Teachers and Twice-exceptional Students in New Zealand:

The Search for a Teacher Who "Gets It"

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Abstract

Students who are gifted while also having a learning disability are a vulnerable population whose schooling experiences are often negative, with a risk of underachievement. These twice-exceptional students are a challenge to teachers and to our educational systems because of the apparent contradiction their exceptionalities present. Teachers and schools have a responsibility to provide for these students appropriately, but there has been a lack of training for teachers in identifying and providing for these students. This mixed-methods study examined teacher attitudes and knowledge about twice-exceptional students, and explored teachers' experiences with these under-served students. The results suggest that teachers who have responsibility for gifted students and those who have responsibility for learning disabled students display attitudes and understandings that indicate they likely make appropriate provisions for twice-exceptional students in their classrooms. These teachers were also more likely than other teachers in the study to consider that an underachieving or learning disabled student could be gifted. This suggests that teachers with responsibility for gifted students or for learning disabled students may be a source of knowledge about twice-exceptional students that school communities can benefit from. Given the potential these students represent, any efforts to educate teachers in meeting their needs should be prioritised.

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Chapter 1: Introduction

The term ‘twice-exceptional’ refers to students who are gifted, while concurrently having any form of disability. The term is a relatively new addition to educational terminology (Assouline & Whiteman, 2011). Other terms also used to describe this population are *dual-labelled, gifted/learning disabled* and the informal shorthand for twice-exceptional “*2e*.” Compound terms are often used when referring to specific disabilities (e.g., *gifted/attention deficit disorder* (ADD), *gifted/autistic spectrum disorder* [ASD]). Consistent empirical evidence has confirmed that a gifted student can have a co-existing disability (Foley Nicpon, Allmon, Sieck & Stinson, 2011).

This research will use, as its foundational understanding, the definition proposed by a recent National Twice-Exceptional Community of Practice in the United States. This states that twice-exceptional students demonstrate potential for high achievement and manifest one or more disabilities. It describes these students as presenting a unique set of circumstances to educators and makes explicit their need for methods of identification that consider how their exceptionalities interact and possibly mask each other (Foley-Nicpon, 2015).

Twice-exceptional students are a vulnerable population. The emotional effect of their asynchrony is heightened by hypersensitivity and self-criticism (Dole, 2000; Coleman, 2001; Neihart, 2008; Vespi & Yewchuk, 1992). Their schooling experiences are often negative (Barber & Mueller, 2011; Baum, Cooper & Neu, 2001; Foley Nicpon, Doobay, & Assouline, 2010; Reis, Baum, & Burke, 2014 Reis, Neu, & McGuire, 1997) and, owing to the masking effect of their contradictory dualities, they are frequently misdiagnosed (Assouline, Foley-Nicpon, 2015; Foley Nicpon, & Whiteman, 2010; Reis et al., 2014; Silverman, 2009). Specifically, they are often overlooked for gifted and talented programming (Brody & Mills, 1997). This puts them at risk of underachievement (Assouline et al., 2010; Sturgess, 2011).

Teachers play a vital role in the lives of these exceptional students, especially in the case of those who may not be receiving appropriate support at home (Barber & Mueller, 2011; Dare & Nowicki, 2015; Spiers Neumeister et al., 2013). Unfortunately, recent empirical research has shown that teachers in general have a lack of understanding about twice-exceptional students (Foley-Nicpon, Assouline, & Colangelo, 2013; Wormald, 2011). Some teachers hold negative attitudes towards students with disabilities, and are less likely to refer a student for gifted programming if a disability label is present (Bianco & Leech, 2010; Minner, 1990). Teachers have been shown to be more likely to refer for gifted programming those students who conform to their expectations of gifted students (Bianco & Leech, 2010).

Over the last ten years, New Zealand schools have improved their provision of services for gifted students (Riley & Bicknell, 2013). However, when looking at the definitions of giftedness used by schools in the 2013 study, only 11 out of 225 schools' definitions mentioned the possibility that a student could have multiple exceptionalities (Riley, personal communication, September 3, 2016). Moreover, only one of those 11 specifically used the term twice-exceptional. Little if any empirical research has been published from a New Zealand context. What literature does exist is in agreement; on the whole twice-exceptional students in New Zealand are neither identified nor catered for adequately (Chapman & Tunmer, 2000; Ng, Hill & Rawlinson, 2016; Sturgess, 2011), highlighting the importance of further research in this area.

