

What Helps or Hinders the Learning of Academically Talented Junior Secondary School Boys: The Stories of 123 Boys

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Abstract

This paper reports on a 2016-2019 study of 123 students in the most academic Year 9 class in a large, high-achieving New Zealand state boys' secondary school. The study asked the question: "What aspects of society, schools and teachers, home environment and your own intrapersonal qualities helped or hindered your achievement in at least one academic subject?" Data were gathered through the completion of questionnaires and semi-structured interviews, either in focus groups, or individually. Arguably, the most important findings related to participant perceptions of the greatest influence supporting achievement and the single most common factor identified as hindering achievement. The greatest help was identified to be students' own intrapersonal characteristics, and the greatest hindrance was identified to be schools and teachers. This paper reports on the main findings of the research with particular emphasis on those with relevance to educators. It also considers what the major implications are for educational practice in New Zealand schools.

Introduction

It is acknowledged in the literature that the provision of low-level education programmes for intellectually gifted and academically talented students in the United States and other parts of the world has stifled the development of their talents (Chalwell & Cumming, 2019; Colangelo, Assouline & Gross, 2004; Assouline, Colangelo & VanTassel-Baska, 2015; Delisle, 2014; Duff, 2020). Furthermore, it is considered that the general refusal to accelerate students' curricula has disincentivised their learning. Scholars and practitioners within gifted education make the argument that acceleration and other related educational provisions must be at the forefront of policy decisions and implementation of gifted education programmes in schools. Unfortunately, the failure to address the educational needs of intellectually gifted students in schools may serve to undermine the motivation of these students.

What follows is a brief history of the support for gifted education by the New Zealand education authorities. Towards the end of the 1990s, the New Zealand Education Review Office (ERO) recognised the need for greater attention to be given to the needs of high-ability students in New Zealand schools. They began to take a role in encouraging schools and boards of trustees to take an active part in providing for the needs of children with special abilities. In 1998, ERO published the report *Working with students with special abilities*. The report provided schools and parents with examples of effective practice, and listed factors which were considered critical to the success of gifted and talented education (GATE) programmes (Education Review Office, 1998). This report gave impetus to several gifted education initiatives which occurred in New Zealand leading up to ERO's next report on gifted education, ten years later (Education Review Office, 2008). The latter report reviewed 315 schools' provision for gifted and talented students in Terms 3 and 4, 2007. The key recommendation of this report that is relevant to this study was that teachers "provide challenging and differentiated programmes for gifted and talented students in the regular classroom" (p. 54). The report also made comment about a range of initiatives taken during the previous ten years.

As a consequence of the first report ERO report in 1998, the Ministry of Education established an advisory group to identify GATE needs in schools and to investigate how these needs might be addressed. Shortly afterwards, the Ministry of Education published and distributed to schools the booklet *Gifted and talented students: Meeting their needs in New Zealand schools* (Ministry of Education, 2000). This publication provided information on ways to identify and assist gifted and talented students. In 2001, a gifted and talented community was added to Te Kete Ipurangi (TKI), the bilingual portal with education advice and resources. The Ministry of Education also created the *Working party on gifted education* to provide policy advice and a funding framework for GATE. Thereafter, in 2003, it became mandatory for all schools in New Zealand to include National Administration Guideline (NAG) 1 (iii)(c) in their charters by

2005 (this guideline explicitly stated that schools would provide for gifted and talented students). In 2004, the Ministry of Education published the report *Gifted and talented education in New Zealand schools*. This comprehensive report detailed current practices regarding identification and provision for GATE across New Zealand's schools, along with recommendations (Education Review Office, 2008). Then in 2006, the *Rising Tides: Nurturing our gifted culture* conference attracted over 700 attendees, which is by far the largest GATE conference ever held in New Zealand (Moltzen, 2011).

Under the National Government for 2008 - 2017, New Zealand then went through a period when gifted education initiatives were not government funded. Thereafter, after a Labour-led Government was elected in 2017, Associate Minister of Education, Tracey Martin, in February 2019, announced a new support package for gifted learners of \$1.27 million, which included funding for one-day schools, contestable funding for particular projects and activities, a programme of experiences and events targeting gifted learners, improved guidance for teachers, and additional online learning modules. Minister Martin stated that, for her government, reintroducing funding and support for gifted education was a priority (Martin, 2019).

While this initiative was welcomed in the gifted education community, it did not address the growing gap between the achievement of boys and girls in the senior secondary school. Indeed, the New Zealand Qualifications Authority (NZQA) statistics for 2018 show that 11.9% of boys gained an excellence endorsement in Level 3 of the National Certificate of Educational Achievement (NCEA) whereas 17.6% of girls achieved at this level. Of considerable concern is the fact that over time the gap between boys and girls appears to be widening. For example, in 2009, 4.8% of boys received an excellence endorsement for Level 3 while only 5.6% of girls achieved the same endorsement. It is important, therefore, for research to be undertaken regarding what helps or hinders the achievement of academically talented boys. The aim of this study was to investigate this issue.

Given that the underachievement of boys is recognised as a recurring issue in the literature (Hatley & Townend, 2020; Kerr & Cohn, 2001; Miller, 2011; Sax, 2016), it is anticipated that this study will add further insight into what helps and hinders academic achievement for boys in their primary and early secondary school years. Specifically, it will provide much needed information on which aspects of society, schools

and teachers, home environments and the students' own intrapersonal characteristics may have helped and hindered their success. The study's findings include a model that is able to inform the policy, procedures and practices of schools, while also providing guidance to parents and other whānau (extended family) on ways they can assist academically able boys to achieve. Furthermore, the findings may serve to alert society and the boys themselves to some of the ways in which they can help or hinder achievement.

Literature Review

Helps to Boys' Achievement

There is a limited amount of literature specifically related to gifted boys. Nevertheless, some important issues emerge from the literature, relating to societal influences, family relationships, school organisation, curriculum and pedagogy, and intrapersonal characteristics.

Societal Influences

There are diverse ways that society may influence student achievement, including through societal expectations, stereotyping and the provision of resources. Nevertheless, one of the most prominent societal influences appears to be related to the messages that are conveyed about expected conduct. For example, Coleman and Cross (2001) assert that the problem gifted students face is "fashioning an emerging identity in the midst of conflicting social demands" (p. 187). The first of these demands is that the messages from society are mixed. On the one hand, gifted students are made to feel that they are different, which interferes with social acceptance as well as their own personal development. On the other hand, this differentness may lead to them being praised, or alternatively being criticised for their strengths. Furthermore, their talents mean that they are expected to perform at an outstanding level at all times. When they do perform consistently well, they may become more recognised for their achievements than for the people they are (Coleman & Cross, 2001).

