-class provisions for gifted children. These include cross-grouping, individual programmes with integrated mini enquiries, the use of De Bono's thinking hats, and the use of talented students as mentors and helpers for other students.

The school continues to review their gifted programmes with the objective of refining and improving provisions for gifted and talented learners.

Table 40. Profile of School E.

Overall Coordination	Coordinator	Principal		
	Committee	Principal, Special Needs Coordinator, Senior Teacher		
	Policies and Procedures	Gifted and talented students are specifically addressed in a gifted and talented policy, special needs policy, equity policy and learning support policy. There is an action plan for gifted and talented students. Procedures booklet and implementation plan are currently being developed. Gifted students are addressed in curriculum delivery documents.		
		Rationale		✓
		Goals or Purposes		✓
		School-Based Definition		✓
		Identification Practices		✓
		Programming Options		✓
		Curriculum or Programme Model		
		Professional Development		✓
		Funding		✓
		Monitoring and Evaluation		✓
	Register of Identified Students		✓	
Definition	<i>Those who have exceptional abilities relative to most other people. These learners have characteristics that give them more potential to achieve outstanding performance. Characteristics include: sensitivity and perceptiveness to the needs of others; ability to grasp abstract concepts; use of advanced vocabulary; inquisitiveness and challenging individuals with heightened imagination and a keen sense of humour.</i>			
Identification	Areas of Ability	Intellectual/Academic	✓	
		Creativity	✓	
		Visual and Performing Arts	✓	
		Social/Leadership	✓	
		Culture-Specific	✓	
		Physical/Sport	✓	
		Other		
	Methods	Teacher observation/nomination is always used by way of teacher rating scales and checklists for intellectual/academic and creative abilities. Other approaches are used and vary according to the area of ability. For example, achievement tests are used to identify intellectual/academic and auditions and performances are used for visual and performing arts.		
Age Levels	Schoolwide identification.			
Provisions	Nature	Combination of enrichment and acceleration. Autonomous Learner Model guides identification and provision.		
	Classroom-Based	Ability grouping, IEPs, consulting specialist teacher and planning.		
	Community-Based	Partner school model has been operating for the last four years. The school also works within a cluster of local schools.		
	School-Based	Cross-age grouping for intellectual/academic abilities, creativity, visual/performing arts, social/leadership, culture specific and sport Withdrawal groups for intellectual/academic, creativity, visual/performing arts, social/leadership, culture specific and physical /sport. Cluster grouping for creativity, visual/performing arts, culture specific and physical/sport. Outside experts are used for creativity and physical/sport.		

School E's Journey

Prior to the current provisions for gifted and talented students at this school, it was recognised by staff that the school was not providing adequately for these students. When the present principal took up the position at the school, staff began to think and talk about developing programmes to meet the needs of gifted and talented students.

A system was established in syndicates where staff identified students that they considered had talents. These could be in any area, not just traditional academic talent, for example students with mana and leadership or artistic and creative abilities. This identification system was set up for use with all children in the school, from new entrants to Year Six. It was decided that teacher nomination would be the main form of identification although other methods would also be used. Teachers would identify students through observation and test scores such as PATs, however, it was agreed that there should not be a reliance on test scores as it can narrow the focus to only those areas where talent can be measured with a score. Early in the year, teachers are asked to identify students who they consider may have gifts or talents in any area. These are gifts demonstrated in performance and achievement as well as indicators of potential. These students' names are entered into a special abilities register.

In terms of provisions, a system of workshops has been established. Decisions regarding what workshops to run are based on the needs of the identified students then matched to the talents and the passions of the teachers. The teachers are given the opportunity to identify areas that they are particularly interested in, or have skills in. If there is a person in the community who is known to have skills in a particular area, they are invited to help as well. In terms of funding the workshops, the school staff (and in particular the principal) have become very adept at finding outside sources such as community grants.

At the same time as staff were beginning to identify gifted and talented students, and offer workshops designed to meet their needs, the principal of this school met with the principal of another local school to discuss their provisions for gifted and talented students. They decided to combine resources and run the workshops for gifted and talented students from both schools. This partnership began approximately four years ago and is still in operation today. Working with one other school as opposed to a group of schools is seen to have advantages.

The other thing I like about the cooperation that we have with the other school is that it is very quick to get set up and do. There's no talk, there's no in-depth waiting around and delay. It's simply we will run a workshop on such and such targeting this particular group of kids and we can make it happen in, next week or the week after.

Provisions that have been offered in conjunction with the partner school include ICT mind-mapping, creative dance, art, mathematics, music performance ICT spreadsheets, mathematics problem solving, science, storytelling and speechmaking. School based provisions include gymnastics, chess club, kapahaka, technology week, art week, social studies day and choir. Two teachers are used for each workshop, one from each school. Having two teachers involved has facilitated effective professional development as teachers have been able to learn from each other. There are from twelve to twenty students involved in any one workshop. The duration of the workshops depends on the nature of the topic. They can be one or two whole days, or one afternoon per week for a number of consecutive weeks.

The school also provides school wide activities such as technology and art (for example, the students were involved in a school mural) where gifted and talented students have the opportunity to shine. There is also the expectation that teachers will provide for gifted and talented students in their class programmes.

Along the way, the school has developed an inclusive philosophy and culture where all children belong and are valued and respected. There are expectations of mutual respect and a zero tolerance for yelling and 'put downs.' This extends to all people in the school including teachers, parents, students and other visitors. It is a school culture that enables students to feel safe, to be themselves and to take

risks. As part of this inclusive philosophy, students, teachers and parents are all viewed as learners at the school. Examples of this philosophy can be found in the rationale for pairing teachers from each school to run workshops. In this way, it is hoped that teachers can learn from each other and from other people that may be brought in from the community. There is a strong focus on Māori spirituality, and it pervades many aspects of the school life. There is a school chaplain who is also a Kaumātua. He works alongside students, parents and teachers. This special philosophy and culture is thought to be conducive to the identification of gifted and talented students.

Throughout the journey, there has been an emphasis on professional development. The preferred method of professional development is where teachers engage with and observe really good teaching practice in other schools then have that person come into the school and work with a teacher in the classroom. One-off courses have not been a priority when deciding on professional development.

I would love our teachers to engage with and observe really good teaching practice in other schools. Then I would really like to have that person come to our school and work with that teacher in the classroom. And then engage them in not only the work of changing the classroom around or reorganising things, but to engage in a lot of talk, reflective talk, deep reflective practice, the dialogue that bring long-lasting change.

The school has a gifted and talented committee consisting of the principal, the special needs coordinator and a senior teacher. The role of the principal is seen as a vital one in terms of being the driving force for change and innovation.

The school has a gifted and talented policy and the needs of gifted and talented students are also addressed in the special needs policy, the equity policy and the learning support policy. There is an action plan for gifted and talented students and a procedures booklet and implementation plan are currently being developed.

Table 41. Profile of School F.

Overall Coordination	Coordinator	Deputy Principal	
	Committee	Deputy Principal, Special Needs Coordinator, designated Teacher of Gifted and Talented, three classroom teachers.	
	Policies and Procedures	Gifted and talented students are specifically addressed in a special needs policy, a learning support policy and other curriculum documents. A specific gifted and talented policy is currently being developed.	
		Rationale	✓
		Goals or Purposes	✓
		School-Based Definition	✓
		Identification Practices	✓
		Programming Options	✓
		Curriculum or Programme Model	
		Professional Development	✓
		Funding	✓
Monitoring and Evaluation		✓	
Register of Identified Students	✓		
Definition	<i>Students showing extraordinary ability in one of more aspects of the total learning experience. Gifted and talented students have special needs and characteristics which will require differentiated learning programmes beyond that normally provided in a regular class.</i>		
Identification	Areas of Ability	Intellectual/Academic	✓
		Creativity	✓
		Visual and Performing Arts	✓
		Social/Leadership	✓
		Culture-Specific	✓
		Physical/Sport	✓
		Other	
	Methods	Many different identification approaches are used and vary according to the area of ability. For example achievement tests and teacher nominations are commonly used to identify intellectual/academic abilities and auditions and performances are used to identify creativity and visual and performing arts. Teacher observation/nomination is the most common identification method used. IQ tests and whānau nominations are never used as a means of identification.	
Age Levels	Schoolwide identification.		
Provisions	Nature	Combination of enrichment and acceleration. Use of Gardner's Multiple Intelligences, De Bono's Thinking Hats and Michael Pohl's thinking skills.	
	Classroom-Based	Ability grouping, independent study and consulting specialist teachers	
	Community-Based	Cluster with other local schools for enrichment-oriented withdrawal programmes.	
	School-Based	Withdrawal grouping is used throughout the school to provide for learners with intellectual/academic abilities. Withdrawal grouping is used for students in Years 3-6 in the areas of creativity, visual and performing arts and computer skills. Cross age grouping is used to provide for learners with social/leadership abilities. Competitions are used throughout the school to provide for learners with intellectual/academic as well as computer abilities. Outside experts are used for visual and performing arts. External examinations are used throughout the school to provide for learners with intellectual/academic abilities and computing abilities.	

School F's Journey

Prior to the present provisions for gifted and talented learners, this school was working on a limited budget to meet their needs. For the most part, provisions were just 'one off' opportunities. Many of these opportunities were generated through the Children with Special Abilities Committee and also through the Rural Education Activities Programme (REAP). The journey to improve school practices for gifted and talented learners began with professional development. Two years ago, the teacher in charge of special needs programmes within the school received the school staff travel grant and attended a course in Auckland facilitated by an international educational specialist. This was to act as an impetus for developing gifted and talented programmes at the school.

At the end of 2002, the Board of Trustees funded a .6 teaching position to provide out-of-class programmes for identified gifted and talented students. The deputy principal who had responsibility for gifted and talented policy and provisions within the school took up this position. In preparation for this, she involved herself in reading and research in the area of gifted and talented education. She met with staff and they settled on a programme that was a balance between academic programmes and research and problem solving type programmes.

In 2002, the school became involved in a professional development contract offered by the gifted and talented advisers. The deputy principal who was the gifted and talented programme coordinator at the school became the lead teacher for that contract. Because of this involvement, she was able to run professional development sessions with the teachers at this school. This focused on a number of themes associated with gifted and talented education including preferred learning styles, higher order thinking skills, multiple intelligences, integrated learning and research learning. Through this professional development, a focus on thinking skills emerged. Teachers at all levels teach a particular type of thinking skill using the sequence set down in the thinking skills resource by Michael Pohl.

In terms of identification, a group of interested teachers considered a range of methods for identification and these were trialled in 2002. The school has settled on a limited range of identification methods, the most common being teacher nomination. The school uses three particular forms for this. They are: a talent detector form that requires teachers to consider all the students in their class against a number of descriptors; an extended studies programme teacher checklist focusing of specific academic and affective areas; and a teacher checklist (adopted from the professional development contract) which requires teachers to consider a range of characteristics that may be indicators of special abilities.

From these forms, and from information from running record scores, asTTle, STAR and PAT results, the coordinating teacher compiles a list of gifted and talented students in year groups and specific curriculum areas. She then designs programmes to meet the needs of as many of these students as possible. These programmes are offered for gifted and talented students from Year 2 to Year 6. Students are withdrawn from their regular classes to participate in the programmes. Examples of recent provisions include: BP Technology Challenge; mathematics problem solving; World of Maths problem solving; Web challenges and competitions; drama lessons; French lessons; writers' workshops with authors; silk dying; music workshops; and drumming workshops.

A gifted and talented register has been established to track and monitor gifted and talented students throughout the school. Additionally, a gifted and talented procedural document has recently been drafted and distributed to all the staff for feedback.

While the deputy principal provides the out-of-class programmes for identified gifted and talented students, there is an expectation on the remainder of the teaching staff to not only support these special programmes but to provide for gifted and talented students within their classroom programmes. However, the school recognises the need to further develop and formalise in-class provisions for gifted and talented learners:

It simply isn't enough to expect that those children will be extended by the withdrawal groups. There's more children than what I can cater for, all our bright children need

constant extending. It might be that I have to do more in the way of staff professional development - teaching about differentiated learning programmes as they affect both gifted and underachieving students.

Over the last two years, staff awareness of the needs of gifted and talented students has risen considerably. This has come about through more specific programmes and more research and professional reading becoming available to teachers. Also, the school's involvement in the professional development contract has raised the awareness of the specific needs of gifted and talented learners in the school.

I also think gifted and talented awareness is developing. The profile of gifted and talented education has risen over the last couple of years and it is something that both staff and the Board of Trustees of our school has been aware of. So, while we've known for a long time about the gifted and talented students, the need for professional reading, professional development, research and specific programmes for these children has become more apparent and more available. It's also been a Ministry initiative with the professional development contract being made available. We recognise that we've definitely got children who fall into this category and that we need to provide for their learning so that they become lifelong motivated learners.

There is a schoolwide belief that students can be gifted and talented in a number of areas, not just the traditionally held view of intellectual ability. The school considers talents in a range of areas including creative, leadership, music as well as the traditional curriculum areas. The concept of multiple intelligences (Gardner) plays a significant part in curriculum planning throughout the school.

The school recognises that they are not yet successful in identifying and providing for the unique needs of gifted and talented Māori learners. At the time of this case study, apart from the employment of a teacher aide to work with a group of boys on kapahaka skills, there were no programmes that were aimed at specifically meeting the needs of Māori gifted and talented students. There were Māori students involved in the gifted and talented programmes although the school was conscious of the fact that Māori were under represented in these programmes. It was hoped to increase community involvement in the programmes and through this, develop more culturally appropriate identification methods.

There is staff ownership of the school policies related to gifted and talented education. All staff were involved in developing these which included making decisions regarding procedures for identification and provisions. There is an expectation that all teachers will participate in providing for gifted and talented students, it is not an option. Therefore, the policies and practices related to gifted and talented education are school-wide and have the support of all teaching staff.

Table 42. Profile of School G.

Overall Coordination	Coordinator	Deputy Principal		
	Committee	None		
	Policies and Procedures	Gifted and Talented Policy, Implementation Plan for Gifted and Talented Students		
		Gifted and talented addressed in Special Needs and Equity Policies		
		Rationale		✓
		Goals or Purposes		✓
		School-Based Definition		✓
		Identification Practices		✓
		Programming Options		✓
		Curriculum or Programme Model		
		Professional Development		✓
		Funding		✓
Monitoring and Evaluation		✓		
	Register of Identified Students		✓	
Definition	<i>Children, who given the opportunity are capable of high performance in one or more of the following areas: general intellectual ability; specific academic aptitude; creative or productive thinking; leadership ability; cultural traditions, values & ethics; naturalistic abilities; psychomotor.</i>			
Identification	Areas of Ability	Intellectual/Academic (Year 3-6)	✓	
		Creativity (Year 3-6)	✓	
		Visual and Performing Arts (Year 5-6)	✓	
		Social/Leadership (Year 5-6)	✓	
		Culture-Specific (Year 3-6)	✓	
		Physical/Sport (Year 5-6)	✓	
		Other		
	Methods	Teacher observation is utilised in all areas. In the intellectual/academic area rating scales/checklists, achievement tests, self-nomination and peer nomination are used sometimes. With the exception of achievement tests, these same approaches are used in the creativity area. In the social/leadership, physical/sport and visual and performing arts areas self nomination and peer nomination are used sometimes. In addition the visual and performing arts area makes occasional use of auditions/performances. Culture-specific abilities and qualities are sometimes identified through auditions/performances, peer nomination, self nomination and whānau nomination.		
Age Levels	Years 3 - 6 and Years 5 - 6 as indicated above.			
Provisions	Nature	Combination of enrichment and acceleration.		
	Classroom-Based	Ability grouping, learning centres, independent study, curriculum compacting/diagnostic-prescriptive teaching and teacher planning.		
	Community-Based	Correspondence School and One-Day-a-Week programme		
	School-Based	Cross-age grouping for Years 3-6 in visual/performing arts and cultural-specific abilities and qualities and for Years 5-6 in physical/sport. Withdrawal groups across the school in intellectual/academic and for Years 3-6 in creativity, visual/performing cultural-specific areas. Concurrent/dual enrolment across the school in the intellectual/academic area. Competitions for intellectual/academic, and physical/sport. Clubs/electives across the school in intellectual/academic, for Years 3-6 in visual/performing and cultural-specific areas and for Years 5-6 in physical/sport. Outside experts across the school in intellectual/academic, for Years 3-6 in visual/performing and cultural-specific areas and for Years 5-6 in social/leadership.		

School G's Journey

The programme for gifted and talented children at school G has been running for eight years. It was introduced by the principal who enlisted the help of the Deputy Principal (DP). Both staff members had “a real passion” for providing for gifted and talented children. The decision was made that a full-time teacher was required to organise and run a gifted programme. In order to create this position each teacher in the school needed to take additional children in his/her class. This proposal was presented

and discussed at a staff meeting. All teachers agreed to an increase in their roll numbers to enable the establishment of the gifted and talented programme.

The DP took on the responsibility of organising and running this programme. She had no specific training in this area but had previously taught at a school that had a gifted programme and so was aware of some of the benefits and pitfalls involved. She revisited this school, consulted with the programme co-ordinator, called on the assistance of gifted experts in the area, attended relevant courses and so gradually increased her knowledge and skills:

It was just a matter of starting from scratch, building up systems, building up ways of identifying children, calling on people ...It was just trial and error to start with. There were no rules.

The programme has always had the total support of the principal, teachers and community. It consists principally of withdrawal enrichment classes in a range of subject and skill areas. Initially these classes were for Year 2 to Year 6 children but this was found to be too demanding on the DP's time and resources. Nowadays the programme caters for combined Years 3 and 4 and Years 5 and 6 groups. Fifteen to eighteen children are withdrawn three times a week for a total of four and a half hours tuition. A small core of children get nominated for most enrichment classes but otherwise membership is quite fluid. Up to 100 different children can participate in various groups throughout the year. This represents approximately one quarter of the school.

At the beginning of every term teachers are asked to identify children in their class whom they consider gifted and talented. They use an identification/nomination grid and gifted characteristics information provided by the DP to assist them in this task. The areas of giftedness included are varied and wide-ranging. In addition, PAT scores (especially listening scores), classroom products and performances and teachers' "gut feelings" are taken into consideration.

Once children are identified, withdrawal classes are organised to enrich children in their areas of strength. The DP usually teaches these classes but she will also release other staff members to take groups in areas where they have particular skills and interest. Classroom teachers have contributed to computer, sport and art groups.

Enrichment topics can be based around a high quality resource, an up-coming event or competition, school happenings or a special interest of the DP. Occasionally teachers request that a particular topic be taken when they identify a need within their own classrooms. Topics which have been covered over the years include: mathematics, edible garden, worm farming, sports, "selling our school" (a newspaper competition), time capsules, school playground design, a Picasso art project and a marionette puppet project which involved making the puppets, their costumes, a puppet theatre and writing and performing a play.

Each enrichment topic lasts six weeks. However, groups are not run in the first six weeks to enable children to settle into their regular classes and for teachers to conduct PAT testing and run school camps. Similarly, enrichment groups are not taken in the last month of the school year to allow children to participate in end of the year activities.

In addition to withdrawal groups, gifted and talented children are provided for in their regular classrooms. The school does not favour grade skipping but prefers to accelerate children within their own class:

We don't shift them into other rooms, we try and keep them with their own age group.

The local one-day-a-week programme is utilised. This year twelve children from Year 4 to Year 6 are attending. The school pays a proportion of their fees from the gifted programme fund and parents pay the balance. Parents transport their children to the one-day-a-week programme. The Correspondence School is also used to extend children in areas the school cannot provide for.

School electives and the annual school production provide further enrichment opportunities for gifted and talented students. The latter includes group and solo musical performances, kapahaka and drama. Gifted and talented musicians, artists and leaders are given responsibility for designing props, choreographing sections and organising practices. Children in Year 3 to Year 6 participate in a range of electives for 45 minutes once a week. Choices include choir, kapahaka, drama, sports, guitar, line dancing, horticulture and computers. In addition, a drama teacher comes to school once a week to take lunch time drama lessons. Parents pay for their children to attend. In Term 3 Spanish lessons are planned if there is sufficient interest and in Term 4 lunchtime guitar lessons will be available. Both Spanish and guitar lessons are to be offered on a parent-pay basis.

Parental and community involvement in gifted programmes is encouraged. Parents act as resource people, provide transport, attend performances and are invited to visit enrichment groups to see what their children are doing and to celebrate their achievements. At the end of one particular topic parents were invited to bring their children to a BOT meeting where the children's work on designing a school playground was presented:

It was a huge success. It was just wonderful to see the positive feeling it gave the whole thing. It was just wonderful to see them sharing with the kids ... for some of them it was the first time they'd been in the school apart from the day they had enrolled their kids.

The DP noted that the future of gifted education at this school is difficult to predict as the provision of enrichment classes is dependent on funding, roll numbers and the availability of appropriate staff. However, if the enthusiasm of staff and parents is any indication, it should continue in some form or other.

Table 43. Profile of School H.

Overall Coordination	Coordinator	Teacher with 'responsibility' unit	
	Committee	Teacher with 'responsibility' unit, Associate Principal, three teachers (of the accelerate classes)	
	Policies and Procedures	Children with Special Abilities Policy and Implementation Plan Initial selection criteria for Year 7 and Year 8	
		Rationale	✓
		Goals or Purposes	✓
		School-Based Definition	✓
		Identification Practices	✓
		Programming Options	✓
		Curriculum or Programme Model	
		Professional Development	
		Funding	✓
		Monitoring and Evaluation	✓
Register of Identified Students	✓		
Definition	<i>Based on Renzulli's broad definition. A gifted student is a student who has high academic ability, is highly motivated and demonstrates creativity. This may be potential rather than actual. A talented student is a student who has exceptional ability in one or two areas only.</i>		
Identification	Areas of Ability	Intellectual/Academic	✓
		Creativity	✓
		Visual and Performing Arts	✓
		Social/Leadership	✓
		Culture-Specific	✓
		Physical/Sport	✓
		Other	
	Methods	<p>The selection process begins with Year 6 students using indicators such as checklists, tests, anecdotal information and observations.</p> <p>Teacher observation and nomination is used across all areas of ability.</p> <p>In academic areas always use teacher rating scales/ checklists, achievement tests, IQ tests, teachers-made tests and auditions, sometimes use portfolios, parent, self nominations and one-to-one interviews with parent and child.</p> <p>For areas of creativity and arts, always use auditions, sometimes use teacher rating scales/checklists and self-nomination.</p> <p>Social/leadership sometimes use teacher rating scales/checklists and self and peer nomination.</p> <p>Physical always use self-nomination and sometimes audition/performance.</p> <p>Identification is an ongoing process throughout a student's time at intermediate school. Open to recommendations by other teachers, child's parents and have moved a number of students into the programmes based on these recommendations.</p>	
Age Levels	Schoolwide identification (Years 7 and 8)		
Provisions	Nature	Combination of enrichment and acceleration. There is no specific curriculum or programme model	
	Classroom-Based	Ability grouping	
	Community-Based	No community-based provisions	
	School-Based	<p>There are four 'children with special ability' classes – two at Year 7 and two at Year 8. These are fulltime special classes for the academically gifted.</p> <p>The classes cater for a wide range of students who may have learning and behavioural problems as well as those who are already performing to their capabilities.</p> <p>Withdrawal groups operate for creativity, arts, social and leadership, and cultural.</p> <p>Opportunities for competitions and external exams are also provided.</p> <p>Clubs or electives are available for academic, creativity, arts, culture, and physical/sport.</p> <p>Outside experts are used for creativity, arts, culture, and physical/sport.</p>	

School H's Journey

The gifted and talented education programme at this intermediate school began 12 years ago and was based on an initial philosophy of high academic performance. The school at this time used limited identification procedures and catered for a narrow band of students in two 'accelerate classes.' These classes were placed in two different syndicates. Students were able to stay in these classes if they maintained high performance levels and displayed satisfactory work habits. It was deemed to be an elitist approach, a "sort of special education for the top children."

The teacher who presently co-ordinates gifted and talented education joined the staff five years ago. This teacher became aware of students around the school whom she felt were gifted but not being catered for. With the resignation of two teachers in the accelerate programme (as it was called) the present lead teacher became involved and the concept broadened so that students with potential could be included in the programme, even though they were not performing at high levels of academic achievement.

In 2002, the number of classes for gifted and talented students doubled (to four) to reflect the school's broadened concept and identification processes and significant growth in student numbers. The school believes that they now have the 'right' number of classes. Within these classes is a real mix of students including underachieving gifted students and those with learning difficulties such as dyslexia and ADHD. Students' problems and issues are now dealt with within these classes instead of removing them. In comparison to classes from previous years, reported levels of academic achievement reflect the different blend of students now selected for these classes. The classes are now clustered together in one syndicate. This has provided opportunities for students to more easily spend time with like-minded peers, although there are differing views among the wider staff about the strengths and weaknesses of this approach.

