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Acceleration for Gifted Girls Facilitated by Multiplicity and Flexibility of Provision and Practices

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Abstract

Academic acceleration is used as an educational intervention within a majority of girls' schools in New Zealand that provide secondary education. This article reports on the findings of a national survey of single-sex girls' schools (N=40) that allows for a general overview of acceleration practices and provisions for this group. The findings of the study revealed that academic acceleration is being used, typically, as part of a continuum of provisions. Most schools reported that a multiplicity of provisions and practices are being offered to its students, including acceleration and enrichment, flexible school systems, supportive personnel, and an emphasis on personalised learning. The numbers of students accelerated, and the forms of acceleration, did not appear to be dependent on school size, school type, or a school's decile (i.e., its socio-economic level).

Introduction

Acceleration has been recommended internationally as a provision for gifted children (Colangelo, Assouline, & Gross, 2004; Gagné, 2015; Gross, 2006; Hargrove, 2012; Rogers, 2007; Steenbergen-Hu, 2009). Some research has reported that acceleration tends to be used *rarely* and *cautiously* (Assouline, Colangelo, Heo, & Dockery, 2013; Colangelo et al., 2004; Wardman, 2009). Nevertheless, Assouline, Colangelo, Van Tassel-Baska, and Lupkowski-Shoplik (2015) maintain that acceleration may be one of the most effective academic interventions, among all of the available academic interventions, for gifted children.

Numerous positive benefits and the long-term effects of acceleration, including academic achievement, have been reported in the literature (Colangelo et al., 2004; Hattie, 2009; 2015; Lubinski, Benbow, & Kell, 2014; Steenbergen-Hu, Makel, & Olszewski-Kubilius, 2016). Nevertheless, many teachers, parents, and students appear to have concerns about the social and emotional impact of acceleration on students (Daurio, 1979; Freeman, 2001; Southern & Jones, 1991a; Young, Rogers, Hoekman, Van Vliet, & Long, 2015).

The purpose of this study was to identify the provisions that were currently being offered to gifted and talented girls in single-sex girls' secondary schools in New Zealand, and if they offered acceleration, how it was offered and evaluated.

Since 2005, gifted and talented students have been included as students with 'special needs' under the New Zealand National Administration Guidelines (Ministry of Education, 2013b), and schools have been required to develop teaching and learning strategies for gifted students under these guidelines. Nevertheless, a reduced prioritisation of gifted education led to a significant reduction in funding for gifted education in New Zealand schools in 2009. Fortunately, the recent Labour Party Education Manifesto and the Coalition Government political agreement have foreshadowed a restoration of funding for gifted and talented students to previous levels (New Zealand Government House of Representatives, 2017). An increase in funding may provide opportunities for development, especially in the area of professional practice, and an improvement to the ways in which the needs of gifted students are met in schools in New Zealand.

Definitions and Parameters

Academic acceleration. Academic acceleration has been described as "progress through an educational programme at rates faster or ages younger than conventional" (Pressey, 1949, p. 2). The multiple forms of acceleration used in secondary education include grade-based acceleration, where students are placed in a class with older students for the entire range of subjects, and subject-matter acceleration, whereby the placement with older students is limited to one or more subject areas. Other forms of acceleration include curriculum compacting, combined classes, and telescoping (see Southern & Jones, 2015, pp. 10-11).

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Provisions for gifted students. In New Zealand, schools are required to "make a special effort" (Ministry of Education, 2012, p. 25) to identify and provide for culturally diverse and economically disadvantaged gifted and talented students. They must demonstrate how they cater for students with "special needs, *including gifted and talented students*" (Mallard, 2003, p. 4765). Thus, schools are required to develop teaching and learning strategies to provide for gifted and talented students, and to provide appropriate career advice and guidance (Ministry of Education, 2013a, 2013b).

Accelerated students/accelerate class. In this study, the expressions 'accelerated students' and an 'accelerate class' are used, since these terms are commonly understood in secondary school contexts in New Zealand. Specifically, the term 'accelerated students' is commonly understood by teachers, students, and parents as students who have been offered one or more of the various forms of acceleration, while an 'accelerate class' commonly refers to a timetabled class which provides curriculum content and relevant assessment in one or more subjects at a year level higher than usual, whereby content is typically delivered at a faster pace to meet the needs of students in the class.