Despite these demands, it seems that there are ways that society may also help students to overcome the many obstacles they face. Hébert (2011) explains that the emerging identity of gifted adolescents may be helped by involving them in extracurricular activities provided by clubs, teams or campaigns. These are settings

where their individuality may be valued and their developing identity celebrated.

Another supportive factor may come in the form of mentorships. One of the most significant influences in the lives of some academically talented boys appears to be the connection formed between them and their mentors, often from outside of the home or school setting. A mentor can help gifted adolescent boys to feel part of something more significant than they are as individuals (Kerr & Cohn, 2001). In fact, such is the importance that Kerr and Cohn place on a mentoring relationship that they contend: "When a brilliant boy has no one to guide him in his quest for his place in the world, he may come to believe that there is no place for him at all" (p. 128).

Technology, including the internet, may also play a very important part in the lives of academically talented students. For example, Cross (2004) outlines how technology is important for meeting the social and emotional needs of gifted students. Furthermore, Siegle (2005) argues that technology is particularly suited to enhancing the learning of gifted students because it facilitates depth and complexity of learning. He also states that intellectually gifted students transfer knowledge readily from one situation to another, process information rapidly, and often learn inductively. These attributes may make them particularly suited to learning via technology.

Family Relationships

Olszewski-Kubilius (2008) argues that the environment at home may play a major role in the extent to which a young learner's potential ability is developed. Indeed, some educational researchers argue that family influences are the most potent or pre-eminent factors influencing achievement (Biddulph, Biddulph, & Biddulph, 2003; Freeman, 2000; Macfarlane, Webber, Cookson-Cox, & McRae, 2014; Miller, 2015). Of note, Miller's (2015) study with 30 gifted and talented Māori and Pasifika secondary school boys found that whānau and particularly parents, were the most significant influence on student achievement. Particular aspects of whānau related to the home environment that contributed to high achievement were the value placed on education, the expectation to achieve, and the nurturing nature of whānau. These three interlocking strands seemed to have an influential role to play in the boys' academic success.

Role modelling was identified to be one of the most important ways in which value was placed

on education in Miller (2015). This was primarily seen from parents, but in one case, a student spoke of the modelling of his great grandfather. Among those who referred to their fathers, one student spoke of replicating the footsteps of his surgeon father. Another student spoke of his father leaving school with no qualifications but then going to university as an adult student and gaining a Master of Business Management degree. The student remarked: "It's inspirational to us as kids and our family to look up to our dad, and that kind of shows us what you can do." The student who viewed his Māori great grandfather as a role model spoke of how he had realised the need for a New Zealand European style education for Māori and started a school to enable this to happen. The legacy of that decision is four generations of successful businesspeople including the student himself who was running his own web design business as a Year 10 student. The importance of healthy role models within the whānau was also noted in the Ka Awatea study (Macfarlane et al., 2014). In this study, the role models were attributed with promoting persistence and academic success.

Linked to the value placed on education in Miller's (2015) study was the expectation to achieve, which was imparted to the boys by whānau. The positive impact of high parental expectations on student achievement is attested in the literature (Carpenter, 2008; Wang & Brenner 2014; Zhang, Haddad, Torres & Chen, 2011). In particular, Miller's (2015) study showed that, through verbal encouragement and admonition, parents clearly conveyed to the boys that they were expected to achieve highly. Mothers in particular were very much involved in reminding boys to do their homework and encouraging them to study. Of note, two boys who stated that no-one in their whānau had ever received any tertiary education but had themselves set the goal of going to university, acknowledged the encouragement from home contributing to their success at school and their goal of attending university.

For optimal achievement, the literature suggests that a nurturing home environment may be ideal (Hébert, 2011; Macfarlane et. al, 2014; Miller, 2015). For example, in Miller (2015), several parents and students commented that the supportive, stable and consistent nature of the family, and the close connections between family members, contributed to students' academic success. In particular, all the parents of Māori students who were interviewed, spoke of the nurture of the wider whānau. Indeed, several students mentioned the unconditional love and self-sacrifice of parents to enable their sons to achieve. One way this was demonstrated by the parents of boys whose family socio-

economic status was low, was the ways in which the parents went out of their way to ensure their boys had the resources they needed to help them to achieve. For example, the parents of students who had no home access to the Internet found other ways to obtain access such as going to Internet cafes or the nearby university. As part of a nurturing home environment, many also made mention of the spiritual dimension and the values of the home. These findings align with Bevan-Brown's (2011) research into gifted and talented Māori learners which found that outstanding personal qualities, high moral values and service to others were the most recognised areas of giftedness, and wairua (spirituality) was acknowledged as important by many participants. All these qualities and values were nurtured by the home environment.

Pedagogy, Curriculum and School Organisation

There are many teaching practices and attributes of teachers that may be considered influential in assisting intellectually gifted and academically talented students to achieve. Vialle and Tischler (2009) categorise these as intellectual-cognitive characteristics, personal-social characteristics, and teaching strategies. The literature also recognises the significance of the school curriculum (Ford, 2011; Little, 2012; Macfarlane et. al.; 2014; Miller, 2015) and grouping arrangements (Fiedler, Lange & Winebrenner, 2002; Rogers, 2007). Miller (2015) identified the importance of teachers and a school's ethos as significant influences on achievement.

Among these factors, some conflicting data appears to exist on ability grouping. For example, Rogers' (1998) assessment of 13 meta-analyses concluded that ability grouping may be especially beneficial for the intellectually able. In contrast, Hattie's (2009) evaluation of five meta-analyses identified limited academic advantages for intellectually gifted students with an average effect size of only 0.3. Hattie commented, however, that when students were not simply ability grouped but this was accompanied by specifically targeted, challenging curricula, students were more inclined to be engaged and to achieve highly. In Miller (2015), students and parents held overwhelmingly positive views about working in a streamed environment. The perceived beneficial aspects outlined by the students included improved work standards, challenge facilitated by working alongside high-ability peers, the accelerated pace of work, less needless repetition, positive relationships between peers, and higher quality teachers.