Once the school had established the need for four classes (two at Year 7 and two at Year 8), the next dilemma was to find suitable teachers. The new teachers are committed to gifted education and have also had the opportunity for professional development and advisory support. The lead teacher has a strong personal philosophy, based on sound knowledge and experience, which she believes she has imposed on the others. They now have what they perceive to be a good blend of teachers, a gender mix and complementary strengths and a common philosophy developed through discussion and collaborative problem solving. This common philosophy has developed despite the teachers having different teaching styles.

The school has recently formulated a policy with a defined rationale and purpose aimed at identifying those who are academically gifted. The school provides a two-year specialised programme for gifted and talented students based on a broader identification process (quantitative and qualitative data) and a policy that recognises consideration of students based on academic potential rather than performance. The programme has become more formalised to identify specific skills and knowledge that are to be developed over the two-year period. With four classes there is a recognised need for greater co-ordination and clarity of direction. A student register has been recently devised to help identify and track students. Teachers will be encouraged to contribute information from various subject areas so that the coordinator can use the register to "identify kids that may have slipped through the net." However, the register is a relatively new development and has yet to be used effectively by all staff.

As a large intermediate school attempting to address the academic, social and emotional needs of gifted and talented students there are still challenges to be faced. Within the school there needs to be a common understanding among staff of the definition of gifted and talented students (children with special abilities), processes for identification, use of the student register and of the programme. The timetable and time itself can limit students' opportunity for in-depth study. With a greater focus on the emotional needs of students and the less well-adjusted gifted student the challenge is to be able to access help from outside experts to help teachers support these students. Other challenges are to ensure that students outside the school's zone have access to gifted education programmes and the bridging of gaps between schools. There is a concern that the programme has come "to look like a sandwich"; what happens to the students before they reach their programme and what happens to them when they move on to college? However, the lead teacher explains: "I'm happy where we're at now, at this stage...it's not the end, the journey's not finished!"

Table 44. Profile of School I.

Overall Coordination	Coordinator	Teacher (Head of Department Focus Learning with responsibility for gifted and talented Coordination).	
	Committee	Deputy Principal, Designated Teacher of Gifted and Talented, Head of Department English, Science and Mathematics Departments, School Counsellor, nominated representatives from each faculty.	
	Policies and Procedures	Gifted and Talented Policy; Special Needs Policy and Learning Support Policy.	
		Gifted and talented addressed in curriculum delivery documents. An action plan for gifted and talented students is currently being developed.	
		Rationale	✓
		Goals or Purposes	✓
		School-Based Definition	✓
		Identification Practices	✓
		Programming Options	✓
		Curriculum or Programme Model	✓
		Professional Development	✓
		Funding	✓
	Monitoring and Evaluation	✓	
Register of Identified Students	✓		
Definition	<i>Use Gagné's definition of gifted and talented students. His model forms the basis of policy and programme development.</i>		
Identification	Areas of Ability	Intellectual/Academic	✓
		Creativity	✓
		Visual and Performing Arts	✓
		Social/Leadership	✓
		Culture-Specific	✓
		Physical/Sport	✓
		Other	
	Methods	Use a combination of pre-assessment data which includes self-appraisal, reading comprehension, poetic writing sample, diagnostic spelling test, diagnostic maths test, Raven's score (standard matrices), Year 8 teacher evaluation, parent appraisal form, primary assessment data (PATs, portfolios etc). Visit contributing schools to confirm evaluations. Teacher observation and nomination is relied upon for all areas.	
Age Levels	Schoolwide identification.		
Provisions	Nature	Acceleration and enrichment; Autonomous Learner Model adapted	
	Classroom-Based	Ability grouping for all classes.	
	Community-Based	Mentoring (e.g. YWCA Young Leaders Programme)	
	School-Based	Ability grouping (all levels) Gifted and talented, sports academy, and high achiever classes for able students Cross-curricular trips/camps Year 11 gifted and talented students are organised into five groups for mentoring purposes Competitions for intellectual/academic (e.g. Science Fair), problem-solving, creativity, visual/performing arts and physical/sport. Writers Festival, Correspondence School, university papers, electives programme.	

School's Journey

The journey for this large urban co-educational high school began in the 1980s. After studying a gifted education paper towards a Masters degree, a staff member expanded on his interest in this area by forming a small committee that helped him to establish a class for twenty gifted and talented students. Renzulli's Enrichment Triad was the model adopted for teaching these students.

In the early nineties the students for the gifted and talented class were selected on the basis of TOSCA results, and mathematics and writing samples. The focus was still very much teacher-driven. During this time, programmes such as De Bono's CoRT Thinking Programme were introduced into the junior classes. By the late nineties, as the Ministry of Education and universities began to take a more active interest in gifted education, so too did the school's management hierarchy.

Although this school's first policy on gifted education was drafted in 1995, approval for the current gifted coordinator to attend the 1999 gifted conference in Australia marked the turnaround in policy development. The policy as it exists today was finalised in 2000.

The gifted and talented coordinator negotiated the job description in 2002 and it was formalised in 2003. A committee was formed with each person on the committee representing one of the seven faculties within the school. The Head of Student Support Services and a representative from the management team are also committee members. It is the responsibility of each department to state in their schemes how they will cater for gifted and talented students.

Decisions about professional development opportunities for staff are also made by the departments. The coordinator encourages teachers to participate in broader activities that are beyond the examination and curriculum structure. Each department then chooses the nature and delivery of their professional development.

The staff is committed to having 'streamed' gifted and talented classes, in preference to every subject teacher developing students' abilities within their own classes. They call it "focus learning" and believe it is much easier to teach this way. While some teachers question the need for every class to be streamed, (for example, the middle ability band), nevertheless many support the idea that the "top, really top kids" need to have a special focus and be in classes together. Teachers held differing views, however, about the benefits of acceleration. These ranged from those who supported enrichment and were against acceleration to those who advocated for a balance between these two approaches.

The focus group believed their school was "trying desperately hard" to look at a whole range of abilities when selecting students for the gifted and talented programme. The pre-assessment tests are administered to every student and they are selected into the gifted and talented class on the basis of the scores and information provided. The school sees the use of multiple methods as valuable because it allows cross checking when discrepancies occur. The different tasks that students are required to do in the selection process help the school to identify students with potential, rather than simply looking at PAT scores. The perception is that while some of those students are not necessarily the hardest working or the best behaved, nevertheless they have been identified as having potential which, in the teachers' view, is more important.

Considered by the school to be its most promising practice, a pre-assessment package has recently been devised to identify the top incoming students. During the visits to contributing schools the Year 8 students participate in a range of pre-assessment procedures, including the completion of a self-appraisal form. The asTTle tests, a diagnostic spelling test, the Ravens, and a diagnostic mathematics test (devised by the coordinator) form one part of the jigsaw puzzle. A database is being developed which will track the achievement of all students who attend schools within this geographical area.

In addition to the specialised academic classes, there is a sports academy class for the Year 9 students identified as having both academic and sports ability. While some teachers considered this class to be one of the school's most promising provisions, others questioned the logic of selecting students into a class because of their sporting ability. Grouping these students together was not seen by critics of this approach as either the best or the easiest way of teaching them other core subjects. Students in the

sports academy class were considered to be more diverse, compared to the students in the gifted and talented class who were thought to have more similarities than differences.

The school endeavours to provide a broad programme for their gifted and talented students. Past and present provisions include: vertical acceleration in some subjects; university papers; a programme based upon George Betts' Autonomous Learner Model; Correspondence School; trips; Writers' Festival; Science Fair; electives (for example, philosophy, astronomy, pottery, crafts, debating, theatre sports, writing club, chess, computers); problem solving programmes; and competitions.

Leadership opportunities, for example, the YWCA Young Leaders programme, are provided for students who have gifts in interpersonal skills. The school sends girls with average ability who miss out on school leadership roles, but who have been recognised for their potential to the YWCA programme.

Supporting senior students who are gifted and talented is considered to be one of the school's more successful provisions. There is good two way communication and the school offers a mentoring programme, run by the Head of Student Support Services, whereby staff sign up to mentor students who are gifted in their field of expertise. People in the community are also approached to be mentors, however more often than not, the mentors are teachers at the school.

Throughout its journey, the school has always been fortunate to have a dedicated person to drive through new initiatives relating to gifted and talented education. Now with more and more staff committed to making provisions for the gifted and talented students, this secondary school stands poised to reflect and consider new ideas to continue this ongoing journey into the future.

Table 45. Profile of School J.

Overall Coordination	Coordinator	Designated Teacher (Learning Support Co-ordinator, Special Needs Co-ordinator and Gifted and Talented Teacher)		
	Committee	Designated Teacher, School Counsellor and Head of Department Maths		
	Policies and Procedures	Gifted and Talented Policy, Learning Support Policy (with specific reference to gifted and talented) and Acceleration Policy; Teachers' Guides for identification and provision; Schemes for all curriculum areas include provisions; Mathematics Department 5-year articulation plan for talented students.		
		Rationale		✓
		Goals or Purposes		✓
		School-Based Definition		✓
		Identification Practices		✓
		Programming Options		✓
		Curriculum or Programme Model		✓
		Professional Development		✓
		Funding		✓
		Monitoring and Evaluation		✓
	Register of Identified Students		✓	
Definition	<i>Gifted and talented students are those who have potential (gifted) or are performing (talented) well above average in any of the following domains: general intellectual, specific academic, creative or productive thinking, leadership, visual or performing arts and psychomotor ability.</i>			
Identification	Areas of Ability	Intellectual/Academic	✓	
		Creativity	✓	
		Visual and Performing Arts	✓	
		Social/Leadership	✓	
		Culture-Specific		
		Physical/Sport	✓	
		Other		
	Methods	Intellectual/academic ability is identified across the whole school using teacher observation/nomination, tests and parent nomination; Sometimes self and peer nomination is used and on rare occasions teacher rating scales, and IQ tests. Years 9-10 students are identified for creative abilities by parent nominations, and sometimes teacher observation/nomination. Visual and Performing Arts abilities are identified across the school using sometimes: portfolios, auditions and performances, and peer nomination. Social and leadership abilities are identified for Year 9-10 students using parent nomination and sometimes teacher observation and nomination, and auditions/performance. Physical/Sport abilities are identified for Years 9-10 using performances, sometimes teacher observation/nomination and parent nomination. On rare occasions peer nomination is used.		
Age Levels	Schoolwide identification for intellectual/academic Years 9-10 for creativity, social/leadership, physical/sport.			
Provisions	Nature	Combination of enrichment and acceleration		
	Classroom-Based	Ability grouping, curriculum compacting, individualised education plans, consulting specialist teacher, teacher planning, acceleration		
	Community-Based	University courses both correspondence and early entry to mathematics courses; Olympiad training in mathematics and chemistry; Regional Young Writer's Group		
	School-Based	Across the school, in academic areas, withdrawal groups, cluster groups, competitions, external exams and outside experts used. In the visual and performing arts across the school, cross-age grouping, competitions, clubs/electives, external exams and outside experts are used. Social and leadership across the school, cross-age grouping and clubs or electives are provided. Physical/sport across the school, cross-age grouping, competitions, clubs/electives and outside experts are used.		

School J's Journey

The gifted and talented education journey in this large boys' high school began philosophically six years ago when an academic committee was set up. The brief of the academic committee was to "change the culture of the school so that it was all right for kids to stand up." The first part of the organisational structure was to appoint a coordinator of learning support to develop, implement and maintain a systematic way of identifying students and to put processes in place to address their needs.

Three years ago the learning support coordinator was appointed. This person began the process of putting systems in place for the identification of students requiring learning support. The allocation of a management unit for learning support has enabled structures to be developed. "Basically, the gifted and talented programme has grown out of these structures." Initially, the focus was on identifying those with specific learning disabilities and underachieving students. However, since half way through 2001, the gifted and talented students have been targeted. The first goal was to find out what was happening in each department for gifted and talented students. A survey requiring departments to nominate students they identified as gifted and talented and to list the measures they employed to meet the needs of these students was conducted. From this initial response it was clear that generally the staff needed professional development to identify gifted and talented students and that a variety of strategies to meet student needs were in use across the school. A second survey of teacher attitudes towards giftedness and gifted education was conducted in 2002.

At the same time the school introduced a 'blues' scheme for acknowledging academic achievements as well as the traditional colour awards for exceptional achievement in sport and cultural endeavours. This was in response to a random survey of students to gauge their reaction to acknowledging students talented in areas other than those traditionally celebrated in schools. There was a desire from the staff to improve performance in order to try and change the culture of the school. This was not a 'top down' approach.

The school has moved on to establish a formal identification process for gifted and talented students. The identification process is systematic; uses multiple sources and tools; is ongoing; and involves a team approach that includes the student, parents and staff. The school has adopted a multicategorical approach. The coordinator acknowledged the need to consider other concepts of giftedness such as Māori giftedness and leadership and the need for students to be given opportunities to show their talents in areas other than that traditionally targeted. A student register has been developed and profiles completed for each student. Student interviews contribute to the assessment of cognitive, social and affective needs and wants. An individual educational programme is developed for each student.

Three policies and procedures have been developed: gifted and talented, learning support, and acceleration policies. These include guidelines about identification, the role of learning support, evaluation, professional development, provisions and funding. These policies are in draft form but provide a sound basis for the school's consideration and implementation of acceleration as an option.

The next stage was to provide and arrange for professional development so that staff could develop strategies for providing for gifted and talented students. Initially the learning coordinator targeted the staff as a whole but then began to work more effectively with specific departments. The coordinator began with the Mathematics Department and then moved on to the English Department. Members of the staff focus group expressed their appreciation of the workshops they attended.

The departments are developing articulation plans for gifted and talented students for their five years at secondary school. Strategies include telescoping, grade acceleration, enrichment and curriculum differentiation. However, each department is encouraged to try and find ways of meeting students' needs and to monitor and review what is happening for individuals. Some students needed time management and study skills so this was targeted as an area of skill development.

The community provides support in specific areas and enrichment experiences such as computer web design. The Careers Department is also involved and helps the coordinator find key people in the

community who may be able to support gifted and talented students in the school. The school has established positive relationships with the local university. Students are allowed to enroll in stage one papers in mathematics. A community writers' group also accepts students from the school.

Parents are viewed as key stakeholders in the process. Parents of students on the register are sent an information pack to which they contribute information about their child, such as outside school involvements and early indicators. Together a parent inventory and Parent Inventory for Finding Potential (PIP) survey indicate various types of giftedness. Parents are also involved in the monitoring and evaluation process. As part of the Individual Education Plan (IEP) process parents are expected to be involved and to provide feedback.

Pastoral care is also viewed as a major area. This involves working with the guidance counsellor, deans and the coordinator.

The evaluation process is ongoing and involves students, teachers and parents. Self-review is the next focus in the development of evaluation procedures. Students are viewed as integral to the process and are brought together specifically to share experiences in a personal portfolio programme.

Staff have perceived a shift in policy over the years - away from simply a focus on academic performance to recognising that giftedness is a bigger issue, and that there are many other ways of being gifted and talented. Today they share a greater concern about identifying students who are gifted in ways that are not necessarily obvious. There is a genuine effort to give more consideration to those who do not fit the more traditional concept of a "bright kid."

Initiatives such as endeavour awards (for juniors) and scholar awards support this changing culture. Students with scholar awards have the term "Scholar" either in gold or blue displayed on their blazer pocket depending on their level of achievement at regional, national or international level. As one staff member said, "I would say the culture has changed. It is changing." Thus the journey for this school has reached the stage where:

There is a growing rapport amongst staff, gifted students and their parents; an increased openness (the words gifted and talented are now freely used!); a willingness by parents and students to participate in provisions; and a more proactive, collaborative approach by staff to identify and provide for gifted and talented students.

THE CASE STUDY THEMES

School Organisation and Philosophy

During the interviews, coordinators were asked to describe the schoolwide organisational strategies which support gifted and talented education. During the focus group interviews, teachers were asked:

What involvement have you, as teachers in this school, had in the establishment and development of your programme for gifted and talented students?

Their responses to these questions, coupled with the questionnaire results and programme documentation, are described in this section.

Schoolwide organisation. Eight of the ten schools involved in the case studies had specific gifted and talented policies and one school was in the process of developing such a policy. For seven of these schools, the policy was comprehensive and included a rationale, goals or purposes, a school-based definition, identification practices, and programming options. Most of the policies included provisions for teacher professional development, funding, and monitoring and evaluation procedures. The one school without a gifted and talented policy explained that their policy on gifted education was part of the overall school policy that all teachers have input into. It was described as a collaborative way of working where everyone contributes ideas and is involved in decision-making across the whole school. Eight schools also had specific reference to gifted and talented learners written into other

policies such as special needs policies and learning support policies. All but one of the schools had a register of identified students.

In terms of personnel, eight of the ten schools had a gifted and talented committee and in all but two schools, the coordinator of the programmes held a position of responsibility within the school. For six schools, this was the deputy or associate principal, or a head of department and in one school, the principal was the coordinator. For two schools, the coordinator was a designated teacher and one school did not have a coordinator. In five schools, the principal was a member of the gifted and talented committee and in five schools the principal was not involved. Neither of the two secondary schools involved in the study had principal involvement in their gifted and talented committees however, one of the secondary schools had a network of support that included the guidance counsellor and the careers adviser working with the gifted and talented coordinator. The gifted and talented adviser from Teacher Support Services also worked closely with the coordinator of this school.

School philosophy. Each of the ten schools that participated in the case studies had their own unique culture and philosophy; there were few commonalities. However, one common philosophy that did emerge from six schools was the importance of considering giftedness from a wide perspective as opposed to just the traditional area of intellectual abilities. One teacher described this in the following way:

Recognising and being more sort of open to children with talents of any sort and not just academic talents or thinking that they're intelligently bright and a philosophy of trying to meet their needs in some way.

Another teacher described a change in their school:

I would say the culture has changed. It is changing. I really do believe that there's a lot of students who are coming through Arts or academia who are now monitors and this is largely helped by the (name) awards. The sports day is still there, but there's a lot of other things being recognised now and that's a healthy thing for the school"

Two schools had a strong focus on spirituality. For one school, this was from a Catholic perspective. The other school placed an emphasis on Māori spirituality. For both schools, this spirituality pervaded many aspects of their school life and was considered to be conducive to the identification of gifted and talented learners.

For one school their philosophy was in part based around an inclusive model where all learners belonged and are valued and accepted. This model of inclusion was believed to enable students to feel safe, to be themselves, and to take risks. This was also considered conducive to the identification of gifted and talented learners.

There were some aspects of each school's philosophies that focused on the learner. For example two schools believed that all children should be viewed as individuals and not be classified according to a label or membership of a group. One school had a philosophy of educating the whole child rather than just considering specific areas of giftedness and one school had a philosophy that everyone was a learner.

Three schools had a philosophy of moving outside their 'comfort zones,' having the courage to take risks and keeping an open mind when planning for gifted and talented learners. In terms of taking risks one teacher commented, "We expect the school to do it so we should do it too!" Another teacher stated, "In this school we don't think, 'oh we have never done that so we're never going to think about it' ...people are more open to do things. The rule is bang down the door."

Other 'one-off' philosophies included the importance of school-wide ownership of policies and provisions for gifted and talented learners, the need for flexibility, and the importance of sharing of provisions.

Identification

During the in-depth interview with the coordinator, the following questions were asked in relation to identification:

In terms of identification, what has been most effective/successful? What has been problematic/unsuccessful? And how have those problems been overcome?

During the focus group interview, teachers were asked to discuss these questions:

What are the most promising practices your school has in place for identifying gifted and talented students? In other words, what do you do 'really well'?

What factors have contributed to the development and implementation of these practices?

What are the barriers or difficulties in identifying gifted and talented students? How have, or might, those be overcome?

From the analysis of the case study responses, several themes arose in relation to the identification of gifted and talented students and these are discussed in this section.

The interrelationship between concepts of giftedness and talent and identification.

In most schools it was felt that there was a need for a common understanding about what is meant by gifted and talented students before considering identification. The staff in two of the schools felt that they had yet to come to a consensus regarding the terms 'gifted' and 'talented' and this was seen as a barrier to effective identification. To overcome this, these schools are addressing the concepts of giftedness and talent at whole school staff meetings.

One school felt that as the identification process developed so too did teachers' understanding of giftedness and talent:

The fact that our knowledge is still in the very early stages and so that there's a lot to learn or to know about or to research really. Initially, many people started to think of intellectual gifted and talented, whereas now we know from just ongoing experience really that it's not, we're not looking at something as narrow as that.

This broadening of understanding and identification, however, was also raised as a concern and the school felt that this could lead to over-identification.

Identification of multiple abilities and qualities. As the school profiles and journeys indicate, across the case study schools consideration is given to a range of areas of giftedness. As one school explains they identify a broad range of gifts and talents not just in the 'traditional' academic or intellectual domain:

We clearly see those academic things because they come out very strongly in the classroom setting so we have to look a little bit further to find the other areas of gifting.

Staff at another school look for giftedness not only in exceptional performance but also in the nature and insightfulness of a child's questions, his or her level of interest, and other behavioural indicators. One secondary school emphasised that consideration is given to aspects other than academic, such as leadership skills, a sense of humour and behavioural indicators.

One school felt that they were "trying desperately hard" to look at a whole range of abilities when selecting students for the gifted education programme. The different tasks that students are required to do in the selection process, help the school to identify students with potential, rather than simply looking at achievement scores. The perception is that while some of those students are not necessarily

the hardest working or the best behaved, nevertheless they have been identified as having potential, which in their view, is more important.

The range of abilities being identified varies with schools, and it seems that these are contextually-based. For example, in one of the Christian schools, there is a commitment to the recognition of spiritual and emotional giftedness:

We definitely have children who have got something way deeper and you see that it might be in just a knowledge, a deep knowledge of God really that we see in some kids. ...It always works its way into spiritual intelligence, always finds itself aimed at bettering other people's lives

There are little behaviours you can pick up, the little things that they do.

The example was given of a child who took advantage of every prayer opportunity, had advanced learning of scripture and wanted to sing (praise). The child wasn't that good to start off with but was "driven" to learn, practised and persevered and now is at a Performing Arts school with the ambition of being an international worship leader:

She'll do it, she's just had this thing in her. She's not motivated by money or anything else, she's just totally motivated in this way.

Another child who is considered spiritually gifted has "spiritual depth" and "a depth of knowledge that goes with it." This depth can be identified by the nature of the questions he asks. As the teacher explains, "The quickest way to actually unearth these giftings is to actually provide them with an opportunity to use them." The example was given of a "secret angel of the month" strategy where children draw a name of someone they must do something nice for every day – some children stand out in this activity and become "favourite angels." "Kids with spiritual depth will shine out in this sort of activity." It is likened to giftedness in art where children produce work that is outstanding:

I look [at their work] – I can't even think that, I can't even see that and its like that with the spiritual ... By giving them opportunities [for spiritual and serving gifts and leadership opportunities] you very quickly see the ones that are naturally tending towards it and then you give them even more experience.

Several teachers explained that there are some areas of the curriculum that are quite difficult to identify gifted and talented students. One school suggested music as an example where you may have a capable piano or flute player but the student may not be creative. If the programme focuses on creativity the students may not shine but that was "a lesson that we learned." Another school felt that it is more difficult to identify children in subjects that are not covered as often such as science.

Multiple methods of identification. Most of the schools reported a multi-method approach to identifying learners who are gifted and talented, strongly advocating the use of formal and informal methods. However, as one respondent explained, although individual students are viewed as having special abilities in different areas, if teachers have a limited knowledge of gifted education then they tend to rely on the more formal indicators and tests to identify specific children. All schools recognise that consideration is given to the knowledge and understandings provided by teachers, parents, and the students. Schools acknowledged that all information is taken seriously and reviewed, whether it comes from parents, teachers or self-referrals by the students.

Teacher identification. All of the case study schools were reliant upon teacher identification of giftedness and talent. In some schools identification checklists and rating scales were used. For example, in one school three particular forms are used to help with the identification process. They are:

1. A talent detector form that asks teachers to consider all the students in their class against a number of descriptors. The descriptors focus on aspects of leadership, creativity, linguistic talent, motivation, and curiosity, as well as some negative behaviours such as able students who are disruptive or easily irritated.
2. An extended studies programme teacher checklist. This involves three categories. The first category is those students their teacher would place in the top 20% academically for their age. This is in relation to general intellectual ability and to specific academic aptitude. The second category relates to those students whom their teacher may have a “gut” feeling that they may be talented in a particular area. The third category includes students who are outstanding in any of the areas of leadership, humour, critical thinking, creativity, motivation, curiosity sense of fairness and second language.
3. A teacher checklist adapted from the gifted and talented professional development contract. This asks teachers to consider a range of characteristics that may be indicators of special abilities.