New Zealand Secondary Education

In New Zealand, secondary education refers to Years 9-13, and therefore, students who are approximately 13 to 17 years of age. The National Certificate of Educational Achievement (NCEA) is the main qualification given to students who successfully complete their secondary education. It commences at Level 1, usually in Year 11 (ages 15-16) and continues through to Level 3 (which equates to university entrance) in Year 13. In addition, the New Zealand Scholarship is a national qualification, usually attempted by the best performing students in Year 13. There are no age restrictions for students to be awarded the NCEA or New Zealand Scholarship, and accelerated students may gain credits and Merit and Excellence endorsements for courses and certificates at higher NCEA levels than most students of similar age.

Types of schools. There are three types of schools in New Zealand: state schools (85%), state-integrated schools (10%), which are schools of special character that may teach a special philosophy or religion, and private schools (under 5%), which are not funded by the government and may develop their own curriculum (Ministry of Business Innovation and Employment, 2015).

School decile. School decile in New Zealand indicates the average socio-economic level of the students at a school (New Zealand Qualifications Authority, 2015). There are three school bands, deciles 1-3 (low), deciles 4-7 (medium), and deciles 8-10 (high). For the purposes of this study, school size was divided into three size categories of small (under 399 students), medium (400 plus students) and large schools (1000 plus students). There were eight small, 18 medium and 14 large schools that participated in this study.

Methodology

A survey was designed to provide a description of current practice in single-sex girls' schools in New Zealand. The research reports on findings of the responses to the survey which was aimed at seeking an answer to the following question: "*How are acceleration processes being designed, implemented, maintained, and evaluated in single-sex girls' secondary education in New Zealand?*"

Sixty-two schools which provide secondary education only for girls across Years 9-13 (students aged approximately 13-17 years) were invited to participate in the online survey. In the invitations sent to the school principal and gifted and talented coordinator, information was provided that the survey could be answered either by an individual or a group (such as the gifted and talented committee) at the school.

Of the schools that were invited, 40 schools agreed to participate. The survey response represents 65% of the target population of all girls' schools in New Zealand (see Table 1). Participating in the national survey were 24 Year 9-15 schools, 11 Year 7-15 schools and five Composite Year 1-15 schools (self-identified as Private Fully Registered Schools). The final group of participating schools was broadly representative of the different types of schools that may be found in New Zealand (Ministry of Education, 2016). The percentages for school size and decile were also fairly representative of the size and decile of schools in New Zealand.

The key topic areas relating to acceleration that were explored in the survey were design, implementation, maintenance, support, and the evaluation of acceleration provisions. A range of question types were asked, including closed-ended and open-ended questions with a mixture of multiple choice, multiple answers from a selection of answers, and text box questions. Schools were asked to self-report on their school systems for gifted and talented education,

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Table 1: Demographics of Survey Participants

	All Single-Sex Girls' Schools		Participating Schools	
	Number (62)	Percent	Number (40)	Percent
School type				
Year 9-15	37	60	24	60
Year 7-15	17	27	11	28
Composite	7	11	5	13
Year 1-15				
Special School	1	2	0	0
School decile				
High (8-10)	29	47	19	48
Medium (4-7)	23	37	17	44
Low (1-3)	10	16	4	10
School size				
Large (1000+)	18	29	14	35
Medium (400+)	29	47	18	45
Small (<400)	15	24	8	20

Note. Adapted from *Acceleration and Gifted Girls*, by M. E. Crawford, 2016. Numbers show 62 single sex girls' schools providing secondary education in New Zealand, of which 40 participated in the survey.

including acceleration. Specifically, the questions investigated what schools were providing for their gifted and talented students and, if acceleration was offered, how it was administered and evaluated.

In addition, specific questions related to the forms of acceleration, enrichment for accelerated students, grouping or individual delivery, withdrawal and re-entry practices, pathways, and funding. Thirteen out of the 14 questions that were asked about acceleration allowed participants to provide additional or explanatory comments.