As Hattie (2009) argues, it may not simply be ability grouping or streaming that makes a positive difference to learning, but also the provision of appropriate challenge. Many researchers and educators agree that in order to provide appropriate challenge, it is important to provide differentiation of the curriculum that enables students to learn at an accelerated rate (Delisle, 2014; Lee, Olszewski-Kublious & Peternel, 2010; Rogers, 2015; VanTassel-Baska & Johnsen, 2015).

Possibly, ability grouping and a differentiated curriculum by themselves may be inadequate to optimise student achievement in school settings. A number of studies have also found that an aspect of pedagogy that may be vital to academically talented students achieving success is the development of positive teacher-student relationships (Croft, 2003; Macfarlane et al., 2014, Reichert & Hawley, 2010). Miller (2015) suggests that some teacher characteristics that may be conducive to the formation of such relationships to support students to achieve may be a caring manner, student encouragement, a sense of humour, and high expectations of student achievement.

Intrapersonal Characteristics

The literature also suggests a link between student intrapersonal qualities and high achievement (Gagné, 2008, 2010; Hogan 2009; Miller 2015). Specifically, Gagné (2008, 2015) proposed that intrapersonal attributes may advance the development of natural abilities into talents or competencies. In particular, he identified three intrapersonal qualities connected to goal management - volition, motivation, and awareness. In comparison, Csikszentmihalyi, Rathunde and Whalen (1993) argued that several student intrapersonal qualities may work in unison to enable positive achievement outcomes: "Talented teens have complementary qualities that in tandem are likely to produce a powerful autotelic combination" (p. 244).

Miller (2015) suggested that the intrapersonal characteristics which may be perceived to have contributed most to academic success may be a strong work ethic, determination, perseverance, and identity. These attributes appear to be related to Gagné's (2008, 2010) goal management catalysts. In particular, volition may be seen in students who display a strong work ethic, perseverance and determination. In comparison, motivation may be evident in those students who are determined, and awareness

may be seen in students with a strong sense of personal identity.

Methodology

The study sample comprised 123 students from the top Year 9 classes at a high achieving state boys' secondary school over a period of four years. While no data related to socio-economic status was formally gathered, in the course of interviews and reading questionnaire responses, it became apparent that the boys came from a diverse range of circumstances in terms of socio-economic status, parental education, and locality. Ethnicity data were gathered on all

students from the participating school. When the various ethnicities are merged into five broad groups, a comparison was possible with the 2018 national census data (Stats NZ, 2018). Table 1 provides greater details on the ethnic composition of students at the participating school, in comparison to New Zealand as a whole (when consideration is given to both the first and second ethnicities).

In comparison to the national ethnicity data, students of European background are slightly over-represented at the school, students of Asian background are significantly over-represented, and students of Māori and Pasifika background are significantly under-represented.

Table 1
Comparison of National and School Ethnicities (%)

Ethnicities	New Zealand	School
European	70.2	74.0
Māori	16.5	6.5
Asian	15.1	32.5
Pasifika	8.1	3.2
African/ Middle Eastern/ Latin American	0.01	0.8

Procedures

In the first instance, a meeting was arranged with the headmaster of the school to seek permission to undertake the research from her and the school's board of trustees. For this purpose, a written research proposal was prepared and discussed. After approval was granted, consent was sought, by email letter, from parents or caregivers, for the boys to participate in the research. All students were also given information statements and consent forms for completion and return to the researcher. Thereafter, those students who returned the relevant consent forms (i.e., parental/caregiver and student consent forms) were given the open-ended questionnaires to complete. Focus group or individual interviews were conducted at later dates. The data collection took place from 2016 to 2019.

All interviews were transcribed and taken back to the participating students for checking, editing as required, and signatures authorising use. Next, the questionnaires and interview transcripts were coded idea-by-idea for themes. Thereafter, the themes for each question were placed on a spreadsheet to tally the number of responses related to each theme.

The first year of the study was undertaken with 31 students in 2016. As it was not possible to ascertain after interim data analysis what the students considered to be the single greatest contributor to each student's success or the single greatest hindrance to their achievement, two further questions were added to the questionnaires to be used to collect data in the following years (2017 to 2019).

There was also considerable overlap between what was written in the questionnaires and what the students contributed to the interviews. As a result, a decision was made to only interview those students who requested an interview in the following years (2017 to 2019), and to focus these interviews on the single most significant element in their success, and the single greatest hindrance to their achievement. During the interviews, students were asked to elaborate on the information provided in questionnaire responses. They were able to choose whether to be interviewed as an individual or in a focus group. A further 92 students participated over the following three years, bring the total number of participants for the study to 123.

Questionnaire

The following questions comprised the questionnaire:

1. List the ways society has assisted you in achieving highly in at least one academic field.
2. List the ways society has hindered you in achieving highly in at least one academic field.
3. List any of the ways teachers and schools have assisted you in achieving highly in at least one academic field.
4. List any of the ways teachers and schools have hindered you in achieving highly in at least one academic field.
5. List any ways the family have assisted you in achieving highly in at least one academic field.
6. List any ways the family have hindered you in achieving highly in at least one academic field.
7. List what intrapersonal characteristics you have that have assisted you in achieving highly in at least one academic field.
8. List what intrapersonal characteristics you have that have hindered you in achieving highly in at least one academic field.

From 2017 to 2019, the following two extra questions were added to the questionnaire:

1. Think of the single most significant element contributing to your achievement in at least one academic field. State what that element is and why it has contributed so significantly to your achievement.
2. Think of the single greatest hindrance to your achievement in at least one academic field. State what is the hindrance and explain why it has been such a hindrance to your achievement.

Interviews

In 2016 interviews followed the same format as the questionnaire with modifications as indicated by student-led prompts. For example, when discussing home environment one boy, A, in a focus group asked another boy, "B, you board (in the school hostel) right?" B replied, "Yeah". A

then followed up asking, "So the family environment must be quite different for you? Do you think that helps or hinders you?"

From 2017 to 2019, the focus of interviews was on the single greatest help and hindrance to achievement. The students who had requested an interview put their names on the questionnaires. It was therefore possible to link the interview questions to their questionnaire responses. An example of a question that was asked during the interview was, "You mentioned quite a lot about coming from [Asian country] and coping with a different environment - you and your sister. Could you elaborate on that?"