Staff in another school use an identification grid which is designed to focus their observations and guide their identification and a characteristics sheet both helpful in focusing them on areas that they might otherwise have been overlooked and on underachievers that they might not otherwise have identified.

However, as one school which did not use rating scales explained, it is not because the team do not value this form of identification technique, but more because of the team’s lack of knowledge in using them.

In another school, one teacher responsible for the gifted programme spends time in all classrooms and looks for signs of giftedness that may be overlooked by class teacher and suggests these children to teacher when it comes to nominations for various withdrawal classes. She looks for enthusiasm, participation and children who like a challenge across the spectrum of school activities and may make suggestions but ultimately it is the classroom teacher who has last say on who should or should not go into the programmes.

Another school discussed the importance of needing to get to know the children very well before undertaking identification:

You can’t walk in the first week and identify them because I think a lot of these children they hide their gifts so you’ve got to build up a really good relationship before to even get close to where they are coming from.

Formal assessment. In many of the primary case study schools PATs, asTTle, STAR, other specific curriculum diagnostic tests, and running records in reading alert teachers to children who are possibly gifted. One example used by a primary school is Performance Indicators for Primary Schools (PIPS) – a series of tests that are sent to Canterbury University to analyse. These tests are available at all levels but so far in this school have been used for 5 and 6 year olds. Many of the schools admit to using tests, noting that testing is usually weighted towards academic ability. However, for one school there is not a reliance on test scores as it is felt that this narrows the focus to only those areas where talent can be measured with a score.

Teachers in one of the secondary schools identify the need for off-level testing particularly in subjects such as mathematics. The department describes it as testing to see where students will be, rather than the age they are at. With the higher levels, teachers can see what the students do and what they do not know, so they can pick up students able to work above where they are at.

Records from another school used to alert teachers to potential gifted students include test scores from the ‘sample week’ testing. Sample week tests provide a ‘snapshot’ of the child’s achievements that can be used in conjunction with other information for identification purposes.

Parent identification. During the interviews, all schools acknowledged the role of parent identification; however, only one case study school had a formal system in place. As one teacher explained:

There may be a particular sport or extracurricular activity that teachers aren't aware of and if the child's not confident enough to put their hand up and say that's something they're a part of or that they're talented in...maybe it's getting other community people to nominate these children or make it aware to the teachers.

One school facilitates the parent's role in the identification process by encouraging parents at the start of the year at parent meetings to offer information that might indicate giftedness in one area or another. At another school, when the children enrol, the parents are asked to fill in a form. One of the questions asks them if their child has any special talents, unusual accomplishments, special interests or hobbies and special opportunities that they may have had. The teacher in charge of gifted and talented programme gets a copy of this. If anything significant is identified the student is put on the gifted and talented register.

Teachers discussed the accuracies and inaccuracies of parental identification of giftedness. For example, in one case a school was approached by a parent when her son missed out on the art group and he was then put in. He was good at art but this had not surfaced in his classroom. Another school reported that some parental identification of giftedness was thought to be inaccurate by the staff.

Student identification by self and peers. All schools were receptive to student identification of gifts and talents, although most schools make limited use of self and peer nomination. As with parent nomination, these forms of identification appeared to be a bit more 'accidental' than systematic. A few of the schools (both primary and secondary) found students occasionally put themselves forward. For example, one school sees it as important that students are involved in the identification process, and they "get them to identify where they feel they are gifted and talented. We become aware at the beginning of the year so we can build on that and develop that into our programme." They use school activities such as assemblies and sharing days so there is an opportunity for students to shine.

Self-nomination is used in one school by having students write a short curriculum vitae applying for a specific provision such as a workshop. One approach used in a few of the case schools was to identify students using a school-wide 'talent search' to find out areas of talent and what "inspires a child to go that little extra bit." For example, in one school, the talent to be focused on is announced a week in advance. Children who wish to participate have a week to prepare themselves before performing at this lunch time event. Talents covered include singing, chess, acting, instrumental items, and puppets.

Student surveys to identify strengths and interests were found to be useful, by teachers in one school, especially for special projects such as to find out those who had a burning interest in gardening or plants for the edible garden unit. Class products and performances are also considered.

Another school reported having tried peer identification but found that the children identified those that they liked best. It was felt that children at primary school age are not discerning enough to put aside personal biases.

Team approaches to identification. Teachers in all case study schools expressed the view that team approaches to identification, which allow opportunity for dialogue and discussion, were important. In one school they ensure that before a new rotation of programmes begins, teachers provide the names of possible participants from their class and the gifted committee then prioritise those applicants. This involves lengthy discussions when teachers put forth their cases. Discussions are "always positive and everyone feels listened to." However, there is also recognition of 'gut feeling' as expressed by one school.

The process in one school for the initial identification for enrichment withdrawal groups begins with the enrichment group teacher talking to staff. They are alerted as to what to look for, provided with a form with common characteristics to inform and guide the identification process. Forms used at the beginning of the year are updated by teachers after the first term when they know the children better. This ensures that identification is an on-going process. "I find with things like written language they don't necessarily show up straight away so you need time to work with your class before you become aware of those kids." The first gifted topic chosen is in an area of giftedness that is easily identifiable, to lessen the chance of students missing out because the teacher has not had the time to identify their talents.

According to one school the most successful identification strategy has been teacher dialogue. Most of the students spend all of their primary years at this particular school, that factor combined with a low turnover of staff means that teachers know the children particularly well. This excellent knowledge of all students in this small school, the teachers' documentation, dialogue and thorough assessment procedures monitoring on-going achievement ensure that students are unlikely to 'slip through the net.'

In one secondary school the school deans and the coordinator are involved in the process of examining profiles. The coordinator then works from categories of definitely gifted, possibly gifted and those identified by previous schools. The initial register of students identified is then shared with teachers for feedback. The school has a flexible approach to identification and this reflects the broad concept of giftedness.

As a staff, they feel confident about identifying students who may be gifted and talented, and consider the process to "reinforce their professional astuteness." Teachers celebrate the fact that "we don't have blinkers on and that we're not looking for one thing. We're not looking for 'a' test or 'an' observation or one conversation. You know there's a bigger picture happening and some of that's formal, some of it's informal."

In our opinion it is very much respected, is backed up by digital records and the notes from past teachers, but we've all got the knowledge, we've discussed what gifted and talented is so we're then respected to be able to identify our own children and with the range of work that we do, ...it becomes very clear to us what each individual's talents and gifts are.

Discussion about children in one smaller Christian school includes scheduled consideration of every child in the school. In these scheduled sessions all staff discuss the particular child, look at his/her work and pray about him/her. This in-depth consideration and monitoring of individual children is possible because of the small number of children and staff involved and because of the "family atmosphere" amongst staff where all things are shared.

With twice weekly school assemblies, school-wide activities, playground duty and interclass sharing of work, teachers get to know all the children in the school well:

You can watch the ones that shine in certain areas and you will recognise it and we'll find that nine times out of ten as we talk to each other about various kids we all say; "Hey, yeah, so and so's really good in this area" so you identify them that way.

Also team teaching is thought to make identification easier. For example, when staff teach sessions together such as choir they discuss what has happened:

We can start to identify things and we talk about it a lot more. We are able to see things because there is more than one of us doing it.

One school that had looked at a number of different identification methods decided that teacher identification was the most valid. Near the end of the school year, staff are given a questionnaire which asks them to consider all the children in their class. This is in relation to Gardner's multiple

intelligences as well as a range of other questions including affective qualities (such as motivation, social skills), behaviours (both positive and negative) originality and leadership. Staff identify the names of children who 'spring to mind' when thinking about each area of ability. Once children are identified, the information is given to their new teacher the next year. This is done again in March and again at the end of the next term, it is not just done once a year; it rolls over. There is a high level of consultation and discussion between teachers and this is seen as crucial in the identification process.

One school expressed concern about the possible lack of teacher knowledge about students but explained:

Well if we make a mistake no one's dobbed in or...and I think because we're communicating so well. I find just in our senior syndicate you're bouncing names and ideas all the time.

In one case difficulties arose as a consequence of a communication breakdown within the school about identification and selection processes. There appeared to be conflicting views about these procedures. "There's a clear difference between those who are involved in it and the management of the school and those that aren't. There's some confusion."

Identification as an ongoing process.

Identification needs to be on-going as they [students] may react differently to different teachers – someone who 'shines' with one teacher may not with another. There is also flexibility to add children who missed identification or who are late bloomers to existing groups.

All schools report that identification is ongoing, not done from one-off tests or scheduled 'identification periods' but over the whole year. A strategy used by one school where teachers have to return to the nomination assessment form in the second term keeps teachers focused on looking for gifted children.

Identification as a means to an end. One of the bonuses from the identification process, identified by teachers in one school, is that it acts as a catalyst for their own in-class provisions for these children. The identification process alerts them to children that need extending and the areas in which this needs to happen. When it has been realised that a child's achievement shows that they were inaccurately identified as gifted, their selection and involvement has done wonders for their self-esteem, confidence and ability to co-operate with their peers so 'inaccurate' identification has not been not a major problem.

A register for gifted and talented students. The majority of our case study schools either have a register for gifted and talented students or are developing such a register. These vary in the amount and range of information, the ease of accessibility for teachers, and the way in which they are used. However, the schools acknowledged that they were useful and important tools in the identification and monitoring process although most admit that it is an area for further development and refinement.

The idea behind a register is that teachers report significant behaviours and achievements that indicate giftedness and these are referred to in the selection of students for particular activities and opportunities. However, there are associated issues about teachers bothering to enter data, being knowledgeable about indicators for giftedness, and being aware of the purpose of the register and using it regularly:

If a child is on the register from previous years and is not 'shining' in that area for their new teacher, that teacher is alerted to possible gifts that they may be overlooking or barriers that may be hiding the child's light.

Have an established gifted register. Initially found that every child in the school was being nominated in one area or another but it is has been narrowed and refined now.

Identification of students with behavioural difficulties. Several schools admitted that it could be a problem identifying the talents with students presenting behavioural difficulties. The teachers mentioned the need for teachers to accurately identify gifted children, to think beyond the bright teacher pleasers, also to look beyond the behaviour of naughty children. “You don’t actually recognise their capabilities to the full extent because you’re actually thinking to yourself, “oh what trouble am I going to get from this kid today?” Inappropriate behaviour was seen as a barrier to identification by several of the case study schools. It was felt that such behaviour may mask student’s abilities in particular areas. Teachers are encouraged to look at behaviours that may be generated because of boredom.

Teacher expertise in the process, especially understanding behavioural indicators, and getting teachers to think were discussed. As one teacher said, it was important to help teachers in their judgements, getting them to ask questions like “Is this the reason they perform like that? Could they actually be gifted? Another expressed the need for teachers who can recognise indicators such as “very good verbal skills,” “doesn’t put anything on paper,” “smart alec,” so that potential is recognised rather than performance. “It’s trying to see behind all the cleverness, the work avoidance.”

Transition between levels of schooling. One school ensures that they liaise with preschool teachers and are made aware of any bright children coming on to school. Similarly, at the intermediate school interviews the Year 6 teachers pass on information so that the intermediate is aware of who the bright children are and also some of the programmes the gifted and talented students have been involved in. The coordinator of this intermediate school, however, expressed concerns regarding the transition of identified students into secondary schools and explained that some schools did not recognise or acknowledge the intermediate school’s identification procedures.

In one of the secondary schools the identification process begins with visits to the contributing schools. Once the students begin secondary school, the learning support coordinator interviews the Year 9 students who have been identified as ‘possibly gifted’ by either their parents or previous teachers. She finds out where their interests lie and what talents they have and compiles a student profile with the information.

Difficulties with identification. Identification is considered by one school as one of the hardest aspects of meeting the needs of gifted and talented students. Some schools felt that they do not necessarily get the identification process right. Students ‘slip through the net’ and sometimes those identified are not suitable candidates. There are those children who do not let their light shine at school because they don’t want to stand out or students for whom it is difficult to pinpoint their abilities.

‘Puzzler’ and ‘fidgeter’ children are the most difficult to identify and provide for. Puzzler, they seem to have something that sets them apart from other children but you can’t actually work out what it is ...or how you can cater for it. [The example was given of a child who was incredibly observant and had a great memory for “unimportant” details like what the teacher wore on Thursday two weeks ago.] Fidgeter, you know they’re very bright but they sit and they fidget and they don’t do anything all day. You know they’ve got something that needs to be tapped into but you can’t get at it.

Some students are repeatedly nominated for provisions and if numbers are limited for special programmes then “the net needs to be spread more widely.”

Provisions

During the in-depth interview with the coordinator, the following questions were asked in relation to provision:

In terms of provision, what has been most effective/successful? What has been problematic/unsuccessful? And how have those problems been overcome?

During the focus group interview, teachers were asked to discuss these questions:

What are the most promising practices your school has in place for meeting the needs of gifted and talented student (i.e., provisions)? In other words, what do you do 'really well'?

What factors have contributed to the development and implementation of these practices?

What are the barriers or difficulties in providing for gifted and talented students? How have, or might, those be overcome?

Given the diversity of types of schools and provisions, this section begins by describing the practices schools identified as successful, and then summarises the elements of those successes, as well as difficulties experienced in creating them. It should be noted that respondents did not explicitly address these questions and many of the responses 'overlap' with enablers and barriers, as well as school journeys.

The nature of 'promising' provisions. All of the case study schools report using a combination of enrichment and acceleration, and a range of different organisational strategies are used to deliver differentiated programmes for gifted and talented students. However, particularly at primary level, the schools showed a clear preference for enrichment programmes, and these were perceived as well supported by principals, teachers, and community. The majority of the primary schools provide enrichment experiences for mainly Years 3 to 6. They consist principally of withdrawal enrichment classes in a range of subject and skill areas and these classes vary in duration from a couple of hours a week to one full day for a few weeks or entire term. Most schools reported school-based withdrawal programmes, but several of the primary schools also participate in withdrawal programmes offered by a regional cluster of schools and in one school these are also offered in partnership with another local primary school.

Each of the case study schools approach acceleration in different ways. Although all of the schools indicated their use of acceleration, this seemed to be managed more on a case-by-case basis in most schools, and preferred for older students (intermediate and secondary). For example, single subject acceleration is managed in one school by having students work in another class for specific subjects such as mathematics and reading. Another school explained that acceleration occurs mainly in a subject such as mathematics. "You can't help it. The kids are hungry for the next stage and so you don't stop them." Teachers at the intermediate school felt that mathematics was "probably the area that we tread on toes at secondary school level more often than not."

There seemed to be a bit of reluctance in primary schools to accelerate students. For example, one principal expressed wariness about accelerating children too far:

If you extend them too far they hit a wall where they don't understand... so you can only extend them that way up to a point and we prefer to make them wider and broader.

Another school does not favour grade skipping, but prefers to accelerate children within their own class:

We don't shift them into another room; we try and keep them with their own age group.

Within the organisational structure of one of the secondary schools there is opportunity for acceleration with a banding or streaming process. In some areas such as mathematics the school offers single subject acceleration. For students with unusual subject combinations, 'streaming' is not the most desirable option but this is reasonably successful as more staff become adept at differentiating the curriculum.

Withdrawal programmes. The ‘successful’ organisation and delivery of the withdrawal programmes varied greatly. For example, in one of the case schools enrichment topics can be based around a high quality resource, an up-coming event or competition, school happenings, or a special interest of the gifted education coordinator. Occasionally teachers request that a particular topic be taken when they identify a need within their own classrooms. Topics which have been covered over the years in this school include: edible garden; worm farming; sports; “selling our school” (a newspaper competition); time capsules; school playground design; a Picasso art project; and a marionette puppet project which involved making the puppets, costumes, a puppet theatre, and writing and performing a play. Each of the enrichment topics lasts six weeks. However, groups are not run in the first six weeks of the school year to enable children to settle into their regular classes and for teachers to conduct PATs and run school camps. Similarly, enrichment groups are also not taken in the last month of the school year to allow children to participate in end of the year activities.

Another school reports that fifteen to eighteen children are withdrawn three times a week for a total of four and a half hours enrichment. A small core of children get nominated for most enrichment classes, but otherwise membership is quite fluid. Up to 100 different children can participate in various groups throughout the year. This represents approximately one quarter of this school’s roll.

In another school, provisions which are not specifically designed for gifted and talented students, but provide enrichment opportunities for them, are school ‘electives’ and the annual school production. The latter includes group and solo musical performances, kapahaka, and drama. Gifted and talented musicians, artists, and leaders are given responsibility for designing props, choreographing sections, and organising practices. Additionally, children in Years 3 to 6 participate in a range of electives for 45 minutes once a week. Choices include choir, kapahaka, drama, sports, guitar, line dancing, horticulture, and computers. In addition, a drama teacher comes to school once a week to take lunch time drama lessons. In Term 3 Spanish lessons are planned if there is sufficient interest and in Term 4 lunchtime guitar lessons will be available. Drama, Spanish, and guitar lessons are offered on a user-pay basis. Examples of enrichment provisions cited by other schools include: BP Technology Challenge; mathematics problem solving; web challenges and competitions; drama; writers’ workshops with authors; silk dying; music workshops; and drumming workshops. Some schools offer second language learning.

The gifted programmes occur on one set day each week in one of the case schools (unless there is a one-off opportunity where students need to attend something usually outside the school). The length of time that a particular programme runs depends on the content. For example, the Problem Challenge starts in February and runs until September with forty minutes every Thursday whereas a year two art programme lasted for four weeks. Membership of the groups for the programmes in this school is not static – children can be added once the group has started if it becomes obvious that they have missed initial identification and similarly if they “have reached their peak” they can be removed. There is joint planning between teachers taking children at same level as well as class teachers and the teacher taking a gifted programme. Teachers find this useful. Classroom teachers often request that the teacher taking a gifted programme follow-up on something introduced in the classroom. Similarly the teacher taking a gifted programme always consults with classroom teachers and shares what she is doing.

One school describes how the programmes are fitted around the needs of the students. Once students and their areas of ability have been identified, decisions are made regarding the nature of the provisions. If there is a teacher at the school with an interest and ability in the area identified, they will be released by the reliever (0.2 funded by the BOT for gifted education programmes) to take the programme. If there is not a teacher within the school, an outside person will be sourced and brought into the school. There is more than one programme running at any one time.

Cluster and partner schools. In one region a group of schools have combined to form a cluster of schools offering gifted education programmes to students in targeted curriculum areas. This school’s cluster approach has effectively provided for students from Years 3-6 in mathematics, literacy, arts, and science. These provisions are supported by outside experts such as advisers, university specialists, artists, and writers. The ‘experts’ are brought in and their services paid for from a funding pool. The

numbers of students from each school are limited for these provisions. In targeting certain groups there was awareness that other students were missing out. For example, the Year 7 and 8 students were not involved in the region's cluster programme. However, this school feels that the school cluster network is effective because they have a committed group of people working together.

Provisions that have been offered by another school have been in conjunction with a partner school, and include workshops in ICT mind-mapping, creative dance, art, mathematics, music performance, spreadsheets, mathematics problem solving, science, storytelling, and speechmaking. Two teachers are used, one from each school. Having two teachers involved can facilitate effective professional development, if there is one teacher who has the knowledge and skills, the other teacher may just be interested and want to up-skill in a particular area. Between twelve and twenty students are involved in any one workshop. The duration of the workshops depend on the nature of the topic. They can be one or two whole days, or one afternoon per week for a number of consecutive weeks. Students who have been involved in the workshops are provided with opportunities to perform and share their work, for example a music group performed at both of the schools. Working in partnership with another local primary school has brought many advantages. Staff in each school are able to broaden their base of expertise by working with other teachers. This school is also involved in a larger cluster (10 schools), but the coordinator strongly felt that working with only one school has meant that decisions can be made reasonably quickly as there is less consultation involved.

Individualised programmes. One case study school had a schoolwide approach to individualising programmes, and some other schools responded to gifted and talented students' particular learning needs as identified in Individual Education Plans. For example, one secondary school cites specific skills such as time management or even spelling and handwriting that are provided in the student's programme. Students are encouraged to take more responsibility for their learning by making concentrated efforts in an intensive support programme targeting such specific needs. The teacher aide sometimes provides this support for some specific skills. For some students who have behavioural problems the RTLB is used. Support services are also offered in this secondary school from the Careers Department, guidance counsellor and learning support staff.

Individual programmes that operate in another primary school have children set integrated mini enquiries. Wide use is made by these students of the library and internet for these individual research projects. The teacher aide and librarian have also assisted in the facilitation of these individual projects. In this school all of its computers are located in one suite, and it was felt that this disadvantages the gifted children who could use the Internet for research purposes in the classroom instead of having to wait for their class's turn in the computer suite.

The small, Christian primary school provides a schoolwide individualised learning programme within the context of the regular school curriculum. Every child in this school has an individualised programme in social studies, science, spelling, grammar, word building and, to a lesser extent, in mathematics. In these subject areas children use individual workbooks, described by the principal as "packets of individualised learning." These workbooks are the foundation of a Christian-based education system adopted by numerous Christian schools throughout the world. Children work through the material from level 1 to 85 (primary school) at their own learning rate. Children set their own daily learning goals and mark their own work. They have flexibility in choosing the order in which subjects are tackled. Teachers provide assistance on request and monitor children's work on an on-going basis. Although this system was not adopted specifically to benefit gifted and talented students, it is seen as a fortunate "by-product."

This school's programme allows for both enrichment and acceleration. Gifted and talented students can accelerate through the primary levels and proceed on to secondary level material in one or more subject areas. Enrichment modules are available in a range of subjects including Hebrew, motor mechanics, bible study and animal science. Hands-on experiments and activities are included in the modules as are homework tasks and additional teacher-added enrichment content such as relevant videos. The teachers in this school felt positive about the individualised education they were providing for gifted and talented students, as explained by one of the teachers:

It's actually releasing children into something special that they are already interested in and love doing. Giving them those opportunities and letting them go and because we have this individualised programme we can do it without having to establish special times and special groups and all that.

Cross-age grouping. One primary school uses cross grouping in the junior school. Bright children are placed in a top group (based on ability) for enrichment and acceleration. Teachers share top and bottom group allocation to ensure one teacher is not always given the bottom group. (Cross-grouping had been tried in the senior school but was not considered successful). Similarly, in the schoolwide system of individualisation previously discussed, students were sometimes cross-age grouped. For many of the withdrawal programmes at primary level, students were grouped based upon interest rather than age.

Special classes. One case study secondary school considers ability grouping (i.e., homogeneous classes) to be its most successful provision for gifted and talented students. Mixed ability groupings (i.e., heterogeneous classes) have been piloted but ability grouping is now the provision of choice. There was an expressed perception that secondary teachers are not trained to deal with mixed ability groups. Furthermore some parents choose only to send their children to this school, if they get in to one of the top groups. If this provision was not offered those families would choose other schools. When selected, students are sent a written invitation, to offer them a place in the gifted education class.

One of the secondary schools provides for Year 9 students identified as having both academic and sports ability in a sports academy class. While some teachers considered this class to be one of the school's most promising provisions, others questioned the logic of selecting students into a class because of their sporting ability. Grouping these students together was not seen as either the best or the easiest way of teaching them other core subjects. Students in the 'sports academy class' were considered to be more diverse, compared to the students in the other gifted education class who were thought to be more similar than dissimilar from each other. In other words, apart from being similar in their sports ability and their attitude to sport, they operated more as a mixed ability class.

The intermediate school has devised four special classes for gifted and talented students. These classes offer both enrichment and acceleration opportunities and identification is based upon a broad definition of giftedness and talent. The coordinator in this school felt that the most successful aspect of this programme was its broadened perspectives of giftedness, which has resulted in a mix of different types of gifted students. The teachers discussed at length the importance placed upon seeking out typically under-represented groups: underachievers and students with disabilities were most frequently discussed.

Liaison with universities and tertiary providers. University support from experts was seen in several schools (both primary and secondary) as most valuable for both students and teachers. Students received an interesting and appropriate programme to challenge them and teachers then learned about the students' experiences through a sharing process back at school. When students were able to attend the university for their programme "they treated them like they were something special."