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Findings

The findings provided evidence of the current practices relating to acceleration in New Zealand. The major themes that were identified included multiplicity, flexibility, and personalised learning to meet student needs. For example, the majority of schools used multiple methods for identification and evaluation, and multiple methods of accelerating students. Flexibility was shown in the majority of schools with entry and re-entry requirements for accelerated students, the timetabling of subjects for accelerated students, and educational pathways for accelerated students. Generally, the participating schools appeared to consult with students, teachers, and caregivers in providing support to meet the academic, social, emotional, and cultural needs of students within their own school.

Design of Acceleration Procedures. The responses to the survey indicated that 97% of the participating schools (n=38) had procedures in place to support gifted and talented students, but only half of the schools had specific policy or procedures for the identification of students to be accelerated, and the implementation of acceleration practices. Nevertheless, eleven of the schools which claimed that they did not have a formal acceleration policy, or a set of acceleration procedures, reported that they provided academic acceleration, and identified different acceleration provisions in their schools, such as grade-skipping, subject-based acceleration, and correspondence courses. One school, which accelerated over 200 students in different levels, explained:

> We no longer have a [gifted and talented] register or a coordinator or committee. The placing of students in multi-level programmes and accelerated classes provides the identification. Teachers of these students know who they are. Provision has become systemic to a large extent - five years on (medium decile, large size, Year 9-15).

Identification. The participating schools appeared to use multiple methods to identify students for acceleration. Specifically, two-thirds of the schools used teacher observation and achievement tests for two of their identification methods. Interestingly, two high decile schools nominated 12 identification methods, and only two schools, both different in size and decile, nominated achievement tests as their single method of identification. The most common method of identification of students for acceleration was teacher observation or nomination (88%), followed by the results of achievement tests such as the Progressive Achievement Tests (PAT) or tests administered by the Centre for Evaluation and Monitoring (CEM), and evidence shown in student work. Interestingly, over half of the schools used parent or caregiver nomination (58%), public examination results (55%), and information from previous school identification data (52%). In comparison, less than half of the schools reported that they considered teacher-made tests (46%).

One third of participating schools used teacher rating scales or checklists, and self-nomination. Previous school enrolment forms (30%), information provided by whānau (family; 24%), and peer nomination (18%) were the other commonly used forms of identification. The least commonly used identification method (9%, n=3) was Intelligence Quotient (IQ) tests (e.g., Raven's Progressive Matrices). Of note, *none* of the participating schools used the Iowa Acceleration Scale.

After the identification process, most of the participating schools reported that they used multiple methods of consultation and communication prior with key stakeholders in the acceleration of students. Interviews with a parent or caregiver and the student, appeared to be the most common approach (67%). Of note, almost half of the participating schools discussed the acceleration of a student with a parent or caregiver with a phone call, and a formal letter to the parent or caregiver requesting acceptance or refusal.

Also of note, over three-quarters of the participating schools had processes in place for students to withdraw from the acceleration provisions, with half of these schools offering reinstatement in the previous placement, usually after discussion and negotiation involving the affected student, parents, the affected teachers, and occasionally a member of senior management. Therefore, an important finding of this study was that, in *most* of the participating schools, acceleration was *not* an irrevocable decision. Generally, withdrawal (78%) from one or more forms of acceleration or re-entry (57%) into one or more forms of acceleration, appeared to be dependent on the students' learning needs, school organisation, the flexibility of the school, the school's culture, and timetabling issues.

Interestingly, the participating schools did not require the accelerated students to be identified as gifted and talented. In fact, the procedures for the identification of gifted and talented students at each school generally appeared to be independent of the procedures for the identification of students for acceleration.

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Forms of Acceleration. Most participating schools appeared to offer multiple forms of acceleration for its students. At one extreme, one large medium decile school catering to students in Years 9 to 15 offered 11 different forms of acceleration, while another school, which was also large, medium decile, and catering to Year 9 to 15 students, only offered one form of acceleration.

Three-quarters of the participating schools offered subject acceleration for its students. Nevertheless, such a form of acceleration tended to be offered in Years 10, 11, and 12 only. For example, only seven of the forty participating schools offered subject acceleration for year groups outside of Years 10 to 12. Furthermore, among rural schools, only one school offered subject acceleration (for students in Years 10-12). The year group for which subject acceleration was most likely to be offered was Year 10, while the year group for which subject acceleration was least likely to be offered was Year 13.