Analysis

Thematic analysis was conducted on both the questionnaire and interview data. During the analysis, an endeavour was made to identify the key idea or ideas in each student response. For example, a questionnaire response of "Focus and bias towards sport instead of academic extension in schools" and the interview response of "At intermediate, I wasn't given anything to challenge me. For that year I basically learnt nothing." were both coded "lack of challenge", with the former response also coded "overemphasis on sport". The dominant themes for each question are reported in the following section.

Results

Society: Helps

The main societal assistance to learning was identified to be the Internet. Twenty-six boys mentioned this. Some of these boys only discussed the Internet as a general influence, while other boys specifically mentioned on-line books and other resources, on-line help, on-line forums, social media (including Facebook groups focused on learning), Google, and Google classroom. For example, one student remarked:

There are things like on-line fora and other things like where people put up every-day problems, things like school issues so you can study for exams. There are some really good websites out there made by people who think about you and people who have to do these kinds of exams and they post information about it.

In comparison, eleven boys commented on the value of the resources they could access through public libraries. Nine boys identified the positive influence of friends outside of the school setting as helpful to them. Additionally, six boys mentioned competitions in sports, debating and music as contributing to their achievement. A further six mentioned resources such as videos, articles, drawings, books, and tutors as being helpful. Another six boys remarked that society in general encouraged them to excel.

Society: Hindrances

By contrast, the most dominant hindrances related to stereotyping. These stereotypes had different manifestations, but all were considered to hamper achievement. Of the 16 students who identified stereotyping as an impediment, four discussed how expectations of high achievement, and always being able to answer questions, were a hindrance to them. One boy, commented: "They always expect you, because you're in one-band (the grouping of the top four classes) they expect you to be really smart and I'm kind of scared of failing."

Of these four boys, two were Asian students who considered the stereotype of Asians as high academic achievers put unnecessary pressure on them to excel. One of the Asian students remarked: "I feel racial stereotypes kind of make you, if you're Asian, you have to be in one-band or something, and if you're not you'll get looked down upon." In addition, three boys spoke of how expectations related to the "Boy Code" affected them. Two of these remarked on the way what one termed "girly emotions", such as sadness, pity and caring, are not supposed to be shown. One of these commented on the expectation to be stoical, asserting: "We're supposed to be able to just suck it up and just keep going and not really ask for help." Two other boys commented on the way society does not like them standing out academically and desires that they become normal (two other boys described this as "tall poppy syndrome" where people actively try to pull them down to their level).

Although some students considered social media may be helpful to learning, 11 students also identified them as hindrances to achievement because of the possible distraction that they may cause. Another ten students mentioned verbal bullying as a hindrance, including being called a "nerd" and the use of sarcasm when they do not achieve as well as expected. Finally, five students remarked on being diverted from their studies by a range of distractions such as mass media, including gaming.

Schools and Teachers: Helps

Fifty-eight students considered that ability grouping (or streaming), particularly in their secondary school, had made a positive difference to their achievement. Particular comment was made by many of them about how their learning was enhanced by being grouped with others of similar ability. One student stated:

If you're all of the same ability level, the teacher can focus on one thing and the whole class can understand it, and if you don't understand it, there are always your peers who will understand, and they can teach you.

Fifty-seven students commented on particular teacher attributes that had contributed to their success. In the students' view, knowledgeable teachers with high expectations who provided support and encouragement, along with a sense of humour, made their learning more effective. High teacher expectations in mathematics were particularly empowering for one student. He commented:

Teachers have assisted me in achieving highly in maths by constantly, and sometimes incessantly, reminding me about the eminently high expectations that they have/have set for me. I have internalised their high expectations.

Twenty-seven students expressed appreciation for being challenged in their learning. This was generally within a streamed environment but not always the case. Similarly, 17 students viewed the competitive environment within their streamed class at secondary school as beneficial to their achievement. With one exception, they were especially careful to explain that the classroom environment can be both competitive and supportive, and when questioned about this, were adamant that there was no nastiness between them and their competitive peers. The exception was a student, who considered that some of his peers were overly competitive.

In addition to competition, a further by-product of streaming to advance student learning, mentioned by 12 students, was acceleration. In particular, the participating students were appreciative of being able to cover two years of content in one year in up to six subjects to enable them to start their National Certificate in Educational Achievement a year earlier than normal in these subjects.

Schools and Teachers: Hindrances

It seems that many of the students in this study had experienced working in both a school environment with adequate challenge and at least one other school where they considered there was insufficient challenge. All who commented agreed they were receiving appropriate challenge in their current secondary school, but 56 students stated they had experienced inadequate challenge in either a primary or intermediate school, or both. Lack of challenge was the single most common way schools and teachers were perceived to have hindered their learning.

One student spoke of being depressed by the lack of challenge at intermediate school. He discussed how, during his intermediate schooling, he was required to complete work that was no different to what he had successfully done in primary school. As a result, his academic self-perception was lowered and he became depressed. He then outlined how the teachers in his streamed high school classes had helped by having high expectations of his achievement while encouraging him to meet those expectations.

Other students spoke of boredom, needless repetition, lack of teacher input into their learning because the teacher's focus was on low-end students, waiting for others to catch up, being left to their own devices by the teacher, being given breadth of learning without depth, being grouped with slow learners, and lack of competition. One student summed up the experience of many others in primary and/or intermediate school, saying of his teacher:

I think that because there were so many students in my class, and so many ability levels, she focused on the lower ability students and left the people who were further ahead to fend for themselves.

Thirty-one boys mentioned attributes of teachers or aspects of teaching practice that had impeded their learning. Chief of these were the lack of specialist knowledge, teacher-student intellectual mismatch, and incompetence. One student remarked: "Some teachers don't have proper skills necessary and can't provide deeper understanding because they don't have one themselves." Teachers who lack enthusiasm and do not engage with students were also mentioned. Furthermore, a few teachers were said to be biased and to misjudge students. In addition, some students said their learning was hindered by teachers deviating from the topic,

poor planning of homework loads and unrealistic expectations.

Fifteen students considered mixed ability classrooms had impeded their learning. For them, the main issues were the teachers' focus on lower students, the amount of time that was spent waiting for slower learners to catch up, being placed in mixed ability groups for group work, and having to do the majority of the work for group projects despite everybody in the group receiving the credit for their work.

Modern Learning Environments or Open Plan classrooms (Innovative or Flexible Learning Environments) were viewed as hampering achievement by ten of the twelve students who mentioned they had experienced them. Interestingly, nine of the ten students who were critical of Modern Learning Environments were participants in 2016. Of note, the student who was most emphatic that Modern Learning Environments were the greatest single hindrance to his learning was a boy who was twice exceptional. It was apparent that the less structured organisation in the classroom(s) in which he had been taught was a source of annoyance that hindered his learning.