The Correspondence School. Gifted and talented students are also provided for in several schools by Correspondence School programmes. Gifted and talented primary school students were studying subjects such as secondary level mathematics and advanced English. In another school the principal provided choice to a student who is gifted across the spectrum:

I said to her, "Well [name of child], what do you want to do? We need to do something here. What would you like?" and I got her the Correspondence School folder. I said "Take that home. Talk to Mum and Dad about it. Tell us what you want to do." So she chose her writing course and that was fine so away she goes.

Teachers and students have found some delays in getting Correspondence School material and assistance frustrating. One primary school using the Correspondence School for seven gifted and talented students, for the first time this year, is monitoring the effectiveness of this provision.

Mentoring. One of the secondary schools identifies a mentoring programme as one of its more successful provisions. This is run by the head of Student Support Services, whereby staff sign up to mentor students who are gifted in their field of expertise. People in the community are also approached to be mentors, however, the mentors are usually teachers at the school. One of the primary schools was in the early stages of establishing a mentoring programme for their Year 7 and 8 students with a local secondary school, and they saw this as promising.

Competitions. Most of the case study schools use competitions for both primary and secondary students as a way of providing students with challenges and an opportunity to be acknowledged. Teachers felt that competitions provide a way of celebrating and recognising students' abilities in a variety of areas such as mathematics, literacy, speech, drama, sport, and the performing arts.

The schoolwide approach. One of the primary case study schools believes that their showcase provision is the inquiry process that is used in all classes. "It gives children such a scope to pursue their own interests and passions and when they're answering 'So what?' and 'Now what?' and 'Where do I go from here?' questions." These teachers believe that the students are not learning for the sake of learning but that there is a reason – the 'ecology of learning.' It "helps build up positive attitudes as well as their interest in learning." During the first term, all children in this school participate in an investigation of learning styles, multiple intelligences, and inquiry learning to help them and their teachers understand their individuality.

Another coordinator considers the school ethos and philosophy of inclusion to be the strength. Setting up an inclusive environment has facilitated the identification of, and provision for, gifted and talented students. An environment where all students belong and feel accepted allow talents to surface and be noticed. Encouraging the students to become motivated learners is viewed by this coordinator as pivotal:

Ultimately I want the students to become highly motivated learners and I want to find ways that I can help them to become really motivated and I guess the most exciting thing for me is getting teachers say to me 'What have you been doing with these children of ours?' They've come back really buzzing.

Successes. In discussing their provisions, schools identified a number of positive factors. These included gifted information folders and teacher developed resources, including units of work; folders of 'extra' work for students to work on when they finish early or complete a task; professional development; acknowledgement of the benefits for students (i.e., many teachers specifically mentioned interaction with like-minded peers) and the flow-on effect for their teachers; teacher expertise, enjoyment, and willingness to try new things with a small group of students; careful selection and placement of gifted students in regular classrooms and special programmes; open communication amongst staff; the use of parent and community volunteers to facilitate programmes

The following comments were indicative of those made when schools discussed their successes in gifted education programmes:

[The students can] bounce off each other and feed off each other which is awesome.

They appear to be free of intimidation and seem to be secure in a pastoral sense.

It gives me a breather. The Xs in Form 2 wear me out with constant questions! ...and they correct you all the time. They are just very open!

Difficulties. Providing for gifted and talented students is not ‘trouble-free.’ The case study schools did describe difficulties and these related to lack of fit between the special programme and regular classroom, or in some cases, the next level of school; confusion over the definitions of enrichment and acceleration; curriculum requirements; scheduling; staff selection, placement, and continuity; and resourcing issues.

The following comments express these difficulties:

You can't be an island unto yourself. You've got to get the support of your peers or outside support to help encourage these children.

You've got to think outside the square...we're always looking for opportunities that will capture the kids and capture those gifted children who also will be thinking outside the square. The hardest part, certainly for me, is to cater for children who are gifted in something that you actually find difficult yourself. Giving them the freedom to go down the direction that you are not competent with and also knowing where to take them next when you're not certain yourself.

One of the handicaps of that is that you are limited by the staff you have got and that again doesn't allow for some of the talents some of these children may have.

Consider location, consider cost, consider the resources that we have but don't make anything excluded for those reasons.

When we send our children off to a programme like [local cluster enrichment] there needs to be some sensitivity to their belief structure in there and I know that one child that we sent couldn't quite handle some of the exposure within that.

We need to be able to do more for our kids in terms of their emotional well-being... to be able to give them strategies to be able to cope with things.

It is important to note that all of the ten case study schools offered multiple provisions for gifted and talented students, inclusive of both enriched and accelerated opportunities. However, in the interviews, there was very little discussion of the provisions made in regular classrooms. Apart from the small Christian school and the primary school using the schoolwide ecology of learning programme, schools perceived their successes to be withdrawal programmes and other ‘special’ provisions for gifted and talented students.

Identification and Provisions for Under-Represented Groups of Gifted and Talented Students

In both the in-depth and focus group interviews people were asked to:

Describe the measures your school has in place to ensure gifted and talented Māori children and those from other under-represented groups (ie cultural, socioeconomic, with disabilities, underachievers, gender etc), are identified and provided for appropriately. What measures have been the most effective? Have there been any barriers and if so, how have these been overcome?

In answering these questions the discussion at most schools centred around provisions and issues relating to gifted and talented Māori students. Other cultural groups, students with special needs, disadvantaged socioeconomic groups, underachievers and gender equity issues received relatively brief mention. Māori were acknowledged as being under-represented in the gifted and talented programmes at two schools, in two schools it was felt they were not. The remainder either did not know or made no comment on the situation in their school. It should be noted that while a relatively long list of barriers and strategies has been included, in actual fact these were spread thinly across all schools. Most barriers and strategies were reported only once.

Barriers to identifying and providing for gifted and talented students from under-represented groups. A number of barriers were mentioned and these were in relation to Māori students, underachievers, secondary students, and students who speak English as a second language. Those associated with identification of Māori students were a lack of teacher knowledge about Māori concepts and indicators of giftedness; and language, cultural and other traits and behaviours that potentially mask a student's advanced abilities. Specifically mentioned were: whakamā amongst Māori; limited ability to read, write and speak in English amongst Māori students who had transferred to mainstream schools from kura kaupapa Māori; and Māori students playing "the dumb down game" because they did not wish to stand out.

The identification of underachieving students, and specifically boys, was also a concern. Schools shared concerns regarding underachieving boys "performing down" to media expectations; poor time-management skills and the affects of "testosterone" on adolescent, underachieving boys; and gifted secondary school students with poor work habits and irregular attendance. Also discussed was:

the student who daydreams, the able student who is a real nuisance, the students who have emotional problems but are bright.

Other students who posed problems to identification were those from socio-economically disadvantaged groups who it was perceived had low parental expectations and lack of role models and opportunities; secondary students falling to sleep in class as a result of having "full time" out-of-school jobs; and students who were shy, timid and had limited English proficiency, especially those of Indian and Asian descent.

Some of the previously mentioned barriers relating to identification were also barriers when it came to providing for gifted and talented under-represented students. In addition, teachers mentioned a lack of school and community personnel suitably qualified to teach te reo Māori and kapahaka and a lack of funding to employ these people if they could be found. One coordinator explained how her school had employed a person fluent in te reo Māori as a teacher aide to work with 17 children. They had also employed someone part-time to teach kapahaka. However both these people had left when they gained better paid, full-time jobs:

So one of the biggest barriers for us is being able to afford to pay somebody what they deserve to be paid to keep them here.

Two further barriers were mentioned. The first was the existence of both gifted and bilingual classes in the same school which forced gifted Māori children to choose between te reo Māori and enrichment. The second was parental resistance. A teacher explained how a Māori parent had not accepted that their child was gifted and had objected to the child receiving off-site gifted provisions.

'Unstated' barriers. In the previous section all the barriers identified in the in-depth and focus group interviews have been outlined. However, an analysis of the data reveals a number of 'unstated' barriers. The first barrier is narrow teacher expectation in respect to gifted and talented Māori students. A number of teachers expected that Māori students would excel in areas such as kapahaka but did not expect to find any academically or intellectually gifted Māori children. A typical comment was:

If we went down the old track in gifted education and go for a bunch of IQ tests, chances of being able to have cultural representation is slim.

It is evident from some teachers' comments that cultural stereotyping has implications for their school's gifted and talented provisions. It was specifically stated in two schools that gifted and talented Māori students were being well provided for because the school had kapahaka groups and enrichment music classes, while one principal noted:

Knowing that Māori kids like team activities, people oriented, group stuff they get into that rather than, you know, the Māori kids don't seem to be interested in tennis, they just don't. If you ran a tennis workshop with John McInroe or a golf one with Tiger Woods, you wouldn't get many Māori kids go to it, they wouldn't be interested. They like team activities.

Similarly, the misconception that whānau and traditional values were counter productive to identification and provision for gifted and talented Māori students was expressed by some teachers:

There is a perception that it is seen as going against a lot of Māori traditions, we're not standing out, rising above everybody here, we're all part of this big whānau group.

There is a stigma attached to maybe coming to our classes [enrichment classes] if you are Māori because it means that you have to stand out as an academic rising above the mass and that's not always seen to be "the" thing to do.

It seems reasonable to assume that such misconceptions will have an influence on the opportunities provided for gifted and talented Māori students.

A further barrier is the non-recognition of the important influence of culture and the consequent implications of this for providing for gifted and talented students from ethnic minority groups. This is typified in the following quote:

I don't think there's any discrimination. We don't particularly look at them at all as being different children. To me they're just children. They're all just children.

A final barrier is the belief that equity issues and meeting cultural needs are not part of the brief of gifted and talented education. For example, in two instances it was specifically stated that the school did not think it necessary to consider ethnic representation in their gifted programmes. As one teacher stated:

To base any of our programmes within the school on that and say we must make a special effort because they're Māori, we shouldn't be doing that.

At one secondary school when questioned about the under-representation of Māori students in gifted and talented programmes, there were objections raised by focus group members. Similarly, when one teacher whose school provided a wide variety of enrichment classes was asked whether enrichment in te reo Māori was offered, she replied:

If they're [parents] particularly wanting their child to learn Māori why don't they send them to kura kaupapa? That's how I've felt about it.

Strategies to ensure gifted and talented students from under-represented groups are identified and provided for. This section combines the strategies mentioned to counteract under-representation and those used to overcome identified barriers. It should be noted that while these strategies were all mentioned by teachers they did not specifically comment on their effectiveness. Strategies can be categorised into five different groups: the whole school approach; parental and community involvement; identification; provisions; and equity and accommodation issues.

The whole school approach. Although of benefit to gifted and talented children, these strategies focus on incorporating cultural input into the whole school programme and on supporting ethnic minorities in general, rather than being specifically designed to extend gifted and talented students. The strategies mentioned were: whole school consultation with Māori parents and the Māori community to see what cultural input they wanted in their children's programme; inclusion of Māori content in programmes across the school; whole-class units on children's country of origin; drawing on parents' cultural expertise where relevant. (The most frequently mentioned strategy was asking parents to cook a

national meal at school); and drawing on children's cultural expertise to help others. As one coordinator explained:

When it comes to things like learning Māori the kids that have a cultural background in that area are the ones we will call on to help us so they become leaders in their own cultural revolution, so to speak.

Other strategies included involving parents and community members in teaching and supporting Māori language and kapahaka groups; having an "open-door" policy and open, friendly communication with parents and families/whānau; providing initiatives to support under-represented students, for example, a homework centre and oral skills seminars; using children who can speak the same language to act as translators when needed; establishing procedures to ensure students are considered equitably (These procedures were not elaborated on); having a staff member responsible for the Asian students in a secondary school; and careful matching of student and teacher when considering regular class placement. Complementary personalities and matching teaching and learning styles were thought to be important factors to consider; providing a culturally supportive environment where all students feel valued and secure enough to "be themselves"; and having a Kaumātua on site for some of the school day to support students and staff and to provide a role model for Māori children. In the school where this was done there was a strong focus on Māori spirituality. The Kaumātua who was also a chaplain, played a pivotal role in the culture and climate of the school. As the principal explained:

There is X in the school ground at lunchtimes and he gets alongside kids and if they're lonely or something they go over and sit beside him. He'll pick up the guitar and sing some songs and they'll be Christian songs because he's a Christian, a fluent Māori -speaking Christian.

Parental and community involvement. These strategies focus on including parental and community input to inform and enhance gifted and talented education. The strategies mentioned were: increasing community involvement in gifted education to facilitate culturally appropriate identification procedures and provisions; and consulting with parents to identify gifted and talented children. In one school the coordinator noted that the teachers were not aware of a Samoan child's musical gifts until his parents mentioned that he was good at singing.

Identification of under-represented groups. The strategies in this category are all concerned with identification measures and procedures to ensure gifted and talented students from under-represented groups do not "slip between the cracks." The strategies mentioned were: adopting a broad, inclusive concept of giftedness and taking Māori concepts of giftedness into account when identifying gifted and talented students; including ability in te reo as a gifted characteristic on the identification/nomination sheet for enrichment classes; being "open-minded" and making a special effort to make sure under-represented groups are not overlooked in identification. For some schools this has involved looking beyond challenging behaviour and English language limitations. It was noted in three schools that Asian children who have limited English often emerge in mathematics, science and art groups where ability in English is not as important as in other subjects. Using Ravens Progressive Matrices as part of the identification measures was also believed to be particularly appropriate for students who have English as a second language.

Provisions for under-represented groups. This category relates to programme approaches and provisions aimed at ensuring under-represented groups are provided for. The strategies mentioned were: providing for a broad, inclusive concept of giftedness; taking Māori concepts of giftedness into account in programme offerings; providing enrichment opportunities in areas considered to be Māori strengths, for example, team sports, music, dance, drama, and kapahaka; providing "fun" activities that take adolescent underachieving boys interests and level of maturation into account; and allowing gifted students in the bilingual class to participate in some enrichment class lessons. This was seen as a possible answer to the previously mentioned dilemma of choice when both bilingual and gifted classes were available in a school. There was a perception that bilingual classes which often contain a wide age range of children lend themselves to extending gifted students via cross-age grouping.

To counteract the previously mentioned lack of time management skills amongst underachieving boys, it was recommended that the teaching of time management skills receive priority. Enrolment at Correspondence School in subjects the school was unable to provide for was another strategy mentioned. One example given was of two pupils being enrolled in te reo Māori although in this particular instance the provision was not considered to be successful. The school had applied for 17 children whose parents wanted them to study Māori to be enrolled at the Correspondence School. A number of these children were Kōhanga reo graduates. Enrolment for 15 of these students was denied because the Correspondence School maintains that students below Year 5 cannot cope with the level of reading required in their resources. The two oldest students were allowed to enrol but the teacher stated that the Māori language content was too easy for them:

They just flew through it so they were not being extended in te reo.

Equity initiatives and accommodations. This category contains strategies that have been introduced specifically to address equity issues for gifted and talented learners from under-represented groups. They include being alert to ethnic and gender imbalances in enrichment group composition. One teacher noted that if an enrichment group is short on a particular gender or Māori membership, she will go for gender equity or Māori involvement in selecting the last few group members from the qualifying pool of students. Another strategy was to provide ESOL support for gifted secondary students who have limited English language. As one secondary school teacher stated:

The bottom line is if a kid here couldn't speak English but is able to perform at a certain level in any other subject, then they are not going to be denied a place in the upper band class. They may end up under the control of ESOL but they'll still be in an upper band class.

Accommodations were made for gifted students with special needs. Specifically mentioned was the provision of a writer in exams for a student whose writing was illegible. Finally, school or community-sourced funds were used to finance gifted and talented provisions in cases where parents could not afford the cost involved.

Evaluation

In the in-depth interviews the coordinator of gifted and talented programmes in each school was asked to:

describe how your school evaluates the effectiveness of your gifted and talented programme.

In seven schools this evaluation consisted of a consideration of the programme itself coupled with an assessment of participating students' progress, understanding, and achievement. The other three schools focused solely on the programme. There was considerable variance in the amount and depth of the evaluations conducted. This variance generally appeared to be linked to the length of time a programme had been in existence. For example, one coordinator stated that because their programme had been operating for less than a year, formal evaluation procedures were yet to be established. At present the coordinator was using personal observations and student feedback to evaluate the programme, but she reported that the development of assessment tasks for other teachers was planned for the future. A coordinator whose school's programme had been in operation for two years described how their evaluation procedures had been refined and added to over that period. While, at the other end of the spectrum, a relatively complex combination of evaluation strategies was being used in a school where the gifted programme had been operating for eight years.

Evaluating the programme. A number of strategies were being used to evaluate the programme itself. The most frequently mentioned strategy was formal and informal student feedback. This was reported for nine out of the ten schools. The specific nature of this feedback was not elaborated on, although two schools mentioned asking students whether they enjoyed the various tasks and activities involved.

Eight out of the ten schools reported evaluation by teachers directly involved in the gifted and talented programme. This ranged from informal reflection and discussion to the use of specially prepared checklists. Teachers' evaluations also varied in frequency and complexity from one-off appraisals at the end of the year to on-going evaluations. In one school where the programme consisted of a series of 'extension' and enrichment units that were rotated throughout the year, written evaluations of each unit were prepared by teachers and used in their planning of subsequent units. In addition, at the end of every rotation the teachers met to share their evaluations and to identify common themes. New goals were then set and specific responsibilities allocated for the next rotation. At the end of the year the total programme was reviewed. Programme goals were evaluated and an action plan was developed for the following year. This plan included information on the review procedures that would be used in the future.

Evaluation by teachers not directly involved in programme delivery was less frequently reported. One coordinator mentioned occasional meetings with regular classroom teachers to get positive and negative feedback about the school's withdrawal enrichment groups. She also reported doing her own observations in regular classrooms and noted the indirect influence enrichment group attendance was having in that context. Gifted and talented students were using skills and strategies taught in the withdrawal programme in their daily classwork. They were also seen to be modeling and teaching these strategies to their peers.

Three coordinators mentioned that informal feedback from parents was a component of their programme evaluation. One school had established a formal procedure for gaining parental feedback while in another school feedback was gained incidentally as part of an annual survey of parents of children moving on to Intermediate. In this case both parents and children are asked about how they had found their time at the school and it was noted that involvement in the gifted and talented programme consistently surfaced as a highlight of children's school years. This school also regularly invited parents in to view their children's work on completion of enrichment units.

A further evaluation strategy described by one of the secondary school coordinators was a formal external review of the school's gifted and talented programme. This was part of a larger school review. Finally, two coordinators mentioned that they presented formal reports about their schools' gifted and talented programmes to their respective Boards of Trustees.

Evaluating the gifted and talented students. As mentioned previously, a number of schools included the assessment of individual students' progress, understandings, and achievement as an element of the overall programme evaluation. The most frequently reported strategy was teacher evaluation of students' products and performances. Two coordinators mentioned formal testing, one instance being the scrutinising of external examination passes of secondary school students involved in the gifted and talented class. Self assessment and peer assessment were utilised in two schools while one school used group assessment of students' work.

At one secondary school both students and parents were given a pre-acceleration evaluation form. This information was then used to help gauge the students' subsequent progress. Parents were also involved in evaluating their child's progress as part of the ongoing IEP process. At this school a comprehensive profile was kept of each student involved in the gifted and talented programme. This profile contains details of individual programmes including the learning domains involved, the nature of provisions offered, when and how they are managed, who is responsible, and how they are assessed.

A number of coordinators mentioned that the person running withdrawal enrichment groups kept in regular contact with classroom teachers and informally passed on information about what the students were doing and how they were progressing. In one school the coordinator explained that at the end of each withdrawal enrichment class children's involvement and achievements were formally documented and this information was given to their classroom teachers. A very brief note about students' achievements was also included in an invitation to parents to view their children's work. Another school provided assessment information from enrichment and 'extension' groups to the

classroom teacher for inclusion in students' reports. At the intermediate school, reports were an issue of concern. It was mentioned that the same report form was used throughout the school. However, the accelerate class teacher felt its standardised format did not enable her to report on aspects of a student's progress and achievement relevant to the specific programmes for gifted and talented students. A differentiated report form was needed.

At a secondary school, individual subject teachers who teach the gifted and talented class provide written feedback on each student's progress and achievements. They evaluate from their subject perspective whether students are appropriately placed in the gifted class and can also recommend students from other classes whom they feel should be considered for inclusion. Once a year all subject teachers meet to share and discuss students' progress and to make their recommendations for the composition of the following year's class.

Other evaluation issues. A number of coordinators commented that they were still developing their evaluation procedures and acknowledged that their present practices needed further additions and refinements. The need for a more formalised system was a common theme, for example, one coordinator mentioned that the school's gifted committee was considering basing their assessment procedures on a formal evaluation model.

It is worth noting that reported programme evaluation in the ten case study schools concentrated almost exclusively on withdrawal, enrichment, and other "specialised" provisions for gifted and talented students. Only one coordinator mentioned evaluating how well gifted students were being provided for on an ongoing basis in their own classrooms. She noted that as the person responsible for gifted education in the school she could encourage and support classroom teachers to provide for their gifted and talented students but she had limited power to ensure this was being done. As deputy principal of the school she could check long term planning for evidence of in-class provision for gifted students but ultimately it was the responsibility of team leaders throughout the school to see that gifted and talented students in their areas were being provided for. The evaluation of regular classroom provision for gifted children is a recommendation for future development in these schools, as is the inclusion of family/whānau and the wider school community in the evaluation process.

Enablers of Identification and Provision

When describing their journey, schools were asked:

What enabled your school to reach this point?

All of the enablers, or in other words the factors that they described as catalysts, were able to be easily categorised into eight main themes. Worth noting is that the themes centre around various ways of providing support and they were all identified as a positively contributing factor to the development of provisions by over half the schools. The enablers include professional development, funding, within school support, outside school professional support, parental and community support, communication, flexibility, and commitment to the programme.

Professional development. Nine out of the ten schools considered professional development to be a critical enabler in their journey towards meeting the needs of gifted and talented learners. Professional development is viewed as a valuable tool for effecting change and innovation. Professional development that has teachers engaging with and observing good teaching practice in other schools is valued.

A number of schools acknowledged the financial support provided by their Boards of Trustees for professional development. For example, each year one primary school has a major and minor professional development focus. Gifted and talented remains the minor focus every single year because:

The BOT, parents and teachers really want this programme to succeed. Therefore at any cost to the school, the Board of Trustees will pay for any form of gifted professional development. It is written in the action plan.

Teachers in several of the case study schools have studied papers relating to gifted and talented education - "that gave us a basis." Professional development helped teachers to adapt their teaching styles to suit gifted and talented learners. Some schools targeted specific programmes (for example, thinking skills programmes) as a focus for their professional development. It was acknowledged too that learning these new strategies to support gifted students would also benefit other students in their class.

Being involved in a professional contract with gifted and talented advisers was considered by one of the primary schools to be excellent professional development because it provided its teachers with an insight into the overall picture of gifted education. Schools on other professional development contracts, such as the numeracy and literacy initiatives, were able to make connections to their gifted and talented programmes. So too did teachers attending professional development courses in specific subject areas because teachers "are always on the lookout for extending gifted and talented students." Courses were also attended by teachers who have students attending one-day-a-week programmes, to show them how to build on and reinforce in their regular class the learning provided at the withdrawal programme.

Professional development and guidance was also provided to teachers by their own colleagues. For example in one school, teachers found the folders collated by the schools' gifted coordinator to be helpful because they contained information on characteristics for identification, practical strategies and useful resources for enrichment etc. These folders are added to, for example, "X gave us this handout the other day about questions to promote reflective thinking so if there is something that applies she feeds it to us so that we can use it - so it's ongoing."

Advisers of gifted and talented education, attached to Teacher Support Services in colleges of education, and in some instances, RTLBs provided valuable professional development. Sometimes these support personnel also conducted in-service courses on gifted education for teachers in their area.

One primary school acknowledged the benefit of using research to inform practice:

Something we do a great deal here is looking at what is happening in the wide world and what research has been going on in educational fields and then....bringing it back and making sure it does have an influence on our classroom.

Funding. Eight out of ten schools considered funding support to be a very important factor in their ability to appropriately cater for gifted and talented students. In the two secondary case studies, funds are made available to support departments in their professional development. The major funding commitment for most schools, however, involved the allocation of a one day per week teacher release for coordination of the gifted and talented programme. For example, to enable the coordinator for one primary school to be released every Friday (.2) to run the gifted programme, the BOT paid .1 and the coordinator used .1 of her deputy principal release. The principal put .1 of his principal's release time into teaching in the gifted programme as well. These procedures actually freed up .2 of a salary that was used to employ a special teacher. In essence although there were only four teachers in the gifted team, this funding support enabled five teachers to teach in the enrichment programme, plus a special teacher. In one primary school, the funding allows the gifted teaching position to be ongoing, and this was considered a very positive factor in the development of the programme.