Twenty-eight different subjects were named as subjects in which students at the participating schools were subject accelerated. Among these subjects, mathematics was the most common across all levels, followed by English, while acceleration in science tended to be less common. The size of the school did not appear to be a major determinant in whether subject acceleration was offered.

Interestingly, over two-thirds of the participating schools offered extracurricular programmes in areas such as music, drama, dance, thinking activities, and sports, which these schools believed to be accelerative in nature. Some of these schools provided information on how specifically they believed such programs to be accelerative. For example, one school noted that "we tailor all of these options to the individual via an Individual Education Plan (IEP)."

Correspondence courses, another form of acceleration, were offered by over one half of the participating schools.

Forth-two percent of the participating schools, of different school decile, size, and type, noted that they offered concurrent or dual enrolment. Nevertheless, when precise numbers of students who were offered this acceleration option were examined, they generally tended to be small (although one school indicated that approximately 25 were offered this form of acceleration). When offered, concurrent or dual enrolment appeared to cover a broad range of subject areas.

Full grade acceleration, across all subject areas was offered by approximately one quarter of the participating schools. The other commonly practised forms of acceleration were individual and self-paced instruction (49%), combined classes (39%), curriculum compacting (36%), mentoring (36%), telescoping curriculum (15%), and early entry into secondary school (15%). Only two participating schools offered radical acceleration in the year the survey was carried out.

Implementation of Acceleration. Over two-thirds of schools used multiple approaches to the implementation of acceleration: individual acceleration (85%), acceleration of a group or cluster within a class (64%); and pull-out groups or withdrawal from the regular classroom (27%). An accelerate class was used by over half of the schools (55%). Of note, over 40% of schools provided at least the combination of an accelerate class, individual acceleration, *and* acceleration of a group. Nevertheless, three schools nominated an accelerate class in one or more subjects in Year 10 as their only approach to acceleration.

The following were some additional comments made by the participating schools on how they implemented acceleration in their schools:

- Acceleration is on a case-by-case basis. We do not do whole class or group acceleration (a medium decile, large size, Year 9-15 school)
- Multi-levelling, Correspondence School is used for subjects we might not offer, or for students who require acceleration and we can't timetable them (a high decile, medium size, Year 7-15 school)
- Acceleration happens in only a few subjects (a medium decile, medium size, Year 7-15 school)
- We have several students who are multi-levelled in their courses (a high decile, large size, Composite 1-15 school)
- Multi-level learning, pathways, and individual programmes - in 2010, 61 students achieved an NCEA level of at least one year above their school year (a high decile, medium size, Year 7-15 school)
- Acceleration is only offered if a student is outstandingly advanced; as a rule the school is not streamed for classes (a high decile, large size, Year 9-15 school)
- A programme has yet to be developed (a high decile, small size, Year 7-15 school)

Acceleration, Enrichment, and Differentiation. In three-quarters of the participating schools, accelerated students were also offered

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enrichment such as Philosophy classes and Future Problem Solving[1]. Relatedly, almost all of the schools offered competitions and differentiation, with most schools also making use of outside speakers, visiting groups, clubs, class trips, projects, and interest groups as forms of enrichment. One school specifically identified the importance of the International Baccalaureate (IB)[2] for accelerated students.

Personalised Learning. A number of participating schools noted that they personalised instruction to allow for acceleration. For example, one school emphasised the need for flexibility to meet student needs**.** Specifically, they promoted a personalised approach responding to "need and exceptionality. This can be different for each child. One student has had whole year acceleration, others are only accelerated by subject and this can be constrained by the timetable."

Support for Accelerated Students. After the implementation of one or more acceleration options, 38 schools reported that they offered school personnel and school systems to support their accelerated students academically, socially, emotionally, and culturally. For example, 15 schools provided mentors as academic support personnel, while 12 schools offered mentoring specifically as an acceleration provision. Unfortunately, no small or rural schools offered mentoring, while one school explained that they "run an on-line mentoring programme in Year 10 for gifted students under the World Mentor New Zealand programme."

Accelerated Student Numbers. From the data reported by the 27 participating schools that reported approximate numbers of accelerated students, the number of students accelerated in the year that the survey was conducted ranged from under 10 to over 200. Twelve of these schools, from all school types and sizes, accelerated 20 or more students at one or more levels. The school that had the greatest numbers of accelerated students (i.e., a medium decile, medium size school) reported that 60, 30, 40, 40, and 40 students were accelerated at the five secondary year levels.