Family: Helps

The main component contributing to the boys' achievement, mentioned by 60 boys, was the encouragement to achieve through parental and older sibling support. Some parental aspects of encouragement mentioned by boys were parental encouragement of an aspirational mindset, parents who were inspirational role models, parents who provided resources, parents who held intellectual conversations with them, parents who used incidental moments to teach, and parents who ensured they had some leisure time to balance with study requirements.

For 46 of the boys, general encouragement was enhanced by specifically targeted assistance. For example, there was assistance in specific subject areas and with specific skills such as essay writing, and analysis of test and examination results. It seems many of the boys' parents and/or siblings were well qualified to provide academic assistance, because 21 of the boys spoke of parent and/or sibling academic expertise. When the boys spoke of their parents' occupations, there were numerous instances of them being involved in a range of professional and business careers. Twenty-one boys also spoke of parental reminders, particularly from mothers, of the requirement to study. Although

only nine boys specifically mentioned high parental expectations, it seems reasonable to infer that the parents who provided an encouraging environment, specifically targeted assistance, academic expertise, and study reminders may also hold high expectations.

Family: Hindrances

In contrast to the ways the family had helped students to achieve, where most students made comment, 48 students did not identify any family hindrances, and those who did generally had little to say. The major family-related hindrance mentioned by eight students, was with distractions from younger siblings. These distractions included having the TV on too loud and repeatedly being asked for help or to play games. Other distractions specified by five students were both immediate and extended family activities and commitments, including commitments to disabled or ill siblings. Three students mentioned the pressure to over-study from parents, which they described as an “Asian-study mentality”, although one of these students was not of Asian ethnicity. He said, “My parents have an Asian-study mentality in a white English body.” Three students also mentioned that their parents spoke a language other than English at home.

Intrapersonal Characteristics: Helps

A wide range of intrapersonal attributes contributing to success were identified by the boys. In rank order of frequency of mention, the major identified traits were determination, self-motivation, competitiveness, strong work ethic, perseverance, curiosity, goal setting, focus, and pursuit of excellence. These qualities may best be thought of in terms of a cluster of traits that empower students to achieve highly. One student who was clearly determined, self-motivated, and had a strong work ethic remarked:

I am very motivated, I just have a drive, just want to do well. At the start of the year I was put in the second top class, and didn't want to be there, so I was motivated and drove myself into being in the top class, put the work in, put in all the study I needed.

A student who stated that perseverance was the single greatest contributor to his high achievement, commented:

I'm academically gifted but I don't like academic stuff. I prefer hands on,

kinaesthetic learning. But, perseverance has helped me get over that. Now I just persevere through the study/theory work so I get good grades.

Reflecting on the single greatest factor contributing to his success, another student stated:

Curiosity is the most significant element in my achievement. In subjects I want to learn more about, I will typically get top marks, but in something I have no interest in learning about, I will get poor results.

Intrapersonal Characteristics: Hindrances

The boys also spoke of a range of intrapersonal characteristics that had hindered their achievement. The four most common of these in rank order were procrastination, distractibility, lack of motivation, and laziness. One boy stated that the intrapersonal characteristic most implicated in negatively affecting his learning was procrastination. He commented:

I tend to procrastinate a lot. Sometimes I might put less work into an assignment than needed, or I might not study hard enough for a test.”

Many others made similar comments.

A common intrapersonal characteristic which hindered learning was distractibility. Most students identifying this hindrance to learning stated that the distraction was related to video games. For one student, the very device he received to help with his education was actually a hindrance to his learning. He remarked:

When I got to my late primary years (Year 5 and 6), I got an iPad for the BYOD (Bring Your Own Device) system we were allowed at school, which started leading me to some gaming at first, and then more and more gaming. This wasted numerous hours of free time on gaming, which I now realise could have been put to better use, whether studying, playing outside, or reading books. This hindered me in my studies as my academic abilities did not improve as fast as they could, and I wasted a few years due to my iPad.

One student who identified both procrastination and distractibility as hindrances to his study, explained how he has overcome these weaknesses by ensuring his desktop is always tidy

and he has all the materials he needs for the particular study topic on his desk and no electronic gadgets on it before he starts. From time to time he also has classical music playing softly in the background to help his focus. It seems that other students were also working to develop and use strategies to help overcome intrapersonal weaknesses.

Greatest Overall Influences on Achievement

The data from the additional questions asked in 2017, 2018, and 2019 were of particular interest. These questions asked students to identify what one factor helped them most to achieve, and what was the single greatest hindrance to achievement. The data are shown below in Table 2.

Table 2
Achievement Helps and Hindrances

Category	Helps	Hindrances
Society	10%	7%
Schools and teachers	18%	45%
Family	32%	6%
Intrapersonal characteristics	37%	35%
Peers	3%	7%

Discussion

It is evident from these findings that there are wide-ranging influences that have contributed to students' high achievement along with numerous factors that have hindered students' achievement. The findings indicate that society, schools and teachers, family, peers and the student's own intrapersonal qualities may all play a part in supporting achievement, but may also hinder achievement in some way.

The participating students identified a range of ways that society had contributed to high academic achievement. It is significant that 26 boys mentioned a range of ways that the Internet had enhanced their learning. This finding may be considered unsurprising, given that in growing up as digital natives, today's generation of academically talented teens may generally be at ease with using technological devices. Indeed, Siegle (2005) has commented that the advanced cognitive abilities of intellectually gifted students may give them the ability to use technology to progress their learning. There is obvious scope for schools to seek to maximise the learning advantages that

The data shows that for particular individuals, the single most significant factor contributing to academic success, came from society, schools and teachers, family, peers, and the student's own intrapersonal characteristics. Furthermore, each of these were perceived, for particular individuals, as the single most important influence hindering academic achievement.

The students' own intrapersonal characteristics were identified most commonly as contributing to achievement, followed by the impact of family. These two far outweighed the overall influence of other factors. In comparison, schools and teachers were perceived as the single greatest hindrance to achievement, followed by the students' own intrapersonal attributes. These two components far exceeded the overall influence of the other factors.

academically talented teenagers are able to gain from technology.