One primary school explained how the principal was proactive in sourcing funding (such as community grants) to supplement the school's resources. Two schools acknowledged that their generous budget allows them to purchase additional equipment and resources, such as a video camera for visual language programmes. Five schools indicated that parents sometimes have to provide

additional funds for competitions, however discretionary funds are also available if necessary (in all of these schools).

The lowering of its decile rating provided one primary school with the funding for its gifted and talented programme. The school employs one senior staff member as the coordinator at .6. As one of the teachers explained:

There has been good will which is one thing but you have to have the personnel, the resources, the organization, the structure to go behind something to make it actually come to fruition and I think, I mean the nuts and bolts of what enabled it to happen this year was the fact that xx [name of coordinator] was really keen to do it... but really, what made it happen was the fact that we got additional funding through a decile drop and \$40,000.00 is what in reality made this particular project happen.

Within school support. Nine out of the ten schools considered the support they received from their Board of Trustees, principal, and fellow teachers to be major factors in enabling them to successfully identify and provide for their gifted and talented students. In this category teachers singled out either one, two or all of the school personnel of whom they considered provided ongoing support. Of the nine schools who mentioned within school support as an enabler, there were five references to the Board of Trustees, five to their supportive principals, and seven mentions about the support received from colleagues.

Support from management was recognised as a key issue to ensure policies were in place, along with suitable staffing, professional development and resources. For this reason it was considered important to keep the Board of Trustees informed and get their support for the allocation of funds. This is achieved through meetings and reports, putting the provisions and outcomes in writing in one of the primary schools.

Having principals involved in their school's gifted and talented programmes meant that decisions could be made and programmes actioned more quickly and simply because "when a principal asks a teacher to change their programmes, it is more likely to happen than if a Scale A teacher was asking." Teachers described their principals in positive terms, an indicative comment being: "supportive principal with a real passion about children with special abilities."

One primary school attributed much of its programme's success to the previous principal, whose unconditional support played a significant role in the initiation of staff to the concept of catering for gifted and talented students in their classrooms. Not only did he encourage the coordinator's own professional development, he also co-presented at staff meetings. For example, he taught enrichment to the staff. He supported the present coordinator to try new ideas, as well as to re-try ideas that had failed in the past. His motto was to "try and try again before you get it right."

To gauge staff support in one of the secondary schools, the gifted coordinator initially conducted a survey of staff attitudes which showed that teachers were keen to recognise and provide for gifted and talented students. This provided a positive basis from which to build identification and provision, policy and procedures.

Another coordinator described her school as having "supportive staff who were convinced about the worth of the programme and prepared to take extra children in the class to create the position." A small primary school believed shared Christian values to be the key to their supportive staff relationships.

Outside school professional support. Seven out of the ten schools highly rated this form of support. Working in partnership with other local schools was advantageous for three of these seven case study schools. Two schools partnered up with neighbouring schools, one to learn from the "mentor" school (who was further along their journey in gifted education), and the other to gain community contacts and to broaden their base of expertise by working with other teachers from both schools. For the

primary school which had a partner school, working with only one school as opposed to a larger cluster of schools has meant that decisions can be made reasonably quickly because there is less consultation involved.

The other thing I like about the cooperation that we have with the other school is that it is very quick to get set up and do. There's no talk, there's no in-depth waiting around and delay! It's simply, we will run a workshop on such and such, targeting this particular group of kids and we can make it happen by next week or the week after.

Conversely, a third school relished the idea of working together with a group of schools. Using a cluster approach, these teachers networked with other interested educators to develop and share the responsibility of providing a variety of gifted programmes in their region.

One of the secondary schools builds networks with their contributing schools by inviting local primary and intermediate schools to participate in competitions and quizzes. For example, the mathematics and science departments sponsor competitions. The school believes this service assists in the identification of incoming students. It was believed that many of the students who participate in the science quiz are the ones most likely to be identified for the Gifted and Talented class the following year.

Teacher Support Services and RTLBs were appreciated for the support, advice and guidance provided to schools (only if they had professional credibility in this specific field; for example, it was apparent that not all RTLBs have undertaken study in gifted education).

Some teachers simply valued the support and expertise of their teacher friends and colleagues:

I bounce ideas off a friend who teaches at XXX who has a real strength in literature...and sometimes we'll spend a couple of days together planning things that she will use with her middle syndicate and then I'll come back and use it with the gifted programme.

Parental and community support. Six schools described parental support as an enabler, and this included both secondary schools. To facilitate parent support these schools endeavoured to provide ongoing information about their gifted programmes. Parents provided support to these schools in both identification and provisions; however, it was the assistance with provisions which seemed most valued. The schools discussed parents who facilitated programmes with students and provided transportation and resources.

In one of the secondary schools, parents are informed and involved in the identification, provisions, and monitoring process. This begins at parent evenings where there is an opportunity for them to discuss gifted education with the coordinator. An information booklet is available and at curriculum evenings the coordinator speaks about the programmes. In a similar way the coordinator of the second high school facilitates partnerships with the parents of the identified students through newsletters, regular parent meetings, and special meetings that are set up to introduce new programmes. When concerns are raised about specific students, parents are invited to a meeting to share in the problem solving/solution finding process. In this school, liaison between Kaumātua and school, or families in the school community from other cultures, are handled by the Māori and Pacific Liaison workers from Student Support Services.

The primary schools also reported effective facilitation of home and school partnerships. For example, when a writing programme is due to begin in one primary school, information about the programme is written in the school newsletter. Parents are invited to contact the coordinator if they think their child is capable of doing the programme, and then it is discussed with the teacher.

The full-primary, Catholic school is a multicultural school with very good parent support in terms of finances. Parents are extremely supportive of all the gifted education initiatives. Also, there is strong parental involvement during Electives Week as well as in the 'extension' programme, for example, teaching foreign languages. The school is always open on Fridays so that parents can visit the various

classes during Enrichment. The coordinator described occasions when parents have brought their sick child in to school to be in either their enrichment or extension programme, and then taken them home again afterwards. Parents from other schools ring with enrolment queries because they have heard about the school's gifted programme.

Parents seemed willing to transport children to various activities related to their gifted programme. For example, in a small primary school, the child who attends the off-site cluster programme once a week is transported there by her mother. Parents' strengths were also utilised so that "musically orientated parents are involved in helping with singing and drama and a parent with appropriate expertise has taken the A grade gymnasts."

Another school verified their strong parent support by its local reputation about the gifted programme. One teacher explained:

Parents are often called on as helpers in activities and to share particular skills with the children, for example, screen printing. Parents are rung if an extra pair of hands are needed to supervise, to take children on trips etc. So the parents, whatever I ask them, they're just willing to do it. They are wonderfully supportive.

Communication. Open lines of communication amongst staff, students, and the community were valued by six of the ten case study schools. One primary school reported that asking the students for their ideas and opinions regarding their talents enabled them to tailor the gifted programmes to meet student needs. A number of schools found communication to be vital particularly in overcoming barriers such as the attitudes of some staff. Positive recognition of what teachers in the intermediate school are attempting to provide for their gifted students strengthened communication between teachers. The coordinator of a primary school was careful to ensure that children were not being pulled out of their classes at a time that made it difficult for their classroom teacher. Similarly, through careful communication, negotiations were made for students to be excused from doing aspects of their homework if they were involved in homework from the gifted programme.

Good communication in another primary school means that all teachers know what has been planned in terms of the gifted and talented programme, so if the lead teacher is away, the programme still continues. The plan for the programme is finalised one term ahead to ensure teachers are aware of what is happening. If unexpected opportunities crop up, they are incorporated into the plan at the time. For another primary school, good communication was seen as the key to making links between the special programmes and the classroom programme. The teacher responsible for the 'extension' programme is also involved in the enrichment programme. Acting in the dual role of deputy principal and as the school's 2 release teacher, she knows all the children and the classroom programmes, so she is able to make links with the current topics. For example, if the classroom maths topic is statistics, she will teach this in her extension group and provide all of the classroom teachers with her planning and assessment.

Publicity was considered to be important to the success of the gifted programmes, so most of these schools also communicated information about their gifted and talented programme via booklets and community evenings. One of the primary schools considered open sharing of the nature of provisions, such as the cluster group activities, and giving it a regional profile means that "there can be spin offs with other schools wanting to adopt these strategies."

Flexibility. Seven of the schools expressed the view that flexibility of staff and the school environment was an enabler to effective provisions. Flexibility of the staff was mentioned the most. For example, an attitude of willingness amongst the staff to be open and flexible to anything, if it is for the good of the students, has enabled effective policies and practices to be implemented in one of the primary schools. A common thread throughout both the in-depth and focus interviews for another primary school was the flexibility of the staff in the way they were prepared to move outside their comfort zone and engage in a little risk taking to make the programme succeed. The staff saw this as, "we expect the children to do it so we should do it too."

Flexibility was attributed by one school to the teachers' ages and experiences. As the coordinator said, "There are quite a lot of younger teachers at the school and they have been accepting of the fact they have a very diverse ability range within their classrooms and they need to teach in a way that meets the needs of all students." Yet, the stability of staff, that is low staff turnover, was perceived by a couple of schools to be an advantage when establishing gifted and talented programmes:

One of the things that we've felt has, we've been fortunate with, is we've had stable staffing up until this last twelve months and so that as we've have walked this journey they've been alongside of us seeing what's happening and growing with it too I think.

Teacher flexibility to change and develop the class programme means the opportunity to "go off on a tangent suggested by the children" and allows teachers to meet student needs by maintaining their interest and motivation.

Two schools referred specifically to the importance of having a flexible classroom environment. A primary teacher said:

The classroom environment needs to support risk taking, children need to be supportive of each other's gifts and there's no pressure not to achieve. Students also should be comfortable with saying "no" so that if they don't want to help anyone or be anyone's dictionary or be used to model something they can refuse and so focus on their own work. The school atmosphere is also important so that gifts and talents are celebrated and kids who achieve are accepted and recognised.

For another primary school, setting up an inclusive environment where all students belong and feel accepted allowed talents to surface and be noticed, and this has facilitated the identification of and provision for gifted and talented students.

School size was perceived to facilitate greater flexibility by a couple of schools. The example was given by the small primary school of cross-class ability grouping. Half of the class was given basics while the more able children were taken by another teacher for enrichment work. There is flexibility in organisation and allocation of children to groups. "It's the flexibility of skills and ability to separate children." For this school also, the nature of the individualised "packets of learning" were believed to provide greater flexibility for gifted and talented children to be accelerated and enriched in areas of interest:

It's actually releasing children into something special that they are already interested in and love doing. Giving them those opportunities and letting them go and because we have this individualised programme we can do it without having to establish special times and special groups and all that.

Commitment to the programme. Six schools discussed the shared philosophy amongst the staff regarding the importance of gifted education. These schools all had a schoolwide commitment to their gifted and talented programme. For example, one coordinator said:

This school's made a commitment. It was one of the rules that this [the programme] was never going to be cancelled if someone was away. The person employed to relieve teachers to take the gifted programmes wasn't going to be relieving other classes and that's important because it's quite easy sometimes to think, 'Well, so and so's not here, We'll cancel the programme today.'

Another primary school 'ring fenced' Fridays for gifted education. Together the staff made a team decision that no trips or other activities could be planned for Fridays. This guaranteed that the gifted programme would never be compromised. As explained by the gifted coordinator:

One of the main day to day operations is this thing about no trips. The importance placed on our extension and acceleration programme and the enrichment programme too. You have to be there. It's important. We value it....So if anyone rings up and says "do you want to come to this on a Friday?" the whole staff would say, "oh no." So that has been the most effective in that each week the staff that teach it are there, the children know it's going to happen and it happens.

Just as the teachers involved in teaching in gifted and talented programmes are committed and involved, so too it seems are the children. One teacher said:

I've never had naughty children in those groups. They're just not, they're so interested in what they are doing and so loving being there that they actually don't have that problem with behaviour at all.

Allocation of management units for learning support with a specific focus on gifted and talented students means there is a commitment to giving gifted education a profile within those schools. The programme's sustainability is ensured, because the position is safe, even if the present co-coordinator leaves. Schools also perceived a growing awareness and commitment to gifted education within the Ministry of Education:

I think it is something that's developing too. The awareness of gifted and talented education, the profile of it probably has risen over the last couple of years and it is something that as a staff and as a Board of Trustees our school's been quite aware of too. So while you've sort of known for a long time about gifted and talented, specific programmes and actually more research, professional reading, that kind of thing has become more apparent and more available. I think that over the last two or three years, it's been a bit of a Ministry push with the professional development contract available so I think that the awareness has been raised and it's something that we recognise that we've definitely got some children who fall into that category...

Barriers to Identification and Provisions

This section reports on schools' responses to the questions:

What were the barriers in establishing your school's identification and provisions? How were these barriers overcome?

The responses centred around two major barriers to identification and provision: those related to people and those revolving around practice. During the interviews, respondents discussed barriers presented by teaching staff, parents, and students. Practical barriers included funding, resources, time, curriculum issues, and provisions.

Teacher confidence and competence. Half of the case study schools raised issues about teacher competency. Schools perceived the lack of professional knowledge by staff in the area of gifted education impacted on their ability, in particular, to identify gifted and talented students. It was felt that teachers needed support to think beyond the "bright teacher pleasers." One school queried their use of informal indicators, such as teacher nomination and students' products, because of the potential for students not to display indications of giftedness readily recognisable by uninformed teachers. The following quote voices their concern, "Whether we are giving the children the opportunity to really come up trumps I'm still not sure."

Similarly, the issue of students with behavioural difficulties and the identification of gifted underachievers were also discussed. It was felt that these difficulties may arise because teachers are either not recognising their abilities or they are failing to recognise misbehaviour and truancy as possible indicators of boredom. Two schools worried that they may be failing to identify students who have English as a second language, but described one approach has been to work with the ESOL teacher who can try to provide suitable experiences.

A number of teachers in the focus interviews expressed the view that they had gaps in their knowledge, particularly in terms of providing for gifted and talented learners in the regular class. Teachers reported the need to know their own limitations. “You may have to really stretch yourself to meet those needs and you have to rely on other people, other experts.” The need was expressed to “train teachers to move from the mundane, to think and do things differently to keep children motivated and challenged.” Teachers may be reluctant to seek help from either peers or outside support. As one teacher explained, “Some teachers can feel very uncomfortable doing that, it can be very difficult.” Gifted coordinators commented that while they can support and encourage classroom teachers to provide appropriately for their gifted and talented students, they could not guarantee their competency. However, it was considered difficult to raise feelings of confidence and competence when there are not enough professional development courses in gifted education available for the staff to attend.

At the time that the gifted and talented programme was being developed in one of the full primary schools, all of the staff involved in its implementation were new to the school, with little knowledge and skills in the area of gifted education. Recognising this as a potential barrier, the decision was made to ‘tread gently’ and move slowly. As one of the teachers said, “The principal said to us, ‘Let’s make a point of saying to our community that we’re not going to start this until term two.’” Thus the first term was spent reading and talking, establishing a philosophy of gifted education, and beginning to plan towards it. The reflective and thoughtful pace of the school’s ‘steps forward’ were aimed at helping staff become more confident and competent. Some staff were initially hesitant to take risks, however, as the programme gradually developed and built staff confidence in the programme grew.

Teacher resistance. Seven of the ten schools discussed resistance by some teachers to the implementation of special provisions for gifted and talented students, especially during the initial stages of development. Coordinators in these schools felt the need to ‘convince’ teachers of the worth of the programmes. Teacher resistance stemmed from misunderstandings and stereotyping about giftedness and talent, misgivings about the equity and fairness in identifying and making special provisions for gifted and talented students, and pragmatic issues, such as teacher selection and resources.

In two schools, some of the teacher hesitancy to implement special programmes for gifted and talented students centred around the need for schoolwide consensus regarding the terminology and concept. In one school the term ‘gifted and talented’ was not well-received by staff, but ‘special abilities’ was favoured. The coordinator persevered by working alongside staff, and believes that this issue has been resolved. In another school, the staff have not yet come to a consensus regarding the meaning of the term ‘gifted and talented.’ To overcome this potential barrier, the coordinator reported that the concepts of giftedness were timetabled for discussion at a whole school staff meeting.

In those early stages of development, some coordinators perceived a few of their teachers to have misgivings about gifted and talented students, and any special provisions for them. These coordinators felt that some of their teachers were:

- Threatened by students who may be ‘brighter’ than the teachers themselves; or
- Concerned about equity issues, and felt that it was elitist and unfair to give some students special treatment when other students did not get it.

In the intermediate school, which had special full-time classes for gifted and talented students, the coordinator felt that other staff perceived the programmes as elitist. As she commented:

Teachers think that we’ve swooped off the cream of their classes. It’s trying to get people to realise that we’re not elitist by what we’re doing.

The intermediate school teachers of the gifted programme also expressed a concern about other teachers' attitudes and misconceptions, for example, one said, "I still don't think that the teachers really understand."

Both secondary schools discussed attitudes around equity issues. Although high school teachers supported making provisions for gifted and talented students, they also considered that it was not equal at the top and bottom. Some worried that parents might say, "Oh, those students are spoilt with ability...Well, my son's average. He should be getting extra as well." However, these teachers believed that "if they could get it right for gifted students they would also be getting it right for average kids." The social sciences were highlighted as a curriculum area that caters for all students:

You can get a huge range of response for the same question. We don't have the same difficulty as some subjects do in posing questions that allow a wide range of ability to interact with the question. I think if you're doing it at the top end, then the fact that you're focusing is going to flow down into the levels below, and so I don't think the average kids are going to be disadvantaged by that.

Some staff at the other secondary school expressed the view that the students with special abilities suffer because of a high proportion of students with special needs. As the coordinator stated:

We do have some barriers within the staff. I have to say that because we have a lot of needy kids at this school and a lot of people who find it socially more acceptable, in terms of their conscience or their socio-ethics, to look after the real strugglers and we've got lots of those. We have a very long tail and so when you start to look for, to look towards the top group of kids, then there is some degree of resistance. So I have to say that is one of the barriers.

To overcome this, the focus of the policy is on achievement; that is, every student has the right to achieve to their potential. The thrust of the whole school is excellence in achievement, regardless of ability, and this has helped staff accept special provisions for gifted students.

Resistance to programmes also related to pragmatic decisions. For example, in the intermediate school staff debated the physical and organisational positioning of the gifted and talented students, specifically the pros and cons of placing the students in one syndicate or across several. Some staff felt that if these students were together in one syndicate it provided more opportunities for like minded students to mix. However, the alternative view was expressed: that it can be perceived as an unfair advantage for the syndicate that has the gifted classes. Staff considered it would lead to an element of conflict where the teachers of the gifted are accused of having the 'best' students within the school. They also worried that the gifted students in that syndicate might dominate in all the competitive aspects of that school's programme. The decision was made to place the four classes in one syndicate, with two other mixed-ability classes.

In one of the primary schools there was teacher opposition to children "coming and going from their classes" to attend withdrawal programmes. The coordinator, however, expressed the view that "once teachers saw the benefits children gained from the gifted withdrawal activities" their resistance eased. In another primary school, teachers believed that students in the gifted programme should still do all the work in the class that they had missed when they were withdrawn for special programmes.

Another perception among some staff is that teachers of the gifted and talented students have an 'easier' job. An indicative comment, made by a secondary teacher, was:

Teachers who don't teach these classes often don't see these kids as different, the perception that you've got there is that the ... class is an easy run - which is simply not true.

One school talked too about the importance of maintaining staff attention on the specific needs of gifted and talented students. This was echoed by another school who thought that teachers may also be

reluctant to take risks and “let students go on and do their own thing,” that is “giving gifted children a real opportunity to take something a bit further down the path.”

Some issues around stereotyping were exposed. For example, in one focus group discussion, teachers expressed the view that their gifted and talented students were “misfits” at home and at school. The following quotes are indicative of this stereotyping:

This is a fairly working class area and in the ... class you may only find three or four who have an understanding of what it is to go to university. Some of these kids don't come from that sort of culture [tertiary education] to be able to achieve. They're almost seen as oddballs in the homes they come from.

You sort of half expect bright kids to be more mature than their age suggests, and I mean, they're simply not, are they? Some of them are really silly chicks!

Some of these kids have an arrogance and a precociousness which can make them difficult to have in a group. Some of them are quite eccentric actually.

It's nicer to take the second class down from the [gifted] class because quite often you've got able kids with good attitudes to learning. They're hard working and still bright, and you know, they'll really work hard and they'll enjoy doing it and it'll be a really nice atmosphere, whereas in the top class you've got, you know, half a dozen odd bods that you've got to try and balance and mix and keep happy.

Staff turnover and continuity. One of the large secondary schools has a high staff turnover (forty new staff for 2003) and this impacts on the continuity of the teaching programmes. Continuity of staff was also considered to be a problem in the other secondary school when teachers work closely with one staff member and then they become ill or move on, hence the value in working with a team of teachers in one department. In primary schools too, the loss of teachers from a team which has successfully established a common philosophy and developed programmes has caused disruptions to the gifted programme.

A couple of schools also commented on the danger of over-reliance on one person. Teachers noted that the gifted programme is very reliant on the enthusiasm, drive, and expertise of the programme coordinator. For example, in one school staff felt the programme is well established enough to continue, but if the coordinator left there was a concern about “whether it would be quite as successful and sustainable if X wasn't pushing.”

Parents. Half of the case study schools discussed parents as a barrier, and felt that there was a great need to ensure that parents were well-informed about the school's identification and provisions. These parental perceptions were identified as barriers: reluctance regarding their child's participation in special programmes; pressure to provide programmes; and misconceptions of their child's level of ability.

Two schools discussed parents who did not “want a bar of it” and would not allow their child to participate in a programme. This was viewed as a cultural problem in one school because the parents did not want their child singled out and seen to be different. There was a recognition that “we actually need to work with the parents before we actually even start working with the child...that's a real cultural thing in this case.” There is also the occasional reluctant parent who has to be convinced that their child wants and needs to be involved in a programme suitable for gifted and talented students. This was the case in the other school as expressed by the coordinator who reported that the parent “didn't believe that he should have all this fancy stuff when he couldn't get his homework done and what was I doing about that?”

One school reported a case of parental pressure to provide Correspondence School enrichment for their daughter. Also mentioned was parental pressure for their children to be involved in a regional

cluster programme, as well as pressure in the Christian-based individualised programme for acceleration rather than enrichment via the modules.

Staff in a high decile school felt that many of the parents believe their child to be gifted. These teachers expressed a concern that perhaps there is a lack of parental understanding as to what gifted means, and some parents may be insisting their child be part of a programme that they may not have the ability to cope with. The committee for gifted and talented has a criteria for selection, but try to reassure parents that the school is meeting their child's needs, whether it is through the withdrawal programme or the classroom programme. However, the possibility was raised that some children may be in the programme because of parent nomination more than any other criteria.

How well the programme is received can depend on how well informed the school community is about gifted education. There was a recognised need in all the schools for parents to be well informed about what is being provided, as well as the rationale for it, in order to allay parental concerns when students are challenged by the programme. The school may have an open policy but in reality there may not be a lot of parental involvement. Therefore teachers in the intermediate school endeavour to meet with parents:

to alleviate a lot of concerns that they have and to try and explain the direction that the children are going to be going in but also to point out some of the issues that they may have concerns about.

Students. Several of the schools raised issues related to gifted and talented students which they saw as a barrier to effective provisions. The major themes to arise were in relation to inappropriate behaviour, coping with academic and intellectual challenges, and student attitudes upon returning to the regular classroom after participation in withdrawal programmes. Students participating in withdrawal programmes or special provisions off-site (i.e., cluster groups, working with local experts, field trips, etc) were seen as needing social skills and cooperative skills for effective participation. Thus, negative, 'bad,' or 'naughty behaviour of some gifted or talented students was seen as a barrier to provisions. Additionally, some teachers felt that the students needed to be able to work in a group with other students. The result of lacking these skills was that some gifted and talented students were excluded from these opportunities. One of the ways that one primary school is working to overcome this is by way of a social skills programme that runs through the school at the beginning of the year.

The homework habits and learning skills of some of gifted and talented students were described by their teachers as unsatisfactory. For example, teachers in one secondary school talked about students who might forget to bring their diaries or the equipment required to complete some of the activities. They also described students who had 'cruised through' school without developing appropriate work and study skills, and sometimes lacking in motivation. These indicative comments explain some teachers' perceptions:

I think you sometimes get kids who are bright, it's not a language problem but just a motivation problem. Or they're just not used to sort of doing a lot of stuff, homework, a lot of homework, that sort of thing.