Collation and Analysis of Acceleration Data. Data relating to the acceleration of students were recorded, analysed, and maintained in three-quarters of the participating schools, with the Composite and Year 7-15 schools more likely to record and analyse such data than the other school categories. Relatedly, just over half of the participating schools maintained individual student profiles (i.e., information file, IEP or Individual Learning Plan). One school which accelerated students in science, mathematics, the arts, and other subjects explained that "they [individual departments] all do whatever they see is needed in each case," but there was "no central data base of this…"

Evaluation. Finally, the findings of the study indicated that most participating schools used multiple methods to evaluate the effectiveness of their acceleration provisions. For example, 90% of the schools assessed the NCEA results of the students, 75% examined teacher evaluations, while close to two-thirds of schools indicated that the evaluations of gifted and talented coordinators were considered. Parents or caregivers were also involved in the evaluation processes in one third of the participating schools.

Discussion

The key finding of this research was that the great majority of participating schools offered acceleration as an academic intervention for its students. The findings compare favourably to the findings of Winsley (2000), who noted that over half of New Zealand secondary schools (n=235) offered an acceleration programme, although whole class acceleration was not common. Therefore, contrary to the claims of Colangelo, Assouline, and Gross (2004), acceleration does not appear to be rarely used; nor does it appear to be used cautiously. In fact, that was little evidence of teacher resistance to the practice (c.f., Riley, Bevan-Brown, Bicknell, Carroll-Lind, & Kearney, 2004), and no dissatisfaction with the processes of acceleration (e.g., identification practices, selection of acceleration forms, school systems and student achievement, or unwillingness to accelerate by teachers, students or parents) was reported.

Multiple Practices. The findings appear to indicate that generally, single sex girls' secondary schools in New Zealand use multiple practices relating to acceleration, and that they may be flexible in their use of such practices. Many of these practices have been endorsed by

[1] Future Problem Solving is an international creative problem solving academic programme and competition usually involving gifted and talented students in Years 4-13 who learn skills on how to investigate real global issues and community problems, and to develop innovative action plans (Future Problem Solving New Zealand, 2018).

[2] The International Baccalaureate Diploma is designed for students, aged 16-19, who have excellent breadth and depth of knowledge and provides "an academically challenging and balanced programme", which addresses "the intellectual, social, emotional, and physical well-being of students" (International Baccalaureate Organization, 2012, p. 2) and prepares them for university studies.

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the literature in gifted education, including the use of multiple identification methods, the provision of multiple forms of acceleration to effectively address the learning needs and characteristics of each student (Rogers, 1991), consultation with educators, parents or caregivers, and students (Southern & Jones, 2015), offering students choice in whether to accept acceleration (Wardman, 2014), the provision of an advanced curriculum (Assouline et al., 2015), and the offering of acceleration simultaneously with enrichment (Southern, Jones, & Stanley, 1993).

Reflecting the literature that has emphasised the importance of careful planning for successful acceleration (Gross, 1993; Merrotsy, 2002; Southern & Jones, 1991a, 2004, 2015; Vialle, Ashton, Carlon, & Rankin, 2001; VanTassel-Baska, 1992, 2004a), evidence was found in this study of extensive planning for acceleration in many of the participating schools – such planning included the establishment of clear procedures for consultation and communication with relevant stakeholders, withdrawal and re-entry procedures, and procedures for evaluation.

Consultation and communication with relevant stakeholders, and particularly the affected student, is important, as the affected student needs to be positive about the intervention for it to be successful (Stanley, 1973, 1979; VanTassel-Baska, 1991). Unfortunately, the findings of the study indicated that, generally, more extensive consultation and communication may be necessary with whānau (family) during the acceleration process.

In comparison, evaluation may be considered to be an integral element of planning to improve the effectiveness of programmes, partly because it provides a "justification for decisions" (Callahan, 1993, p. 605). Surprisingly, programme evaluation has been described as one of the most "neglected in gifted education" (Callahan, 1993, p. 606) and, according to an Education Review Office (2008) report, most New Zealand schools do not evaluate their gifted and talented programmes effectively. The findings from this study suggest that in actual fact, planning procedures *may* be in place in many New Zealand schools to evaluate gifted and talented programmes such as acceleration.