A number of resources provided by society, but not related to the Internet, were also deemed helpful to a significant minority of students. These included both material and human resources. While public libraries were the main source of material resources, some material resources were accessed by other means. Of note, the Education Review Office (2008) has recognised that gifted students' learning may be enhanced by accessing the resources of the wider community. The finding suggests that schools may assist students by effective communication of the community resources that may assist their learning.

In comparison, the major societal obstacles which the participating students considered had hindered achievement related to stereotyping and verbal bullying. These obstacles suggest that academically talented students may receive mixed messages from society about being different from their peers. As noted by Coleman and Cross (2001), "being different is problematic

in that differentness prevents, or at least interferes with, full social acceptance and personal development” (p. 187). It is therefore important for the schools, teachers, and families of gifted students to understand the obstacles society may place before intellectually gifted and academically talented students, and to help them navigate their way through them.

The other major societal hindrances to students’ achievement identified in this study related to social media, mass media, and gaming. Sax (2016) argues that video games are one of the five factors causing lack of motivation and underachievement in young men. The problem in wider society appears to be that the young men generally do not realise how adversely their lives may be affected by addiction to media. Interestingly, in this study, the boys were aware of this potential hindrance and wanted to keep their place in the top class of their year level; they took measures to control social media, mass media, and gaming.

For educators, the most important findings of this study may relate to both the positive and negative aspects of the impact of schools and teachers on student achievement. The 58 students who outlined the benefits of ability grouping to their learning concur with Rogers’ (1998) 13 meta-analyses evidencing the significant advantages that ability grouping has for the intellectually gifted. Generally, there appeared to be a perception that being in an environment with peers of similar ability, and learning more advanced content at an accelerated rate, were advantageous to learning.

Relatedly, the 57 student comments about teacher attributes contributing to their success emphasised the importance of teacher knowledge, high expectations, support, encouragement, and a sense of humour. Interestingly, the latter four were also identified by students in Miller (2015) as being pivotal to building the positive teacher-student relationships that may enable academically talented students to achieve highly. Studies by Borland, Schnur and Wright (2000), as well as by Reis, Colbert and Hébert (2005) have also indicated that appropriate challenge and intellectual stimulation may be important to the development of talent. Furthermore, Reis et al. (2005) considered supportive teachers with high expectations had assisted students’ learning.

In contrast to the academically challenging secondary school environment which the boys were experiencing, many had encountered programmes with insufficient challenge, during their primary and intermediate schooling. It is

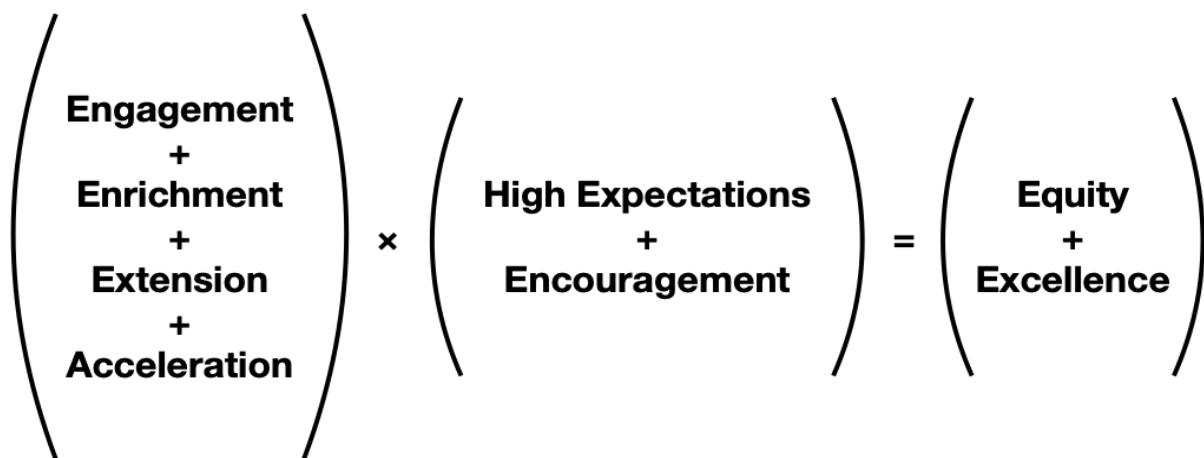
of particular concern that 45% of responses identified schools and teachers as the greatest hindrance to their learning, particularly as 56 students specifically identified lack of challenge at some point in their primary and intermediate schooling as the main school-based hindrance to their achievement. Given that in the interviews and questionnaire responses many students mentioned both a lack of challenge and low teacher expectations, it is reasonable to infer that programmes that lack challenge are linked with low teacher expectations.

Because of low teacher expectations and programmes having insufficient challenge, it appears that an alarmingly high proportion of academically talented students are not treated equitably, and that they are not achieving the standards of excellence of which they are capable. This was also clearly the case in many New Zealand schools at the time of the Education Review Office (2008) study with only 42% of schools providing programmes that were highly responsive and appropriate to the needs of gifted and talented students.

Arguably, in not providing adequate challenge for many of the students in this study, the primary and intermediate schools concerned were not fulfilling the mission of gifted education and talent development which Clark (2008) contends is a mission of equity and excellence. Although no one type of school could meet the needs of the diverse range of academically talented boys in New Zealand’s schools, the secondary school with a streamed or ability grouped environment, which the 123 boys in this study attended, provides an effective model of how to achieve the mission of providing equity and opportunities to achieve excellence for academically talented boys, and perhaps girls as well.

This model has four principles. First, engage students’ minds by providing appropriate challenge in the context of positive teacher-student relationships. Second, enrich students’ learning through providing a wide range of curricula. Third, extend students’ learning by enabling them to learn in greater depth. Fourth, accelerate students’ learning by allowing them to learn at greater speed. When these four principles are put in place together with high teacher expectations and encouragement, the mission of equity and excellence for academically talented learners is much more likely to be achieved than is currently the case for many such students.

A schematic representation of this model appears in Figure 1.