I think some of them are used to achieving without having to work terribly hard.

They've coasted through.

And you get that comment from their parents a lot too at Parents' Evening. They've said they're so used to achieving without having to think about it.

They are kids who may have had an easy ride up until they hit our classes and all of a sudden they're with other kids who are possibly better than them so they are no longer at the top of the pecking order.

To improve this situation, listening, thinking and study skills were taught as part of the special class for academically talented students in one secondary school.

One primary school discussed student dissatisfaction with the regular classroom programme upon return from community-based one-day-a-week programmes. As one teacher commented:

Some of the kids were coming back and they were real stropky, like everything we are doing here is boring, this is too easy and all that sort of stuff and teachers were having a real problem with kids coming back with a really arrogant attitude and this school actually wasn't good enough any more.

This school is working to alleviate the problem by talking to the children concerned, reminding them of the privilege they have in attending these classes, and challenging them to take the initiative and go the extra mile in their own classrooms.

Funding. Inadequate funding was viewed as a barrier in five of the ten case study schools. There is a resource cost involved in differentiating the curriculum (individual programmes, enrolments in university courses, preparing resources, as well as the costs associated with the coordination of gifted education). As one secondary teacher explained:

Yeah, it does cost to enter things ... my able students in Year 10 enter a competition for the Young Designers' Competition and it will cost them about \$60 to enter. My Year 12/13 have another competition they can enter. It will cost them similar but I put them in another competition where it costs them nothing so they all go for that one because it is a financial burden on the parents all the time. It costs them big dollars. It's supposed to be free education. And it's not, it's not.

Lack of funds was also viewed by the other secondary school as a barrier to making provisions, for a number of reasons. First the feeling was that in order to run an effective programme it needs to be adequately resourced. For example, teaching and learning material, such as textbooks and other resources, for senior work needs to be resourced over and above what is currently provided. Adequately resourcing the coordinator's position was viewed as being critical to the success of the programme. Teachers were concerned about the costs incurred in coordinating the programme; for example, running meetings once a term for the parents was labour and cost intensive. Staff felt strongly that any extra resourcing should be funded by the Government. They were pleased that the role of the coordinator was recognised with a 'position of responsibility,' but that was another cost that had to be absorbed by the school. This school also needed more funding for professional development. For example, if teachers decided they would like to learn more about providing for gifted and talented students within their particular subject area, they wanted to know that funding would be available for them to do so. (However, the unavailability of such courses was also perceived to be a barrier.)

One low decile school has to be mindful of the cost of some provisions, so external sources of funding are constantly being sought. The principal shared that he applied for anything that came available, and was reliant upon community grants, Ministry of Education opportunities, and so on. Another school bemoaned the lack and uncertainty of funding. At this school, future planning is difficult as provision is tied to roll numbers. Provisions have fluctuated over the years because the breadth and depth of what has been offered in the school has been dependent on funding. As stated by one teacher, "uncertainty of provision is tied to available funding from year to year, and if funding is tight the gifted programme was seen as the first thing to drop."

Resource issues. A lack of human and physical resources was identified as a barrier to providing programmes for gifted and talented students. For example, one primary school discussed difficulties finding suitable people to facilitate programmes (particularly in the area of music) and finding teaching and learning resources to support leadership programmes. Another primary school was faced with similar problems in providing a science programme. Many students wanted to participate, and staff perceived this eagerness to be driven by the chance to use microscopes. With limited resources,

not all students could participate, so the students were asked to prove they were “committed scientists” by entering the science fair. They were given the choice to opt in to the science fair elective during Elective Week. That commitment ‘won’ those students a place in the science programme.

The decision was made by another primary school to limit the numbers of children able to participate in the various programmes. Currently there are only twelve students at a time doing either an eight or ten week block programme. This is particularly hard when a new student who is gifted arrives at the school. While teachers may be prepared to allow an extra student to enter the programme they cannot, for fear of another parent finding out and ringing the school to ask why, when their child missed out at the start of the programme when the roll was closed.

In another school, staff felt one solution to lack of expertise was to bring in outside experts as tutors. However, they also felt that there could be safety issues and care was needed not to put students or the tutor themselves at risk.

Finding a space to work in was difficult and proved to be a barrier for three schools. One example given was that with the lack of space to house groups, the gifted programme is the first to be shifted if a classroom is needed, and this has happened on a number of occasions. Secondary timetables also make it difficult to timetable the various options and to find the appropriate work spaces at a given time. This involves creatively finding a solution, for example, borrowing another teacher’s room to have the use of more computers, and amending the Autonomous Learner Model to address timetable constraints.

Conversely, when schools allocate special resources for gifted and talented programmes, teachers and students sometimes question the fairness of allocation of resources. For example, teachers in one school heard a student say: “Oh yeah that’s the brainy house, how come they’ve got five computers and we’ve only got one?”

Time. Six schools identified time issues to be a barrier, especially in relation to planning, in-depth study and investigation, and professional development. Some teachers indicated that they did not have time to adequately cater for learners at both ends of the ability spectrum. As clarified by one teacher:

In response to the NAG we must plan for individual needs and this is demanding when there is a significant range within your class.

The time allocation for coordination of gifted and talented programmes was perceived as insufficient for the amount of work generated. For example, in one secondary school, teachers voiced their concern that the learning support coordinator could only interview one or two students in her non-contact periods because of the sheer volume of material to get through. Another school discussed soaring workload issues when the gifted coordinator is also the school’s deputy principal. Both the time-consuming nature of teaching groups and the demands of the position have impacted on what this school can offer in its gifted programme. For example, there are programme interruptions when she is required to perform other duties. The staff felt that to overcome this, a full-time teacher is needed for the gifted programme.

Giving the students enough time to pursue their learning proved difficult in some schools and this was attributed to scheduling and curricular issues. The timetable was described as restricting, especially when students become immersed in an in-depth study. There was a concern that student momentum then becomes lost which can lead to a sense of frustration.

Finally, teachers expressed the need for more time for professional development and reflection. As voiced by one coordinator, “there needs to be time for the staff to reflect about the theory and practice of special abilities, that’s a major barrier as I see it.” In relation to this, staff in one school felt that their understandings would be enhanced by having knowledge of the one-day-a-week provisions made by the local cluster programme. However, when they invited to a presentation by the cluster

coordinator, they did not have the time to go. Consequently they have no knowledge of what the programme provides for gifted and talented students.

Curriculum issues. Two schools felt that the heavy demands of a crowded curriculum were a barrier to providing for gifted and talented students. One school said that they needed the courage to state that particular students do not need to do everything in every curriculum area. Another school initially held a fear that because of all the areas needing to be taught, there would be no space in the school week to devote time to enrichment programmes. To overcome this, teachers selected topics within each curriculum area that they were willing to give up teaching themselves. For example, in the mathematics curriculum, a couple of geometry objectives were identified and the teacher responsible for mathematics enrichment taught and assessed those objectives to every class in the school. In this way a balance and coverage of curriculum activities was achieved without being viewed as ‘extra’ curriculum activities.

NCEA was identified as a major barrier for gifted and talented students by both of the secondary case study schools, and these teachers were particularly concerned about the level of challenge and disadvantages of the assessment. These teachers felt that other schools shared their same view of NCEA and gifted students. In particular, Technology was emphasised as a curriculum area where gifted and talented students were being disadvantaged by the NCEA system. Teachers in one of the schools felt the only way they could motivate bright students “at the top end” was to put them in competitions and provide a reason for putting in effort, such as design or architecture school only accepting the top two percent of applicants. In this school some departments were exploring the idea of offering alternative examinations, such as Cambridge, for their gifted and talented students.

Teachers expressed concerns about the level of challenge and motivation, as described here:

At this school we identify the able kids and we offer them six subjects at obviously Year 11 and we promote Year 10s to do the 5th Form or the old School cert or Level 1 and that's good. But I do wonder in NCEA. We used to have Scholarship, Bursary Scholarship, and we used to be able to take those real top kids and really extend them out and that's going to disappear I feel with NCEA.... In Level 1 they've still got that enthusiasm and they're scoring excellences, get to Level 2 and suddenly now they're just achievement. They do not and I can't push them to go to that next level. The only way I can get them to go to the next level is to get them doing competitions. A few will do it but they've got the system worked out.

The current focus for the committee of the second school is to determine the impact of NCEA on the school's gifted senior students. Prior to NCEA these students were able to be kept together as a group that did accelerated courses, for example, attending university classes.

One of the major concerns with NCEA is that bright students can get 92% in a mathematics exam but get Not Achieved because they skipped a step in their calculations. This is difficult for gifted students to comprehend. Parents too are concerned, for example:

I had an interview with some parents last week whose kid is in the top Year 10 class and he got an Excellence in his first attempt at NCEA Science, then he got a Merit, and then an Achieved in the recent exams. He got the Achieved because of one particular question that he didn't answer but his parents are up here saying what can we do because they expect him to get Excellence. A lot of that sort of thing is going on.

This school has opted to offer university papers; however, there are practical implications involved, for example, finding mentors and places around the school for students to study.

Provision issues. All of the case study schools raised issues around the best way to make provisions for gifted and talented students. This revolved around the age at which provisions should be made, the relationship between special programmes and the regular classroom programme, transitions between

levels of schooling, and overall organisation and coordination. For example, one full primary school initially provided a gifted programme for their 8-13 year olds, but the team debated how they would identify, and then justify, that the older students need more than the students in the junior end of the school. They overcame these ethical dilemmas by referring back to their common beliefs and philosophy about provisions for gifted education within their school.

Three schools queried whether gaps in learning were occurring when students were in special programmes which withdrew them from the regular classroom. For example, when the students go to a special mathematics programme at the same time mathematics is taught in their classroom, it is possible that between the two programmes some children may miss being taught a specific concept that they need to know. One primary school hoped that these gaps would be picked up during assessments.

Related to this was some discussion regarding the relationship between enrichment and acceleration. Teachers expressed concerns about “sending kids up without going across.” The relationship and timing of out-of-class programmes in relation to classroom programmes was also considered to be potentially problematic. One school reported the lack of fit between the gifted programme and the regular class programme. For example, the workshop topic may be something that is not at all related to what is happening in a student’s class. However, the school does not think that this should be used as an excuse for not making special provisions.

From a gifted coordinator’s perspective, there can be barriers with in-class provisions. In other words while the students are involved in gifted and talented programmes outside their regular classroom, there also needs to be more emphasis on in-class extension and enrichment. As one coordinator said:

It simply isn't enough to expect that those children will be extended by the withdrawal groups. There's more children than what I can cater for and, you know, all our bright children from middle upwards need constant extending and it might be that I have to do more in the way, you know, I suppose teaching about differentiated learning from both ends of the scale.

One school expressed some reservations about their provisions in relation to the local cluster group programmes, the Correspondence School programme, and the school-based individualised Christian-based programme. In particular, the individualised system can create an expectation that there is always a right and wrong answer because of the marking cards. The instance was cited of some children finding a teacher-prepared science unit quite difficult at first because the concepts had no right or wrong answers. “They wanted to know straight out – what’s the right answer.” Occasionally a gifted child will get frustrated with the fact that the system is so structured. For some gifted children the programme can confine them:

because of the sameness, there's a sameness on a day to day basis... its not about the information, its about “I am ready to try something different, yeah, I've read this, I understand it and you're still going to make me write those things down.

Some schools also expressed concerns about the administrative aspects of making provisions for gifted and talented students. With the transition to secondary school, contributing teachers at the intermediate school felt that the information they provided was not taken into account. The perception was that the concept of giftedness at some of the local secondary schools is narrowly based on academic performance, so that some students who have been involved in a specialised programme for gifted and talented students end up treading water when they get to secondary school. Anger was directed at their local secondary schools for not including some students in the gifted or accelerate programmes in Year 9.

What's the point of us having gathered all this data, passed it on to you and then talked to you about children in our classes if you didn't take any notice of us, so it is an issue.

Working within a large cluster of schools brings its own challenges. As one coordinator said:

The larger clusters from an administration point of view can suck you dry. You spend half your time administering them, administering it and nothing gets done. Even to the point that I don't think that...they've only had a couple of workshops and they've been going two terms.

Advice

The school coordinators, in the in-depth interview were asked:

What advice would you give to schools at the beginning stages of establishing a gifted and talented programme?

All ten school coordinators in the study offered advice and this related to professional development, shared beliefs and involvement, support from administrators, research and professional reading, funding, and other areas.

Professional development. The most common advice was associated with professional development. Eight schools cited professional development as a critical factor in developing effective practices. For some, this professional development meant sending school representatives to courses provided by advisory services within their region. Others suggested going into other schools, observing promising practices, and talking with other teachers. One principal believed this was the most useful form of professional development, “a lot of talk, reflective talk, deep reflective talk, the dialogue that brings long-lasting change.” One school advised that before engaging in any school professional development, staff should be surveyed to find out their present attitudes. From this, professional development could target identified gaps. Similarly, one school suggested that schools should always start from where their staff was, respecting their present skills and beliefs.

Shared beliefs and involvement. Most schools offered advice around the development of a shared philosophy and/or whole school and community involvement. Two schools stressed the importance of developing a school culture that recognised, accepted, and affirmed gifted and talented students. This included recognising the value that the students bring to a school. Three schools believed that there needed to be transparency in whatever was happening in a school for gifted and talented students and that staff needed to be kept informed along the way. This idea was extended to parents and community members by two other schools and one of these schools suggested that to do this successfully, it was necessary to know your school, your community, and their needs. One school suggested that it was a good idea to find out who the ‘gatekeepers’ were and involve them in the process of programme development and implementation.

Support from the principal and Board of Trustees. A common theme to emerge from the advice offered by the ten schools was that of the importance of support from the Principal, and to a lesser extent, the Board of Trustees. Six of the ten schools stressed the need for the Principal of the school to be, if not involved, at least very supportive of the gifted and talented provisions within a school. One school believed this was necessary to ensure that policies were in place, there were suitable staffing and resources and that there was a commitment to professional development in this area. Another school highlighted the ability of quick decision-making if the Principal of the school was involved. Support from the school Board of Trustees was also seen as a critical factor. This support was often linked to the allocation of school funding for gifted and talented programmes.

Research and professional reading. Four schools pointed out the benefits of the staff member in charge of the gifted and talented programmes keeping up-to-date with research and professional reading in the area. As a teacher at one school said:

Get some theory under your belt. Do some reading and find out what you need to think about because you don't know what you don't know.

The rationale for professional reading was summarised by another teacher:

Doing this allows you to have the back up to what you are doing and why you are doing it.

Funding. Three schools cited the importance of funding to support gifted and talented programmes. These comments are indicative:

I think whether the Board gives it to you or whoever, you need some money.

Adequate resourcing is necessary. You need to budget for resources.

Other advice. A number of other ‘one-off’ pieces of advice were offered by all ten schools. These were centred on three areas: staffing; identification; and risk taking. In terms of staffing, the advice was to choose the right person to coordinate the gifted and talented programme, a person who has passion for the area, and to ensure that this person was given release time. One school advised to sort out staffing before embarking on a gifted and talented programme to ensure that there was adequate and appropriate staff. Advice surrounding identification included finding a range of ways to identify gifted and talented students, not just test scores, and looking at every student as an individual, keeping a very open mind when identifying students. Three schools offered the advice in terms of ‘risk taking.’ These coordinators felt it was important to “trial many different programmes, be prepared to move outside your comfort zone and seek out new and exciting initiatives.”

Summary

The ten schools involved in the case studies represented a range of deciles, sizes, cultural and ethnic populations, and were located in a variety of geographical areas within New Zealand. Although each school reported different approaches to identification and provisions for gifted and talented students, several themes emerged. A common message from each school’s description of their journey was their belief that they had ‘not yet arrived at their destination.’ They recognised that there was still much work to be done before they were successfully meeting the needs of their gifted and talented students. Many schools spoke of their eagerness to improve in both identification and provisions. For some, this brought the realisation that they needed to take risks and move outside their comfort zone.

For many schools, the beginning of their journey started with one key person. This person had an interest in gifted education, a desire to improve provisions in their school, and some present or previous involvement in gifted education study (such as university papers) and/or professional development. Professional training and development acted as the catalyst for these teachers to take responsibility for gifted education in their schools. Another significant aspect of each school’s description of their journey was the support they received from the school principal and the Board of Trustees. In some cases, the Board of Trustees provided support by funding a part-time teaching position.

When asked to identify the enablers that helped schools along their journey, over half the schools identified the following: Professional development; funding; within school support; communication; flexibility; and commitment to the programme. Professional development in particular was identified as a critical factor in enabling schools to create effective programmes. This included ‘one off’ courses, involvement in professional development contracts and tertiary study. Barriers to effective provisions centred around ‘people’ issues such as lack of teacher confidence and competence and resistance from teachers, as well as practical barriers such as lack of funding resources and time.

In terms of school organisation, all schools involved in the case studies took an organised and planned approach. Eight of the ten schools had specific gifted and talented policies and one school was in the process of developing such a policy. The majority of the schools had a gifted and talented committee and all schools had a coordinator (in all but two schools, the coordinator held a position of responsibility within the school).

School philosophy appeared to play a role in shaping each school's provisions for gifted and talented students. While all philosophies differed, each school displayed an underlying recognition of gifted and talented students, their strengths, needs, and value within a school. One aspect of philosophy that was common among most of the schools was the importance of considering giftedness from a wide perspective. Many schools spoke of their purposeful intent to broaden teachers' conceptions of giftedness.

Most schools reported using multiple methods of identification, however it appeared that there was a strong reliance on teacher identification and nomination as well as formal assessment tools. All of the schools reported using a combination of enrichment and acceleration as well as a range of different organisational strategies to deliver differentiated programmes. As with the identification methods, some provisions were used more extensively than others. For example, enrichment programmes were a clear preference for primary schools.

There was an acknowledgement of the need to provide for Māori students and a concern to do so, however, some schools reported a lack of knowledge about how to go about this. There were also some schools who denied the importance of culture in meeting the needs of gifted and talented Māori students and some schools who thought they *were* catering for students from diverse cultures, but their practices were based on stereotypical assumptions. Overall children from minority ethnic groups were not being provided for adequately in the case study schools. Some schools were aware of this and were genuinely concerned to do something about it and other schools were unaware of their inadequacies.

The use of case studies as a research method allowed for an in-depth, 'close-up look' at the provisions for gifted and talented students in ten schools. As stated earlier in this report, the purpose of the case studies was to gain a deeper insight and understanding of how schools identify and provide for gifted and talented students and was not intended as an evaluation. The insights that have been gained from this process have uncovered a range of new understandings that will be useful in future considerations of gifted and talented programmes in New Zealand schools.

Discussion

The purpose in this research was to examine the extent, nature, and effectiveness of identification and provisions for New Zealand's gifted and talented students. Three elements comprised the research: a review of the national and international literature; a questionnaire to all schools in New Zealand; and case studies of ten schools' promising practices. The primary aims of the research were to investigate:

- The theory and research which informs effective practice in the identification of and provision for gifted and talented learners from national and international perspectives.
- The extent and nature of planned policy, identification and provision for gifted and talented students in New Zealand.
- Identification and provisions for gifted and talented students which appear promising in light of theoretically sound practice.

This section of the report discusses the major findings of the review of the literature, questionnaire, and case studies in unison with one another.

What Does the Literature Say and What Do Practitioners Do?

There is a vast amount of literature in the field of gifted and talented education and within New Zealand this has grown in recent years. The current initiatives of the Ministry of Education which support gifted and talented education have had, and will no doubt continue to have, a ripple effect upon the supply of and demand for resources and materials to support planned approaches to provisions. Examples of recent documentation in gifted and talented education include the Ministry of Education handbook, *Gifted and Talented Students: Meeting their Needs in New Zealand Schools* (2000), the development of the gifted and talented community on *Te Kete Ipurangi The Online Learning Centre* (www.tki.org.nz/e/gifted), and the policy statement released by the Ministry of Education in 2002. As the case study schools, in particular, and questionnaire respondents have indicated, New Zealand-based and international materials are being used. Many schools, for example, cited the Ministry of Education (2002) policy statement definition as their school's adopted definition and others indicated their use of the Ministry of Education (2000) handbook.

The 'journeys' of the innovative programmes being implemented through the Ministry of Education's contestable funding pool for gifted and talented (Talent Development Initiatives) over the next two years are being documented and these will be available online via *Te Kete Ipurangi – The Online Learning Centre*. These stories and the planned future evaluation of some of these programmes will also add to the literature base in New Zealand. The providers of these programmes are documenting and recording their developmental journeys and these will be made available online for a wider audience in the future. By enhancing professional development opportunities at a national level through advisory support and teacher education, there is little question that the demand for materials and resources will increase. Furthermore, there is evidence that the individuals leading these initiatives are increasingly contributing to the literature base. It will be important that as gifted and talented education continues to grow, consideration is given to how materials and resources, based upon research and practice, can be disseminated to a wide audience of educators.

Furthermore, increased opportunities for study in gifted and talented education at undergraduate and postgraduate levels have had a positive effect – many of the unpublished research reports are the work of students at universities and colleges of education. Given the purposes of the literature review, it is important to note, that some New Zealand literature and research has not been included in this report. This is not to say that such research is not available or of value – it just did not meet the criteria of this review.

Despite this growth in the New Zealand-based literature on gifted and talented education, the literature review demonstrates a paucity of research, nationally and internationally, which examines the *effectiveness* of identification or provisions for gifted and talented students in relation to their

cognitive, affective, creative, or cultural development. The empirical research related to outcomes, either quantitative or qualitative, is scarce. Although over 500 journal articles, books, websites, and unpublished research studies are included in this review, many of these are descriptive reports or good armchair advice-giving. Additionally, the bulk of the research reported in the literature emanates from other countries, particularly the United States.

Within New Zealand, the scarcity of research is magnified. For some methods of identification and provisions, there is simply *no* New Zealand literature reported – descriptive or empirical. Formal evaluation and reporting of identification and provisions for gifted and talented students is seldom undertaken. New Zealand educators are left to adapt and adopt many of the models, methods, and programmes reported in the international field of gifted and talented education, without a critical, research-driven analysis of their appropriateness or effectiveness within the cultural, social, and educational climate of New Zealand.

There are inherent dangers in this situation and these come to the fore when one attempts to measure even the *potential* effectiveness of the reported identification practices and provisions in the questionnaire results and case studies. As the literature review demonstrates, for nearly every identification method and provision there is a New Zealand *perspective* but seldom is there New Zealand-based empirical evidence to support or refute these. Research within the cultural and educational context of New Zealand, and which examines cognitive, affective, creative, and cultural outcomes for gifted and talented students, of even the most highly-recommended principles and practices would enable better decision-making.

As the questionnaire results show, even when research exists, there is a crevice between the theory and practice. For example, across all areas of giftedness and talent, the predominant school-based provision for gifted and talented students is withdrawal and pull-out programmes. Yet, as the literature review indicates, there is hardly any research related to the effectiveness of this practice. Conversely, although the research strongly supports accelerative practices such as early entry and special classes, less than 10% of the schools reporting school-based provisions utilise these approaches. It is doubtful that educators would intentionally ignore sound theory and research in gifted and talented education. It is more likely that the barriers identified in the case studies and open-ended questionnaire responses are the reasons for this lack of awareness and utilisation of sound theory and research. These include lack of time, funding, resources and support, and professional development. Many of the survey respondents made ‘desperate pleas’ for information, support, and assistance.

On the other hand, the case study schools, all of whom demonstrated a commitment to gifted and talented students, valued the bridge between research and practice. Methods of identification and programming options utilised in these schools were often based upon the national and international literature. The coordinators, in particular, were professionally well-read and up-to-date in their knowledge of gifted and talented education. An emphasis was placed upon their continuing professional development, and that of their staff.

During the focus group discussions, many staff talked about their own professional growth being influenced by the readings, materials, and professional development offered by the coordinators. Despite their use of the literature and research, when available and appropriate, these case study schools also described the potential barriers of time, funding, and professional development. For schools wanting to base their practice upon sound research, this could prove difficult. Furthermore, in the case study schools there was little indication of formal, systematic, comprehensive evaluation of identification and provisions. While coordinators ‘sung the praises’ of theorists’ and researchers’ models for identification and provisions, no one was checking whether these actually had a positive impact upon gifted and talented students.

How Do Practitioners Do It?

The review of the literature, questionnaire and case studies explored three main areas of gifted and talented education: schoolwide organisation; identification; and provisions.