Design of Acceleration Provisions. The international research in the field of gifted education has traditionally recommended that an acceleration policy may be necessary in schools to allow for the sustainability and equity of acceleration provisions (Colangelo et al., 2010). All but one school (97%) in this study reported that they had developed gifted and talented procedures, while approximately half of the schools had developed an acceleration policy to exist alongside their gifted and talented provisions. Consequently, a need appears to exist for the formalisation of documentation relating to acceleration in many single sex girls secondary schools in New Zealand.

Identification. Along with the recommendation for the development of an acceleration policy, the research literature has recommended that a multiplicity of approaches be used for the identification of gifted and talented students to ensure that underachievers, students from diverse cultures, and twice exceptional students are less likely to be missed (Cross, 2013). The participating schools in this study indeed appear to apply multiple approaches to the identification of students for acceleration. Reflecting the research of Riley and Bicknell (2013), the most favoured approaches used in the participating schools were teacher identification and formal assessment practices. Nevertheless, it was apparent that some greater diversity in the approaches to identification may have enhanced the identification process in many of the participating schools.

Forms of Acceleration. Consistent with Wells, Lohman, and Marron (2009), who confirmed the benefits of subject acceleration, subject acceleration appeared to be the most popular of the acceleration options among the participating schools in this study. This may be reflective of the ease with which subject acceleration may be implemented, in comparison to other acceleration options such as grade skipping (Rogers, 2015), and relatedly, the fewer social and emotional concerns that are raised, as it may allow for a continuation of participation in activities, including extracurricular activities, with age peers (Brody & Muratori, 2015; Khazem & Khazem, 2014; Steenbergen-Hu & Moon, 2011).

It is noteworthy that Wardman (2009, 2010) has proposed that grade-skipping may not be widely implemented in New Zealand schools. Unlike subject acceleration, most of the participating schools in this study did not provide grade-skipping across all year levels, with only two exceptions. Although recommended in the research (VanTassel-Baska, 2004b), radical acceleration, or grade skipping by three or more years, was similarly uncommon in this study, with only two schools offering this form of acceleration.

Among the other forms of acceleration, concurrent and dual enrolment have been recognised as being viable for students of high ability in New Zealand (Horsley, 2013), and was available at a number of schools in conjunction

with universities that permitted the practice. A small number of the participating schools offered the International Baccalaureate, which is regarded as an acceleration provision with a high mean effect size for academic outcomes (Rogers, 2010). Unfortunately, the International Baccalaureate is not recognised by universities in New Zealand Universities for credits. Finally, mentoring was used as a form of acceleration by a third of the participating schools. Mentoring has traditionally been recommended for many gifted and talented students (Cutler, Riley, MacIntyre, & Bicknell, 2010), particularly to allow for positive social and emotional effects for those students who are accelerated (Rogers, 2010).

Generally, the offering of a more diverse range of acceleration options, including some of the twenty options noted by Southern and Jones (2015) that are not commonly seen in New Zealand, across all schools (i.e., type, decile, and size), may be necessary to better address the needs of all gifted students.

Conclusion

This study demonstrated that acceleration is provided in New Zealand single-sex girls' schools, at the secondary level, regardless of school size, decile, or school type. Schools self-reported their practices of meeting the academic, social, emotional, and cultural needs of students who were accelerated, within a generally supportive school environment. Of note, national assessment systems and educational pathways to university were shown to facilitate the delivery of acceleration as an academic intervention. Furthermore, government education legislation, requiring schools to implement learning programmes to meet the needs and abilities of their gifted and talented students, appears to support schools in developing and implementing best practice provisions, including acceleration, for its gifted students.

It is noted that the focus of this study on acceleration in single-sex girls' secondary schools may limit the generalisation of its findings to other contexts. Further research could therefore be undertaken to compare the acceleration of gifted girls in single-sex and co-educational settings, nationally and internationally.
Some implications of this research for future practice include the need for greater numbers of schools to develop acceleration policies, the need for schools to be provided with greater funding for professional development in acceleration, and the need for acceleration related data to be more readily accessible by schools in New Zealand. It is hoped that the findings of this study will encourage acceleration to become more widely available and offered as an effective provision for gifted students in New Zealand.

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