Figure 1*Equity and Excellence Model*

While schools and teachers were perceived to have an important part to play in the success of students, the findings of this study also showed that students considered that family influences and their own intrapersonal characteristics were decisively the two greatest contributors to student academic success. These findings broadly concur with Miller's (2015) study with Māori and Pasifika secondary school boys and the Ka Awatea study (Macfarlane et al., 2014). Nevertheless, in Miller's 2015 study, family influences were considered the greatest single contributor to student achievement, whereas this study recognised students' own intrapersonal qualities as the most important contributor. This may be explained in the different ethnicity demographics of the participants of the two studies. Participants in this study were mainly New Zealand Europeans with a significant minority of students of Asian background, while the participants in Miller (2015) were Māori and Pacific peoples. It appears that Māori and Pasifika cultures are more group and family focused than New Zealand European culture. In Macfarlane et al.'s (2014) study the whānau had a notable part to play through their high expectations, encouragement, and active involvement in students' school lives. In all three studies, the high expectations of parents and family encouragement assisted the boys to achieve.

Limitations

There were a number of limitations to this study. Notably, the context of a state boys' school is

socio-culturally different to a co-educational school. This means that, even for boys in co-educational settings where there are similarities in terms of socio-economic status and racial-ethnic composition, not all the findings may be applicable. A feature of this study was that it seemed a large majority of parents were well-educated and capable of, and active in assisting their children in a variety of academic domains. In other schools where parents do not have similar levels of education and expertise, some of the findings may not be particularly relevant.

Furthermore, a significant proportion of students attending this school have come from outside of the school's zone. Although the in-zone students have priority for enrolment, many out-of-zone students are balloted to attend the school. For all of these students, they are able to enrol at the school because the parents or students themselves have chosen it as their school of preference thus allowing for considerable selection bias. It may therefore be difficult to apply some of the findings of this study to school situations where academically talented students have no choice but to attend their local high school, whether or not it values high academic achievement.

A further limitation of the study is that it focused on the top six to seven per cent of Year 9 students at a school with respect to overall academics. This meant that, for example, a student whose only academic exceptionality was mathematics, would have been excluded from the research sample. Moreover, the data would have limited applicability to secondary schooling

in general because only Year 9 students were part of the study. Further follow up is currently being undertaken by the author to address this limitation.

Conclusion

This study has produced important findings that could support policy makers, educators, and families to improve provision for academically talented boys. It is hoped that these findings motivate the various stakeholders in the education of academically talented boys to: (a) investigate the extent to which they are being provided with the challenge and nurture they need, (b) promote the use of the Equity and Excellence Model as a diagnostic tool, as a guide for appropriate school and classroom provision, and as a framework for future research, (c) consider the extent to which high but reasonable expectations are communicated, (d) support home environments to encourage achievement, and (e) ensure that academically talented boys are able to access both the human and material resources they need to optimise their achievement.

References

- Assouline, S. G., Colangelo, N., VanTassel-Baska, J. (2015). *A nation empowered: Evidence trumps the excuses holding back America's brightest students, Volume 1*. Iowa City, Iowa: University of Iowa.
- Bevan-Brown, J. M. (2011). Gifted and talented Māori learners. In R. Moltzen (Ed.), *Gifted and talented: New Zealand perspectives* (3rd ed., pp. 82-110). Auckland, New Zealand: Pearson.
- Biddulph, F., Biddulph, J., & Biddulph, C. (2003). *The complexity of community and family influences on children's achievement in New Zealand: Best evidence synthesis*. Wellington, New Zealand: Ministry of Education.
- Borland, J. H., Schnur, R., and Wright, L. (2000). Economically disadvantaged students in a school for the academically gifted: a postpositivist inquiry into individual and family adjustment. *Gifted Child Quarterly*, 44(1), 13-32.
<https://doi.org/10.1177/001698620004400103>
- Carpenter, D. M. II. (2008). Expectations, aspirations, and achievement among Latino students of immigrant families. *Marriage and Family Review*, 43(1-2), 164-185.
<https://doi.org/10.1080/01494920802013078>
- Chalwell, K., & Cumming, T. M. (2019). Radical subject acceleration for gifted students: One school's response. *Australasian Journal of Gifted Education*, 28(2), 29-46.
<https://doi.org/10.21505/ajge.2019.0014>
- Clark, B. (2008). *Growing up gifted* (7th ed.). Upper Saddle River, NJ: Pearson.
- Colangelo, N., Assouline, S. G., Gross, M. U. M. (2004). *A nation deceived: How schools hold back America's brightest students, Volume 1*. Iowa City, Iowa: University of Iowa.
- Coleman, L. J. & Cross, T. L. (2001). *Being gifted in school: An introduction to development, guidance and teaching*. Waco, TX: Prufrock Press.
- Croft, L. J. (2003). Teachers of the gifted: Gifted teachers. In N. Colangelo & G. A. Davis, (Eds.), *Handbook of gifted education* (3rd ed., pp. 558-571) Boston, MA: Pearson Education, Inc.
- Cross, T. L. (2004). Technology and the unseen world of gifted students. *Gifted Child Today*, 27(4), 14-63.
<https://doi.org/10.4219/gct-2004-153>
- Csikszentmihayi, M., Rathunde, K. & Whalen, S. (1993) *Talented teenagers: The roots of success and failure*. Cambridge: Cambridge University Press.
- Delisle: J. R. (2014) *Dumbing down America: The war on our nation's young minds (and what we can do to fight back)*. Waco, Texas: Prufrock Press Inc.
- Duff, J. (2020). Provisions for gifted and talented students in Queensland rural and remote high schools. *Australasian Journal of Gifted Education*, 29(2), 5-16.
<https://doi.org/10.21505/ajge.2020.0012>
- Education Review Office, (1998). *Working with children with special abilities*. Wellington, New Zealand: Education Review Office.
- Education Review Office, (2008). *Schools' provision for gifted and talented students*. Wellington, New Zealand: Education Review Office.
- Fiedler, E. D., Lange, R. E., & Winebrenner, S. (2002). In search of reality: Unraveling the myths about tracking, ability grouping, and the gifted. *Roeper Review* 24(3), 108-111.
<https://doi.org/10.1080/02783190209554142>
- Ford, D. (2011). *Multicultural gifted education* (2nd ed.). Waco, TX: Prufrock Press Inc.
- Freeman, J. (2000). Families: The essential context for gifts and talents. In K. A. Heller, F. J. Mönks, R. J. Sternberg, & R. F. Subotnik (Eds.), *International handbook of giftedness and talent* (2nd ed., pp. 573-585). Oxford, United Kingdom: Elsevier Science Ltd.
- Gagné, F. (2008). Building gifts into talents: Overview of the DMGT. Retrieved from www.templetonfellows.org/program/FrançoysGagné.pdf
- Gagné, F. (2010). Motivation within the DMGT 2.0 framework. *High Ability Studies*, 21(2), 81-99.