Schoolwide organisation of gifted and talented programmes. The literature calls for schoolwide approaches to identification and provision, which are planned, coordinated, and documented via policies and procedures. The questionnaire results indicate that the majority of schools have appointed a person to take responsibility for the overall coordination of gifted and talented education. Approximately half of the responding schools have a committee or coordinating team. Rural schools reported committees less often than their urban counterparts. Although most schools reported committees of about three members, rural schools reported only two members. It could be that by their very nature, the size of rural schools and the communities they serve impede their ability to establish committees. However, as one of the case study schools demonstrated, being a three-teacher school meant that a collaborative approach was being taken, although no ‘committee’ was reported. A steady increase in the percentage of schools reporting committees is shown as school decile increases; however, overall these differences are slight. There were differences reported by school type; intermediate schools most frequently reported a team approach to provisions.

The case study schools demonstrated the value of schoolwide approaches: schools which had a leader to push the drive for gifted and talented education, supported by a group of advocates, were also more likely to have planned policies and procedures. The literature review indicates that when gifted and talented education initiatives are led by an individual and not supported by written documentation, they are likely to be short-lived, fragmented, or one-off events. Many of the teachers in the case study schools indicated that without the coordinator perhaps the initiatives would not have been developed, implemented, and maintained. They also felt that because the policies and procedures had grown out of schoolwide collaboration and consultation, the future of these did not rest in the hands of the coordinator, but were owned by the school community.

The nature of school committees and coordinating teams as reported in the questionnaire and case studies is comprised mainly of educators and this is not congruent with the recommendations in the literature. Schoolwide approaches should involve more than teachers – all stakeholders, including parents, community members, and gifted and talented students, should be directly involved in the coordination of gifted and talented programmes. As the questionnaire responses and case study schools demonstrate, parents and whānau are seldom represented on these committees. Although none of the case study schools reported parental representation on their school committees, many pointed out the value of parental support for their gifted programmes. These case study schools facilitated good home and school partnerships through ongoing information sharing.

The literature recommends that written policies and procedures be developed specifically for gifted and talented students which describe the rationale, goals, and provisions. A quarter of schools reported policies specific to gifted and talented students, and another 15% indicated that those were being developed. Some respondents indicated that rather than developing policies, their schools were moving towards the development of implementation schemes, procedures booklets, and action plans. Although the number of schools with policies specific to gifted and talented students represents only a quarter of schools, coupled with those in the process of development and reporting other written documentation, the numbers increase. Gifted and talented students are also being addressed in other school policies, and most commonly these are for students with special needs.

Patterns in schools which have policies specifically designed for gifted and talented education emerge: intermediate schools and higher decile schools more commonly reported policies; whereas, secondary schools, rural schools, and lower decile schools did so less frequently. Furthermore, those schools reporting a coordination team were more likely to report an existing policy or the development of one. Some of the questionnaire respondents described their current development of policies, and others acknowledged and recognised the need for policies. The *enablers* to policy development described by the case study schools were perceived by schools without policies as *barriers*. These were time, professional development, resources and information; and funding.

The nature of school policies and procedures, as described in the literature, should be a comprehensive documentation of all elements of a school’s approaches to gifted and talented education: the rationale; goals and purposes; and the practicalities of definitions, identification, programmes and evaluation.

Opportunities for professional development and a statement of financial, physical and human resources are also recommended as components of a school's written procedures. Schools did not report comprehensive policies and procedures – most schools addressed only one to five of the ten recommended components. The rationale, goals and identification practices were most commonly reported. A curriculum or programme model was seldom included.

Some respondents to the questionnaire indicated a resistance to policies, stating in written comments that what is put on paper is not as relevant as what happens in practice. However, as a whole, the nature of policies and procedures reported in New Zealand schools is a clear reflection of the overall reported identification and programme practices. For example, schools reported the lack of professional development opportunities as a potential barrier and this is mirrored as a missing element of many school policies and procedures. Similarly, schools reported lack of parental and community involvement in schoolwide organisation and this flows into the identification practices and provisions reported.

The literature review demonstrates that policies alone do not ensure effective practice. A key factor is the implementation and ongoing evaluation by well-informed professionals. As this research study progressed, the potential gaps between paper and practice came to the fore. For example, it must be pointed out that the case study schools were selected based (in part) upon *self-reported* comprehensive identification practices and procedures and many of these schools had written documentation to support their programmes. However, during the case study visits, when asked about these promising practices, it became evident that their implementation was often more haphazard or accidental than planned and purposeful. For example, though some schools reported identification by parents as part of a multi-method approach, none of the schools had a systematic, schoolwide method of parental nomination. There was also a misperception by these schools that their 'gifted programme' was their 'withdrawal programme,' despite the fact that many other approaches had been reported and were documented. Overall, the continuum of identification and provisions stated in the case study schools' written policies and procedures, as well as questionnaire responses, were implemented and evaluated in a relatively 'hit-and-miss' fashion.

Definitions of giftedness and talent. The literature review demonstrates the interrelationship between how one defines, identifies, and provides for gifted and talented students. In New Zealand contextually-based, multidimensional, inclusive definitions or concepts are recommended. However, less than half of the questionnaire respondents reported school-based definitions of giftedness and talent, and many of the definitions reported in open-ended responses were not in fact definitions per se, but descriptions of behaviours, identification procedures, and so on. Patterns in the deciles, levels, and sizes of schools reporting a definition emerge; however, given that less than half of the responding schools reported a definition, and many of these would not fit the elements of a definition as outlined in the review of the literature, it would be inadvisable to make judgements. Rather, the question that must be asked is 'if a school does *not* have a definition of giftedness and talent, how are those students identified and provided for?'

Planned schoolwide approaches which may begin by discussion of the concept of giftedness and talent, as some of the case study schools described, do seem to make a difference. For example, more than three-quarters of schools having a policy specific to gifted and talented students also reported definitions, as did over half of schools using a team approach. The case study schools confirmed the value of schoolwide approaches to developing a definition of giftedness and talent in the sense that all of these schools had developed one. However, in some schools the reported definition in school policy documents, or understood by members of the coordinating team, was *not* shared by all teaching staff. During the focus group interviews, which intentionally included a cross-section of teachers, there was often discussion of 'what does giftedness and talent mean?'

The reported definitions reflect broad, wide-ranging concepts of giftedness and talent. There is recognition amongst respondent schools that giftedness is conceived as much more than simply high IQ or academic prowess. The definitions reflect current thinking as reported in the literature related to multi-categorical definitions; however, less than ten of the responding schools made mention of the

inclusive nature of giftedness and talent, acknowledging its presence amongst all groups in society (ethnic, socioeconomic, cultural, gender, and those with disabilities). The principles of gifted education as outlined by the Ministry of Education (2000), however, call for recognition of giftedness amongst all groups in society. Approximately a third of decile 1 and 2 schools reported a definition of giftedness and talent, and given the predominance of Māori and Pacific Island students in these schools, coupled with the factor of socioeconomic differences, there is potential here that inclusive concepts of giftedness are not well understood.

The case study schools reported multicategorical definitions of giftedness and talent, but a recognition of cultural, spiritual, and social-emotional gifted and talents was lacking in many of these schools (apart from those of Christian character which by their very nature place importance upon religious beliefs). Also, the return of incomplete questionnaires by many special schools indicates a lack of awareness that students can have dual exceptionalities. One special school, however, reported that although the completion of the questionnaire was difficult given their school's character, a student gifted and talented in visual arts had been identified and the school was working on an individualised programme to cater for her special abilities. Many of the reported definitions of giftedness and talent were normative, in other words, gifted and talented students were seen as having 'exceptional' abilities in relation to their same age peers. By expecting students to be 'above the norm' or 'beyond their age' schools may potentially overlook gifted and talented students who are underachieving.

Identification of gifted and talented students. The literature recommends multi-method approaches to identification which reflect a school's concept or definition of giftedness and talent. This means that schools should be developing multi-method procedures, if they are utilising broad definitions of giftedness and talent. Critical here is a match between what defines giftedness and talent, the areas of potential and performance, and the tools of identification being used. Over 60% of the responding schools reported formal identification of gifted and talented students over the previous 12 month period (April 2002 – March 2003). Patterns of difference in the formal identification occur based upon school levels, deciles and locality. For example, as school decile increases, so too does the percentage of schools reporting formal identification. Primary schools less frequently reported formal identification of gifted and talented students. The difference between rural and urban schools is 20%, with 46.4% of rural schools and 66.4% of urban schools reporting formal identification. Schools employing a team approach and having a policy for gifted and talented education were more likely to formally identify gifted and talented students.

Although schools for the most part reported multi-categorical definitions of giftedness and talent, formal identification occurs most commonly in the area of intellectual and academic abilities: nearly all the schools reporting formal identification did so in this area. Other areas of special ability are reported less frequently. The reported formal identification further demonstrates a lack of understanding of cultural abilities and qualities: less than half the schools reporting formal identification identified culture-specific abilities and qualities. The case study schools all indicated identification across a number of areas, but again, a major focus of their responses during the interviews was the identification and development of intellectual and academic abilities. Schools reported identification across a number of areas. Only 19% who formally identified gifted and talented students were doing so in only one area of giftedness and talent. The contrast between school levels in relation to number of identified areas of giftedness and talent is wide: less than half of primary schools; three-quarters of intermediate schools; and a third of secondary schools identify giftedness and talent in more than four areas.

The tools of identification which schools reported are predominately teacher observation (approximately 97%) and, to a lesser extent, standardised tests of achievement (86.1%). The case study schools also placed an important emphasis upon teacher identification of giftedness and talent, and some saw the lack of professional development in gifted and talented education as a potential barrier to its effectiveness. The review of the literature indicates that the effectiveness of teacher identification of giftedness is variable, and enhanced through professional knowledge and understandings of giftedness and talent, as well as teacher rating scales and checklists of behaviours. The case study schools discussed the value of professional communication and collaboration during

the identification process, and the coordinators played an active role in the identification of gifted and talented students.

The heavy reliance upon standardised testing is also of concern, for as the literature review reports these tests measure a limited range of abilities, have a ceiling effect, and can be biased. The other tools for identification recommended in the literature review are reported by schools. Parent, self, and peer nominations are reported by less than half of the schools who formally identified gifted and talented students and whānau nomination is even less often reported, by about a fifth of these respondents. IQ testing is the least utilised reported measure of giftedness and talent. The methods of identification do vary dependent upon the area of giftedness and talent being identified; however, across all areas teacher identification is reported most frequently. For example, schools reporting formal identification of culture-specific qualities and abilities involve whānau, and auditions and performances are used more frequently to identify visual and performing arts abilities.

One of the issues raised in the literature is in relation to making sense of multiple means of identification. The preferred approach reported in the literature, and one which would ensure a fit between the principles of gifted and talented education and practices in schools, is the compilation of identification findings on a student profile. Many of the case study schools reported the use of a register, and a third of schools reporting policies did the same. In the case study schools, these registers varied in their purposes, formats, and usage, but the general idea was to document the areas of ability identified and provisions made for gifted and talented students within the school. In this way, the use of registers is a partial version of the profile approach described in the literature. This organisational strategy was considered be useful to the case study schools. One of the issues raised by case study participants, however, was concern about the transitions between levels of schooling, and the facilitation of more continuous provisions for gifted and talented students. A more effective method of collating and sharing information about the strengths, abilities, and qualities of gifted and talented students, and subsequent differentiated programmes, might alleviate this concern.

Provisions for gifted and talented students. Over half of the responding schools reported a preference for approaches which integrate enrichment and acceleration, and this is supported by the literature. Of schools preferring either enrichment *or* acceleration, enrichment is viewed more favourably. Only a small number of schools reported a preference for acceleration and these were mainly secondary schools. The case study schools also reported a preference for enrichment and acceleration. Whilst this practice is strongly supported by the literature, the provisions reported in the questionnaire, and magnified during the interviews with the case study schools, show that planned enrichment is much more likely than planned acceleration. In other words, acceleration is sometimes available to students, but this is not as systematically implemented as enrichment. Another important issue related to enrichment and acceleration is an apparent confusion of terms. For example, reference was made to ‘extension’ and ‘accelerate’ classes, but the distinction between what is meant by these terms in relation to enrichment and acceleration is not clear.

Overwhelmingly, schools reported reliance upon classroom-based provisions for gifted and talented students, and this approach is supported in the literature and inclusive education principles of the New Zealand education system. Over 80% of responding schools reported regular classroom programmes for gifted and talented students. These are offered more frequently in primary and intermediate schools than in secondary schools, although the differences are not dramatic. By decile, however, a pattern of difference is worth noting: as school decile increases so, too, does the reported provision of differentiated programmes in regular classrooms. Ability grouping and independent study are the most often reported strategies for differentiation in regular classrooms, and both of these are supported by the literature. The literature review describes a range of other approaches to regular classroom differentiation however these are not as frequently reported.

What the questionnaire results do *not* indicate is the nature of within-class provisions for gifted and talented students. During the case study interviews, the participants rarely mentioned within-class programmes, apart from the school which utilised an individualised learning programme. Furthermore, as the results also show, the case study schools did not include the evaluation of regular classroom

provisions in their procedures. Meeting the needs of gifted and talented students in inclusive classrooms requires the same planned, coordinated approaches and ongoing evaluation of effectiveness as any other provision.

Less than half of the schools reported community-based provisions, and these were most likely to be use of the Correspondence School or a one-day-a-week programme. Urban, primary, and intermediate schools and schools in the higher decile ranges more often reported use of these provisions. The case study schools also reported use of community-based provisions and these were with mixed levels of success. Several of the case study schools had students who were participating in local clusters of schools or were working with a partner school. The questionnaire respondents also reported the use of community members in the delivery of special provisions for gifted and talented students, acting as facilitators or mentors. The case study schools did the same, and many felt that one of the enablers to their provisions was parental input, particularly by way of assisting with programmes.

Over 60% of the questionnaire respondents reported school-based provisions for gifted and talented students over the last 12 month period. These included a range of different approaches, but schools reported a strong preference for withdrawal or pull-out programmes (reported by over three-quarters of these schools). The inter-relationship between overall coordination, identification, and provisions is demonstrated in the higher response rate by schools reporting each of these factors and also reporting school-based provisions. Also, the opportunities for school-based provisions steadily rise with decile rating.

As with formal identification, school-based provisions are most often made for students with academic and intellectual gifts and talents (by approximately 95% of schools reporting school-based provisions). Provisions for students with social leadership and culture-specific abilities and qualities are reported by less than half of these schools (45.7% and 36.3% respectively). Although schools reported multicategorical definitions of giftedness and talent, students across the wide range of areas are not being served in school-based programmes. Furthermore, the literature describes a continuum of approaches, and these are reported by schools, but there is a heavy reliance upon withdrawal and pull-out programmes. Cross-age grouping and competitions were also readily reported. The least frequently cited provisions were early entry and full-time special classes, both of which were reported by less than a tenth of schools reporting school-based provisions.

Many of the case study schools had students involved in withdrawal programmes, and these were either school-based or community-based. The school-based withdrawal groups offered an array of mainly enrichment, but always exciting, activities and opportunities, and these programmes were held up as many school's most promising practices. The case study schools shared many different ways of implementing these programmes, and openly discussed their experiences, both positive and negative, in the development and implementation of these. Descriptions of these programmes dominated many of the case study interviews.

It is *not* the purpose of this research to evaluate the effectiveness of programmes; however, from the case studies it is concluded that there is a danger that gifted and talented education programmes are being misinterpreted as 'withdrawal programmes' rather than as a *continuum* of differentiated provisions. The literature review, however, demonstrates that pull-out or withdrawal programmes can be part-time, short-term, mismatched, and fragmented solutions to meeting the needs of gifted and talented students if they are not carefully planned and evaluated.

Conclusions

This section of the research report outlines the conclusions and implications for New Zealand educators.

New Zealand's Principles of Gifted Education

The conclusions of this research are discussed in relation to the core principles of gifted and talented education as outlined by the Ministry of Education (2002, p. 3).

Schools should aim to provide all learners with an education matched to their individual learning needs. The responding schools demonstrated a growing awareness of the need to provide gifted and talented students with an individualised and appropriate education, as shown by the number of schools developing and implementing schoolwide organisational strategies and plans. However, as many schools reported, the initiation and ongoing implementation of differentiated programmes is impeded by a reported lack of professional development, teacher awareness and confidence, access to resources and support, funding, time, and cultural misunderstandings.

Gifted and talented learners are found in every group within society. There are barriers to effective identification and provisions for gifted and talented students from under-represented groups of society, especially Māori students and those of other ethnic minority groups. In many schools, these students are not being identified and culturally appropriate provisions are not being planned, implemented, or evaluated. Although some New Zealand schools recognise and acknowledge this as a problem and are genuinely concerned, they seemingly do not know what to do to improve the situation. Others perceive their identification and provisions as appropriate, but these assumptions are based upon stereotypes, biases, negative attitudes, and lack of knowledge. Still others do not view culture as an important factor to be considered in the development of identification and provisions for gifted and talented students.

Māori perspectives and values must be embodied in all aspects of the education of gifted learners. Reported definitions of giftedness and talent are broad and multifaceted; however, cultural, spiritual, and emotional giftedness are often overlooked. The definitions, identification practices, and provisions in many of the participating schools do not embody Māori perspectives and values.

The school environment is a powerful catalyst for the demonstration and development of talent. A qualitatively differentiated, individualised education matched to the needs of gifted and talented students is recommended in the literature. There are a range of potentially effective approaches which could allow the development and demonstration of giftedness and talent within a responsive school environment. However, there is a paucity of reported evaluation of the effectiveness of these provisions for gifted and talented students in New Zealand schools.

Parents, caregivers, and whānau should be given opportunities to be involved in decision-making regarding their children's education. Parents, caregivers, and whānau should be involved in the overall organisation and coordination, identification, and provisions for gifted and talented students. Their reported involvement, however, in New Zealand schools is minimal, and in some cases their involvement is reported as a barrier to schoolwide programmes.

Programmes for gifted and talented students should be based upon sound practice, taking into account research and literature in the field. There is growth in New Zealand's literature and research base in gifted and talented education; however, the dissemination and availability of this to practitioners is limited. Additionally, the commitment of time, funding, professional development and support, and resources are necessary if schools are to develop, implement, and evaluate gifted and talented education programmes. Furthermore, there is a dearth of New Zealand based research which measures the effectiveness of identification and provisions for gifted and talented students and which measures social, emotional, cultural, intellectual, or creative outcomes.

Gifted and talented students should be offered a curriculum rich in depth and breadth, and at a pace commensurate with their abilities. Enrichment and acceleration working in tandem with one another, and implemented across a continuum of provisions, is the preferred approach to meeting the individual needs of gifted and talented students. However, this research demonstrates that whilst schools reported a preference for a combination of enrichment and acceleration, the delivery of these is often limited. Schools are not always carefully planning and evaluating within-class provisions for gifted and talented students, nor demonstrating recognition and understanding that gifted and talented education is more than a pull-out or withdrawal programme.

Schools should aim to meet the specific social and emotional needs of gifted and talented learners. There is an awareness and recognition of the social and emotional needs of gifted and talented students; however, only isolated examples of provisions specific to these are reported by New Zealand schools. The nature and extent of reported planned programmes for gifted and talented students in New Zealand schools could have a negative impact upon students' social and emotional well-being. This is contingent upon the recognition of the unique cultural, intellectual, physical, social, emotional, and creative qualities and abilities of individual gifted and talented students in the planning and implementation of schoolwide provisions.

Provision for gifted and talented students should be supported by ongoing high-quality teacher education. Schools in New Zealand are cognisant of the need for schoolwide professional development. The lack of professional development in gifted and talented education is a barrier to planned approaches to policies and provisions. Ongoing teacher education is a catalyst for the development and implementation of planned policies and programmes. Schools reported the need for ongoing, school-based, high quality professional development for *all* teachers which focuses upon the inter-relationship between and amongst a school's definition, identification, programmes, and evaluation.

Looking Ahead: Ensuring Positive Outcomes for New Zealand's Gifted and Talented Students

Given the findings of this research, there are important implications for educational practitioners in New Zealand. The aim of the Ministry of Education (2002) in outlining core principles to underpin the education of gifted and talented students is to "provide a solid basis for supporting achievement and well-being" (p. 3) for these learners. As these principles continue to be put into practice, a goal should be to ensure positive outcomes for New Zealand's gifted and talented students. One of the leaders in gifted and talented education, Joseph Renzulli (2001a) stated, "I believe that the best way to predict the future is to create it!" (p. 23).

This research demonstrates, through the review of the literature, the paucity of national and international research which validates the recommended, and often implemented, strategies for identification and provisions for gifted and talented students. The questionnaire results further indicate that even when approaches have been validated, many of those with the strongest research evidence to support their effectiveness are *not* being implemented in New Zealand schools; conversely, methods with limited or inconclusive research evidence to support them *are* being implemented. The implication for educators in New Zealand is to ensure that the practices being utilised to identify and meet the needs of gifted and talented students are grounded in solid theory and research, as outlined in the Ministry of Education's (2002) policy.

The Ministry of Education's (2002) principles for the education of gifted and talented students have been confirmed throughout the review of the literature. The call for a differentiated educational experience which offers breadth, depth, and pace matched to individual cultural, social, emotional, intellectual, creative, and physical needs is reiterated throughout the literature. Identification methods and provisions which are grounded in these principles would thus be appropriate for gifted and talented students. However, the questionnaire and case study results demonstrate that there is sometimes a mismatch between the espoused core principles and the reported practices, and this is especially illuminated in light of cultural differences. The validity, and ultimately the success, of chosen approaches in gifted and talented education is reliant upon New Zealand educators to ensure that they

reflect the core principles of gifted and talented education as outlined in the Minister of Education's (2002) policy for gifted and talented education.

Whilst the review of the literature yielded numerous recommendations for effective practice, it must be noted that the questionnaire did not allow for an indication of the quality of the implementation of the reported approaches being taken. This raises more questions than answers. The effectiveness of initiatives in gifted and talented education in New Zealand is contingent upon how those are designed and delivered, and this requires educators not only to be aware of the recommendations for effective implementation, but also the importance of ongoing evaluation.

As the literature review demonstrates, effectiveness is enhanced by the implementation of schoolwide, coordinated approaches supported by written policies and procedures specific to gifted and talented students. The questionnaire results give insight into the overall organisation of gifted and talented programmes in New Zealand schools and these are further elucidated in the case study schools. Although the literature recommends coordinated implementation in both identification and provisions, and this is further advocated by the Ministry of Education (2000), the questionnaire results demonstrate that in practice implementation is more likely to be haphazard. The case study schools all indicated the importance of planned, coordinated approaches, confirming the recommendations made in the literature. It is through the carefully planned and coordinated implementation of identification and provisions that New Zealand educators will be able to provide opportunities for gifted and talented student's growth in cognitive and affective development.

The implementation of identification and provisions for gifted and talented students should be led by an individual with strong leadership and organisational skills. The literature review outlines the qualities, abilities, and responsibilities of such an individual and the case study schools strongly support the importance of having administrative support. The majority of the questionnaire respondents also reported having allocated responsibility for gifted and talented education to a member of the school staff, and this was most likely to be someone in an administrative or senior management position. All elements of this research also demonstrate the need for physical, human, and financial resources; professional development and support; and careful planning, implementation, and evaluation in the implementation of gifted and talented programmes, and this should be led by a champion for gifted and talented students who is supported by a group of the school community's advocates for gifted and talented students. Therefore, in order to increase the likelihood of successful outcomes for gifted and talented students, schoolwide coordinated organisational strategies must be developed, implemented, and continuously evaluated.

The need for professional development, at pre- and in-service levels, is reiterated throughout this report. The case study schools confirmed the importance of professional development – the majority felt that this was a key enabler to the development and implementation of their identification and provisions. Clearly, the Ministry of Education (2002) recognises the vital importance of professional development, seeing it as a way of building the capability of schools to meet the needs of gifted and talented learners. New Zealand educators should remain aware that the effectiveness of any approach to identification or provision, no matter how valid, well-planned, or led, rests in the hands of the teachers who are implementing it. It is important that as New Zealand educators look toward the future of gifted and talented education, there is an assurance of high quality teacher education and professional development to complement that growth.

This research demonstrates that New Zealand is making progress in the education of gifted and talented students, but as many of the participants indicated, the journey has not yet come to an end. As one questionnaire respondent wrote, "It's a long journey and we ain't there yet!" This research has hopefully created a roadmap for future research and initiatives in gifted and talented education, giving a starting point as educators travel toward the future. It is also hoped that the findings reported here can serve as a tour guide for those educators who are embarking upon the first stages of developing and implementing programmes for gifted and talented students. During the course of this research project, a similar excursion has been undertaken, and along the way many postcards have been collected. These tell the story of gifted and talented education in New Zealand. They are snapshots of promise.