- <https://doi.org/10.1080/13598139.2010.525341>
- Gagné, F. (2015). Academic talent development programs: A best practices model. *Asia Pacific Education Review*, 16, 281-295. <https://doi.org/10.1007/s12564-015-9366-9>
- Hately, S., & Townend, G. (2020). A qualitative meta-analysis of research into the underachievement of gifted boys. *Australasian Journal of Gifted Education*, 29(1), 6-22. <https://doi.org/10.21505/ajge.2020.0002>
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Hébert, T. P. (2011). *Understanding the social and emotional lives of gifted students*. Waco, TX: Prufrock Press.
- Hogan, M. J. (2009). *The importance of emotional intelligence and social support for the academic success of adolescents with and without learning disabilities*. Unpublished Doctor of Philosophy thesis, University of Toronto, Toronto, Canada.
- Kerr, B. A., & Cohn, S. KJ. (2001). *Smart boys: Talent, manhood and the search for meaning*. Scottsdale, AZ: Great Potential Press, Inc.
- Lee, J. B. L., Olszewski-Kubilius, P., & Peternel, G. (2010). Achievement after participation in a preparatory program for verbally talented students. *Roeper Review*, 32(3), 150-163. <https://doi.org/10.1080/02783193.2010.485301>
- Little, C. A. (2012). Curriculum as motivation for gifted students. *Psychology in the Schools*, 49(7), 695-705. <https://doi.org/10.1002/pits.21621>
- Macfarlane, A. H., Webber, M., Cookson-Cox, C, & McRae, H. (2014). *Ka Awatea: An iwi study of Māori students' success*. Rotorua, New Zealand: Ngā Pae o te Maramatanga.
- Martin, T. (2019). New support package for gifted learners. *Press release, Thursday 27 February 2019*. Retrieved from <https://www.beehive.govt.nz/release/new-support-package-gifted-learners>
- Miller, G. (2011). Gifted boys: Challenges and solutions in developing personal identity. In R. Moltzen (Ed.), *Gifted and talented: New Zealand perspectives* (3rd ed., pp. 358-378). Auckland, New Zealand: Pearson New Zealand Ltd.
- Miller, G. (2015). *Academic success amongst a cohort of gifted and talented Māori and Pasifika secondary school boys: Elements that have contributed to their achievement*. Unpublished Doctor of Philosophy thesis, University of Waikato, Hamilton, New Zealand.
- Ministry of Education. (2000). *Gifted and talented students: Meeting their needs in New Zealand schools*. Wellington, New Zealand: Ministry of Education.
- Ministry of Education. (2004). *Gifted and talented education in New Zealand schools*. Wellington, New Zealand: Ministry of Education.
- Moltzen, R. (2011). Historical perspectives. In R. Moltzen (Ed.), *Gifted and talented: New Zealand perspectives* (3rd ed., pp. 1-30). Auckland, New Zealand: Pearson.
- New Zealand Qualifications Authority (2019). *Annual report NCEA, University Entrance and NZ Scholarship data and statistics (2018) June 2019*. Wellington New Zealand: NZQA.
- Olszewski-Kubilius, P. (2008). The role of family in talent development. In S. I. Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research and best practices* (pp. 53-70), New York: Springer Science + Business Media.
- Parkyn, G. W. (1948). *Children of high intelligence: A New Zealand study*. Wellington, New Zealand: New Zealand Council for Educational Research.
- Reichert, M., & Hawley, R. (2010). Reaching boys: An international study of effective practices. *Phi Delta Kappan*, 91(4), 35-40. <https://doi.org/10.1177/003172171009100408>
- Reis, S. M., Colbert, R. D. & Hébert, T. P. (2005). Understanding resilience in diverse, talented students in an urban high school. *Roeper Review*, 27(2), 110-120. <https://doi.org/10.1080/02783190509554299>
- Rogers, K. B. (1998). Using current research to make "good" decisions about grouping. *National Association of Secondary School Principals NASSP Bulletin*, 82(585), 38-46.
- Rogers, K. B. (2007). Lessons learned about educating the gifted and talented: A synthesis of the research on educational practice. *Gifted Child Quarterly*, 51(4), 382-396. <https://doi.org/10.1177/0016986207306324>
- Rogers, K. B. (2015). The academic, socialization, and psychological, effects of acceleration: Research synthesis. In S. G. Assouline, N. Colangelo, J. VanTassel-Baska & A. Lukowski-Shoplik (Eds.), *A nation empowered: Evidence trumps the excuses holding back America's brightest students*. (Vol. 2., pp. 19-30). Iowa City, United States: Belin-Blank Center, College of Education, University of Iowa.
- Sax, L. (2016) *Boys adrift: The five factors driving the growing epidemic of unmotivated boys and underachieving young men*. (Revised and updated ed.). New York: Basic Books.

- Siegle, D. (2005). *Using media and technology with gifted learners*. Waco, TX: Prufrock Press Inc.
- Stats NZ. (2018). *2018 Census*. Retrieved from stats.govt.nz.
- VanTassel-Baska, J., & Johnsen, S. K. (2015). Content acceleration: The critical pathway for adapting the common core state standards for gifted students. In S. G. Assouline, N. Colangelo, J. VanTassel-Baska & A. Lukowski-Shoplak (Eds.), *A nation empowered: Evidence trumps the excuses holding back America's brightest students*. (Vol. 2., pp. 99-110). Iowa City, United States: Belin-Blank Center, College of Education, University of Iowa.
- Vialle, W. J. & Tischler, K. (2009). Gifted students' perceptions of the characteristics of effective teachers. In D. Wood (Ed.), *The gifted challenge: Challenging the gifted* (pp. 115-124). Merrylands, Australia: NSWAGTC Inc.
- Wang, Y., & Benner, A. D. (2014). Parent-child discrepancies in educational expectations: Differential effects of actual versus perceived discrepancies. *Child Development, 85*(3), 891-900. <https://doi.org/10.1111/cdev.12171>
- Zhang, Y., Haddad, E., Torres, B., & Chen, C. (2011). The reciprocal relationships among parents' expectations, adolescents' expectations, and adolescents' achievement: A tw-wave longitudinal analysis of the NELS data. *Journal of Youth and Adolescence, 40*(2011), 479-489. <https://doi.org/10.1007/s10964-010-9568-8>

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