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APPENDIX A
Literature Review Template

Literature Review:
**The Extent, Nature and Effectiveness of Planned Approaches in New Zealand
Schools for Identifying and Providing for Gifted and Talented Students**

Details of Publication:

Author
Title
Journal
Year/Volume/issue Number/Pages
Publisher/Location
Country of Origin
Institutional Affiliation

Key Themes:

- Identification Differentiation Enrichment/Acceleration
 Cultural issues Schoolwide Policies Inclusive Classrooms
 Evaluation
 Curriculum Models: _____
 Provisions: _____
 Other: _____
- Research-Based (complete section 1)**
 Theory-Based (complete section 2)
 Report of Provision (within New Zealand) (complete section 2)

Section 1: RESEARCH-BASED REFERENCES

Research Questions/Aims:

Target Population for Provision (ie, age, area of giftedness):

Identification Methods Used:

Nature of Provision:

Research Design/Methodology (i.e., type of research, numbers involved, length of research, etc):

Measures of Student Outcomes Used (Cognitive, Social/Emotional, Cultural, Creative):

Findings:

Recommendations for Effective Identification and Provision (both stated & inferred):

Section 2: THEORY-BASED REFERENCES AND REPORTS OF PROVISION

Main Focus:

Target Population for Provision (i.e., age, area of giftedness):

Approaches to Identification and Provision:

Aims in Relation to Enhanced Cognitive, Social/Emotional, Cultural and Creative Student Outcomes:

Recommendations for Effective Identification and Provision (both stated and inferred):

OVERALL RATING

In relation to NZ's core principles, identification and provision are:

- Matched to individual needs
- Inclusive (ie, gender, economic, cultural)
- Bi-cultural/multicultural
- School-based 'catalyst' for talent development
- Parental/whanau involvement
- Based on sound practice & theory/research
- Differentiated
- Aimed at meeting social & emotional needs
- Supported by professional development

**Is this study/article/reference relevant to literature review?
To be included?**

YES	NO
YES	NO

This article should also be reviewed by:

- Tracy
- Janis
- Alison
- Jill
- Brenda

Useful references to follow-up:

APPENDIX B
School Questionnaire
2003



Dear Gifted Education Coordinator or Principal,

As part of the Ministry of Education's initiatives for gifted and talented students, a team of researchers from Massey University has been commissioned to conduct a 'stocktake' of New Zealand schools to determine the extent and nature of identification and provisions for these students. The research has three phases: a review of the literature; a survey of all New Zealand schools; and case studies of schools with promising provisions.

Purpose of this Research

The Ministry of Education views this as preliminary research, so that we can get 'a feel' for what is happening in New Zealand for gifted and talented students. From a Ministry perspective, the information you provide will be useful in planning future directions and initiatives in gifted and talented education. This information is not being collected as a means of assessing or judging schools, but should be viewed as a nationwide analysis of current practices related to:

school-wide policies and/or plans specific to meeting the needs of gifted students definitions or concepts of giftedness and talent are used in New Zealand
methods of identification of giftedness and talent are being utilised within New Zealand
qualitatively differentiated enrichment and acceleration opportunities, across a continuum of approaches

How You Can Assist

We would like to invite you to participate in a survey of schools by completing the enclosed questionnaire. The questionnaire should take no more than 30 minutes to complete and may be completed using an individual or team approach. Your confidentiality and anonymity are assured and it is assumed that filling in the questionnaire implies your consent to participate. You have the right to decline to answer any questions. The information you provide will only be utilised for the purposes of this research, and any publications or presentations arising from it. The questionnaires are coded by the Ministry database for purposes of identifying trends or patterns across different school deciles, regions, levels, sizes, and so on.

We hope you will view this as an opportunity to reflect upon your own school's provisions for gifted and talented students. Please feel free to photocopy the completed questionnaire, using it for your own analysis of identification and provision, future planning or programme evaluation.

Please complete the enclosed questionnaire, returning it in the stamped, addressed envelope by **15 March 2003**. If you have any questions or concerns regarding this research, please contact a member of our research team.

Thank you for your valuable time and assistance.

Sincerely

Dr Tracy Riley, Director

Te Kunenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey

THE EXTENT AND NATURE OF IDENTIFICATION AND PROVISIONS FOR GIFTED AND TALENTED STUDENTS IN NEW ZEALAND SCHOOLS

PLEASE DO NOT USE THE BOXES IN THIS COLUMN

Directions: Please answer the questions in relation to your school. In doing so, remember, this research is being undertaken on behalf of the Ministry of Education as a nationwide stocktake – a response of ‘no’ or ‘none’ is *just as important* as ‘yes’! Your school’s response is vitally important in determining future initiatives in gifted and talented education in New Zealand, and would be greatly appreciated.

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(1)

Please complete and return by **25 March 2003** to **IPDER, Massey University, Freepost 87555, Palmerston North.**

COORDINATION/RESPONSIBILITY

Questions 1-2 relate to your school’s coordination of gifted and talented education.

1. Does your school have a person responsible for gifted and talented education?

Yes No

If yes, who is that person (e.g., principal, teacher, etc.)?

2. Does your school have a committee or coordinating team for gifted and talented education?

Yes No

If yes, please indicate the members:

Principal

Associate Principal/Deputy Principal

Learning Support Coordinator

Special Needs Coordinator

Designated Teacher of Gifted and Talented

Head of Department

(please specify area): _____

School Counsellor

Parent

Community Member

Other (please specify): _____

DEFINITION, IDENTIFICATION AND PROVISION

Questions 3-12 relate to your school’s definition, identification and provision for gifted and talented education. Please answer questions relevant to your school.

3. Does your school have a concept or definition of giftedness and talent?

Yes No

If yes, what is your school-based concept or definition of gifted and talented students?

(13)

PLEASE DO NOT USE
THE BOXES IN THIS
COLUMN

(14)

4. Has your school formally identified gifted and talented students in the last 12 months?
Yes No

If yes, please complete question 5. If no, please skip to question number 6.

5. Please complete the table below, by indicating the areas of ability, year levels and identification methods for **students formally identified as gifted and talented during the last 12 months**. Please indicate the areas of ability you consider the *major focus* of identification. For an explanation of terms, please see the back of the covering letter.

Area of Ability For each area of ability formally identified in your school, please indicate the year levels and method(s) of identification.	Year Levels Use the following codes to indicate the year levels at which students were identified: 1. NE-Yr 2 2. 3-4 3. 5-6 4. 7-8 5. 9-10 6. 11-13 7. Across the whole school	Identification Methods Use the following codes to indicate how often each identification method is used: 1. Always 3. Rarely 2. Sometimes 4. Never										
		Teacher Observation/Nomination	Teacher Rating Scales/Checklist	Achievement Tests (e.g., PATs)	IQ Tests	Teacher-made Tests	Portfolios	Auditions/Performances	Parent Nomination	Self-nomination	Peer Nomination	Whanau Nomination
Intellectual/ Academic (in any of the essential learning areas)												
Creativity												
Expression through the Visual and Performing Arts												
Social/ Leadership												
Culture-Specific Abilities and Qualities												
Expression through Physical/Sport												
Other (please specify):												

Boxes 15-112

(112)

PLEASE DO NOT USE
THE BOXES IN THIS
COLUMN

(113)

6. In making educational provisions for gifted and talented students, does your school prefer:

enrichment approaches?

acceleration approaches?

a combination of enrichment and acceleration approaches?

7. Does your school have classroom-based provisions for gifted and talented students?

Yes No

If yes, which of the following are currently used?

Ability Grouping

Learning Centres

Independent Study

Curriculum Compacting/Diagnostic-Prescriptive Teaching
(i.e., pre-assessment directs teaching decisions)

Individualised Education Plans

Consulting Specialist Teacher (working with students)

Teacher Planning (i.e., plans must demonstrate differentiated
options for gifted and talented students)

Other (please specify): _____

8. Does your school use community-based provisions for gifted and talented students?

Yes No

If yes, which of the following are currently used?

Correspondence School

School Clusters/Networks

One-Day-A-Week Programme (e.g., George Parkyn
One Day School, Gifted Kids Programme)

Other (please specify): _____

9. Does your school use a curriculum or programme model (e.g., Autonomous Learner Model, Enrichment Triad Model, etc) to guide the identification and provision for gifted and talented students?

Yes (please specify): _____

No

10. Has your school provided school-based programmes for gifted and talented students in the last 12 months?

Yes No

If yes, please complete question 11. If no, please skip to question number 12.

(129)

PLEASE DO NOT USE
THE BOXES IN THIS
COLUMN

(130)

11. Please complete the table below, indicating the area of ability, year levels and provision of your **school-based provisions** for the last 12 months. Please indicate the areas of ability you consider the *major* focus of your provisions. For an explanation of terms, please see the back of the covering letter.

Area of Ability For each area of ability please indicate the year levels and provisions.	Year Levels Use the following codes to indicate the year levels of provision: 1. NE-Yr 2 2. 3-4 3. 5-6 4. 7-8 5. 9-10 6. 11-13 7. Across the whole school	School-Based Provisions Please tick the provision(s) used in your school for each area of ability.											
		Cross-age Grouping	Withdrawal Group	Cluster Grouping (i.e., class placement)	Early Entry	Concurrent/Dual Enrolment	Full-time Special Class	Mentorships	Competitions	Clubs or Electives	Virtual Instruction/Web-based Learning	External Exams (e.g., Cambridge, IB, NSW)	Outside 'Expert' (e.g., Parent, community)
Intellectual/Academic (in any of the essential learning areas)													
Creativity													
Expression through the Visual and Performing Arts													
Social/Leadership													
Culture-Specific Abilities and Qualities													
Expression through Physical/Sport													
Other (please specify):													

Boxes 130-234

(234)

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COLUMN

12. Are there any other comments you would like to make regarding your school's identification and provisions for gifted and talented students? If so, please use the space below.

(235)

WRITTEN POLICIES AND PROCEDURES

Questions 13-15 relate to your school's policies and procedures for gifted and talented education. Please answer questions relevant to your school.

13. Please indicate the written policies and procedures in your school that specifically address gifted and talented students (please tick).

Policies & Procedures	Yes	No	Currently being developed
Gifted & Talented Policy			
Special Needs Policy			
Equity Policy			
Learning Support Policy			
Other Policy (please specify):			
Implementation Plan for Gifted & Talented Students			
Procedures Booklet for Gifted & Talented Students			
Action Plan for Gifted & Talented Students			
Curriculum Delivery Documents (please specify areas):			

Boxes 235-261

(261)

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THE BOXES IN THIS
COLUMN

14. Within your school's written policies and procedures, which of the following components are addressed?

(262)

- Rationale for Gifted and Talented Education
- Goals or Purposes for Gifted and Talented Education
- School-Based Definition of Gifted and Talented Students
- Identification Practices for Gifted and Talented Students
- Programming Options for Gifted and Talented Students
- Curriculum or Programme Model for Gifted and Talented Education
- Professional Development in Gifted and Talented Education
- Funding for Gifted and Talented Education
- Monitoring and Evaluation of Gifted and Talented Education
- Register of Identified Gifted and Talented Students
- Other (please specify): _____

15. Do you have any other comments you would like to make regarding your school's policies and procedures for gifted and talented education? If so, please use the space below.

(272)

Phase Three: Case Studies

If your school is interested in being considered as a case study school during phase three (term two), please give your contact name and details below. The selected schools will be visited by a member of the research team for observation, focus group discussions and interviews.

Name: _____

School: _____ Address: _____

Phone: _____ Fax: _____ E-Mail: _____

Thank you for your time in completing this questionnaire!

PLEASE RETURN BY 25 MARCH 2003 TO:

**IPDER
Massey University
Freepost 87555
Palmerston North**

APPENDIX C
Information Sheets and
Interview Questions

**The Extent and Nature of Identification and Provisions for
Gifted and Talented Students in New Zealand Schools
INFORMATION SHEET
IN-DEPTH INTERVIEW**

As part of the Ministry of Education's initiatives for gifted and talented students, a team of researchers from Massey University has been commissioned to investigate the extent and nature of identification and provisions in New Zealand schools. The research has three phases: a review of the literature; a survey of all New Zealand schools; and case studies of schools with promising provisions.

The survey of all schools in New Zealand has been completed, and your school has agreed to work with us during phase three as we examine promising practices related to the identification and provisions for gifted students. Your school was selected based upon the comprehensive procedures, identification and provisions which have been reported, alongside the need to have a sample representative of the different types of schools in New Zealand. Our purpose in this phase of the research is to gather in-depth information about your school's 'journey' to date, future plans, and the enablers and barriers to effective identification and provisions. From a Ministry perspective, the information you provide will be useful in planning future directions and initiatives in gifted and talented education. This information is not being collected as a means of assessing or judging you or your school.

As the person(s) responsible for gifted and talented education in your school, we would like to conduct a semi-structured in-depth interview with you. The interview will be conducted during the school term at a time convenient to you. The interview should last approximately one and a half hours. The purpose in the interview is to gain a further understanding of your school's organisational strategies, identification procedures and provisions for gifted and talented students. A set of interview questions is enclosed. During the visit, if feasible, the research team member would like to informally visit and observe classrooms or programmes; and like access to, and when applicable, photocopies of any written documentation, such as policies, action plans, registers and so on for the purpose of document analysis. Finally, we would appreciate your assistance in the selection of a group of teachers for the focus group interviews.

The findings from the case studies will be presented across broad themes, as opposed to individual cases. For example, in relation to the steps taken toward effective provisions we will analyse the responses from all case study schools, reporting broad generalisations and themes which emerge. In this way neither you nor your school will be named or identified in the final report.

The interview will be tape-recorded and transcribed for analysis. We will make the transcribed interview available to you for checking of accuracy and further comment. All data will be stored in a secure location at Massey University for a period of five years. The findings of this research will only be used for the purpose of submitting a final report to the Ministry, and any other publications and presentations which may arise.

As compensation for your involvement, one day's teacher release funding will be paid to your school. Once the report is complete and available for release a copy will be sent to your school.

As a participant, you have the right to:

- Decline to participate;
- Decline to answer any particular questions;
- Withdraw from the study;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name, or that of your school, will not be used;
- Ask for the audiotape to be turned off at any time during the interviews.

This research project adheres to the Code of Ethical Conduct for Research, Teaching and Evaluations; however, if you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz. If you have any questions or concerns regarding your involvement in this research, please contact the Project Director, Dr Tracy Riley on 06 350 5799 extension 8625 or T.L.Riley@massey.ac.nz.

Te Kūnenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey

The Extent and Nature of Identification and Provisions for Gifted and Talented Students in New Zealand Schools In-Depth Interview

The interview will begin with an overview of the research, including an explanation of the purpose and procedures for the interview. Participants' rights will be outlined and informed consent gained prior to the start of the interview. The interview will start with the interviewer checking our profile of the school with the coordinator. The profile contains demographic information, as well as a summary of the organisational procedures and nature/extent of identification and provisions, as provided in the questionnaire and case study screening responses. My questions specifically relating to the school will be asked at this stage. The opportunity will also be given for further elaboration of the school's procedures, identification and provisions for gifted and talented students.

Questions:

1. Please describe your school's 'journey' by giving a brief historical overview of your gifted and talented programme. What enabled your school to reach this point? What were the barriers in establishing your school's identification and provisions? How were these barriers overcome? What are your future plans?
2. Please describe the schoolwide organisational strategies (i.e., coordination, committee, policy, action plan, professional development, 'job description' of coordinator, etc) which support the gifted and talented programme in your school.
3. In terms of identification, what has been most effective/successful? What has been problematic/unsuccessful? And how have those problems been overcome?
4. In terms of provisions, what has been most effective/successful? What has been problematic/unsuccessful? And how have those problems been overcome?
5. Please describe the measures your school has in place to ensure gifted and talented Maori children, and those from other underrepresented groups (i.e., cultural, socioeconomic, with disabilities, underachievers, gender, etc), are identified and provided for appropriately. What measures have been most effective? Have there been barriers and if so, how have those been overcome?
6. Please describe how your school facilitates parental and community involvement in gifted and talented education.
7. Are there outside agencies (including other schools) your school works in partnership and if so, in what capacity? Of these, which have proven most beneficial?
8. Please describe how your school evaluates the effectiveness of your gifted and talented programme (organisational strategies, identification and provisions).
9. What advice would you give to schools at the beginning stages of establishing a gifted and talented programme?
10. Is there anything else that you would like to discuss regarding your school's identification of and provisions for gifted and talented students?

**The Extent and Nature of Identification and Provisions for
Gifted and Talented Students in New Zealand Schools
INFORMATION SHEET
FOCUS GROUP INTERVIEW**

As part of the Ministry of Education's initiatives for gifted and talented students, a team of researchers from Massey University has been commissioned to investigate the extent and nature of identification and provisions in New Zealand schools. The research has three phases: a review of the literature; a survey of all New Zealand schools; and case studies of schools with promising provisions.

The survey of all schools in New Zealand has been completed, and your school has agreed to work with us during phase three as we examine promising practices related to the identification and provisions for gifted students. Your school was selected based upon the comprehensive procedures, identification and provisions which have been reported, alongside the need to have a sample representative of the different types of schools in New Zealand. Our purpose in this phase of the research is to gather more in-depth information about your school's 'journey' to date, future plans, and the enablers and barriers to effective identification and provisions. From a Ministry perspective, the information you provide will be useful in planning future directions and initiatives in gifted and talented education. This information is not being collected as a means of assessing or judging you or your school.

As a member of the teaching staff of your school, we would like to invite you to participate in a focus group interview. The interview will be conducted at school for approximately one hour. The purpose in the focus group interview is to gain a further understanding of your school's organisational strategies, identification procedures and provisions for gifted and talented students. During the focus group interview, the following themes will be explored

- the schoolwide philosophy regarding the education of gifted and talented students;
- the level of schoolwide involvement **in** the organisation and administration of gifted and talented education;
- the promising practices, and enablers and barriers to those, **in** relation to identification and provisions; and
- the identification of and provisions for potentially overlooked gifted and talented students (Le., Maori, culturally diverse groups, underachievers, etc).

The findings from the case studies will be presented across broad themes as opposed to individual cases. In this way neither you nor your school will be named **or** identified in the final report

The interview will be tape-recorded and transcribed for analysis; hence, your participation indicates your consent to be audiotaped. We will make the transcribed interview available to the school for checking of accuracy and further comment. All data will be stored in a secure location at Massey University for a period of five years. The findings of this research will only be used for the purpose of submitting a final report to the Ministry, and any other publications and presentations which may arise. Once the report is complete and available for release, a copy will be sent to your school.

As a participant, you have the right to:

- Decline to participate;
- Decline to answer any particular questions;
- Withdraw from the study;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name, or that of your school, will not be used;
- Ask for the audiotape to be turned off at any time during the interviews.

This research project adheres to the Code of Ethical Conduct for Research, Teaching and Evaluations; however, if you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz. If you have any questions or concerns regarding your involvement in this research, please contact the Project Director, Dr Tracy Riley on 06 350 5799 extension 8625 or T.L.Riley@massey.ac.nz.

Te Kūnenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey

The Extent and Nature of Identification and Provisions for Gifted and Talented Students in New Zealand Schools

Focus Group Interview

The interview will begin with an overview of the research, including an explanation of the purpose and procedures for the focus group interview. Participants' rights will be outlined and informed consent gained prior to the start of the interview.

1. What is your school's philosophy towards the identification and education of gifted and talented students?

2. In terms of the organisation and administration of your school's identification and provisions for gifted and talented students, what opportunities have been given for schoolwide involvement? (i.e., Have staff been directly involved in the formulation and implementation of the school's policy? Have staff had opportunities for professional development? Have staff been involved in consultative decision-making processes regarding identification and provisions?)

3a. What are the most promising practices your school has in place for identifying gifted and talented students? In other words, what do you do 'really well'?

What factors have contributed to the development and implementation of these practices?

b. What are the barriers or difficulties in identifying gifted and talented students? How have, or might, those be overcome?

4a. What are the most promising practices your school has in place for meeting the needs of gifted and talented students (i.e., provisions)? In other words, what do you do 'really well'? What factors have contributed to the development and implementation of these practices?

b. What are the barriers or difficulties in providing for the needs of gifted and talented students? How have, or might, those be overcome?

5. Please describe the measures your school has in place to ensure gifted and talented Maori children, and those from other underrepresented groups (i.e., cultural, socioeconomic, with disabilities, underachievers, gender, etc), are identified and provided for appropriately. What measures have been most effective? Have there been barriers and if so, how have those been overcome?

6. Is there anything else you would like to discuss in relation to your school's identification of and provisions for gifted and talented students?

**The Extent and Nature of Identification and Provisions for
Gifted and Talented Students in New Zealand Schools**

26 May 2003

Dear Principal and Board of Trustees of _____ School

As part of the Ministry of Education's initiatives for gifted and talented students, a team of researchers from Massey University has been commissioned to investigate the extent and nature of identification and provisions in New Zealand schools. The research has three phases: a review of the literature; a survey of all New Zealand schools; and case studies of schools with promising provisions.

The survey of all schools in New Zealand has been completed, and your school has volunteered to work with us during phase three as we examine promising practices related to the identification and provisions for gifted students. Your school was selected based upon the comprehensive procedures, identification and provisions which have been reported, alongside the need to have a sample representative of the different types of schools in New Zealand. Our purpose in this phase of the research is to gather more in-depth information about your school's source¹ to date, future plans, and the enablers and barriers to effective identification and provisions. From a Ministry perspective, the information you provide will be useful in planning future directions and initiatives in gifted and talented education. This information is not being collected as a means of assessing or judging your school.

Upon confirmation of your school's participation, the school will be visited by a member of our research team, at the school's convenience, during term two, or if necessary early in term three. During the one-day visit, the research team member will

- Conduct a semi-structured in-depth interview with the person(s) with responsibility for gifted and talented education;

- Conduct a focus group interview with a cross-section of no more than eight teachers, after school and for approximately one hour (These may be syndicate leaders, deans, heads of departments, or representatives of your choosing.);

- if feasible, informally visit and observe classrooms or programmes; and

- like access, and when applicable, photocopies, of any written documentation, such as policies, action plans, registers and so on for the purpose of document analysis.

The findings from the case studies will be presented across broad themes, as opposed to individual cases. For example, in relation to the steps taken toward effective provisions we will analyse the responses from all case study schools, reporting broad generalisations and themes which emerge. In this way your school will not be named or identified in the final report.

Informed consent will be requested of each staff member who is interviewed, assuring confidentiality and anonymity, as well as outlining their rights as participants. The interviews will be tape-recorded and transcribed for analysis. We will make available the transcribed interviews for checking of accuracy and further comment. All data will be stored in a secure location at Massey University for a period of five years. The findings of this research will only be used for the purpose of submitting a final report to the Ministry, and any other publications and presentations which may arise.

Te Kōwhiri ki Pūrehuroa**Inception to Infinity: Massey University's commitment to learning as a life-long journey**

As compensation for your school's involvement, we will pay the cost for one-days teacher release. Once the report is complete and available for release, a copy will be sent to your school.

As a participating school, your staff have the right to:

- Decline to participate;
- Decline to answer any particular questions;
- Withdraw from the study;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your school's name will not be used;
- Ask for the audiotape to be turned off at any time during the interviews.

This research project adheres to the Code of Ethical Conduct for Research, Teaching and Evaluations; however, if you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 06 350 5249, email S.V.Rumball@massey.ac.nz,

If your school would like to serve as a case study school, please sign and return the consent form in the enclosed envelope or by fax (06-35 1-3383) no later than 3 June 2003. Should you have any questions or concerns regarding this research, please do not hesitate to contact me.

Sincerely

Tracy Riley, PhD
Project Director

APPENDIX D
Consent Forms

**The Extent and Nature of Identification and Provisions for
Gifted and Talented Students in New Zealand Schools**

**CONSENT FORM
IN-DEPTH INTERVIEW**

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF FIVE (5) YEARS

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to the interview being audiotaped.

I understand that I may ask for the audiotape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: _____ **Date:** _____

Full Name (printed): _____

Staff Member of _____ **School**

Te Kunenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey

**The Extent and Nature of Identification and Provisions for
Gifted and Talented Students in New Zealand Schools**

**CONSENT FORM
FOCUS GROUP INTERVIEW**

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF FIVE (5) YEARS

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to the interview being audiotaped.

I understand that I may ask for the audiotape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: _____ **Date:** _____

Full Name (printed): _____

Staff Member of _____ **School**

Te Kūnenga ki Pūrehuroa

Inception to Infinity: Massey University's commitment to learning as a life-long journey