This study is a mixed-methods study which explored the attitudes of primary and secondary teachers towards twice-exceptional students and the ways in which they were identifying and providing for them in the classroom. An attitudinal survey with 31 items uncovering teachers' attitudes towards various strategies appropriate for gifted and learning disabled students was used, as well as six open-ended qualitative questions to provide depth.

For a relatively new area of research, a mixed-methods design was deemed appropriate to provide cohesion and to allow for both a breadth and depth of data.

The structure of this dissertation is in five sections. Chapter 2 covers the literature relevant to this study, with a special focus on pertinent New Zealand literature. Chapter 3 describes and explains the rationale for the methodology of the study and discusses the ethical considerations. Chapter 4 presents the quantitative and qualitative results, and Chapter 5 addresses the study's key research questions in discussion with these results and the key literature.

Chapter 2: Literature Review

Overview

The development of twice-exceptional research in the United States spans about 40 years (Leggett, Sheah, & Wilson, 2010). However, there is at present little empirical research on twice-exceptional students within the New Zealand context. Indeed, limited awareness exists amongst New Zealand educators regarding the needs of twice-exceptional students (Sturgess, 2011). Both gifted and special needs students have been explicitly referred to in the New Zealand Ministry of Education's National Administration Guidelines since 2005, but they are treated as discrete groups. Moreover, it is the responsibility of each school to develop its own understanding and definition of giftedness (Russell & Riley, 2011). Whether schools officially identify and provide for twice-exceptional students is entirely up to the teachers with responsibility for gifted programming in each school. It is therefore not surprising that twice-exceptional students in New Zealand are rarely identified or catered for adequately (Chapman & Tunmer, 2000; Ng et al., 2016; Sturgess, 2011). Given the potential that these gifted students represent, the cost of their underachievement to society and to their own wellbeing is significant (Moltzen, 2011).

While the understanding of twice-exceptionality is in its fledgling stages in New Zealand, the last decade has shown improvements in the identification of and provision for gifted students in New Zealand schools. The number of schools which have developed policies regarding gifted students has increased (Riley & Bicknell, 2013). Riley and Bicknell surveyed 327 primary and secondary schools in New Zealand, and found that 56% of the sample could provide evidence of a definition of giftedness, and 59% reported specific gifted and talented policies, compared with 28% in a previous iteration of the study that was conducted in 2004. However, when looking at the definitions of giftedness used by schools in the 2013 study, only 11 out of 225 schools' definitions mentioned the possibility that a

student could have multiple exceptionalities. Moreover, only one of those 11 specifically used the term twice-exceptional (Riley, personal communication, September 3, 2016). Riley and Bicknell report that there still remains some confusion in schools between definitions, characteristics and identification practices for gifted students. These areas have the most cross-over when it comes to provision for twice-exceptional students - definitions of giftedness need to be broad enough to include those who also have disabilities, and identification practices need to be mindful of the potential of the masking effect of twice-exceptional students' conflicting dualities. If schools are not confident in identifying and meeting the needs of gifted students *without* disabilities, then they are unlikely to be confident when it comes to meeting the needs of gifted students *with* disabilities.

Most of the twice-exceptional literature suggests that a broad definition of giftedness (Gagné, 2004; Renzulli, 1984; Silverman, 2009) facilitates diagnosis as it allows for identification of potential rather than resting solely on performance indicators, given that the conflicting nature of the twice-exceptional profile means that the learning disability often masks the giftedness (Assouline et al., 2010; Reis et al., 2014; Silverman, 2009). An understanding of intelligence as domain-specific and multi-faceted, allowing for high ability in one area without correspondingly high ability in other areas (Gardner, 1983), also supports diagnosis. This view of giftedness is endorsed by the Ministry of Education. In the 2012 version of their publication *Gifted and Talented Students: Supporting Their Needs in New Zealand Schools*, they charge schools with developing a multi-categorical, bicultural and multicultural definition of giftedness that recognises both performance and potential. Riley et al. (2004) also support a dynamic and context-sensitive concept of giftedness. They found that multi-categorical concepts of giftedness appear to be affirmed by New Zealand educators. Most other New Zealand literature in the field also supports similarly multi-faceted, inclusive and egalitarian understandings of giftedness (e.g., Bourne, 2013; Moltzen,

2004; Ng et al., 2016; Riley & Bicknell, 2013; Tapper, 2012; Tapper & Abbiss, 2015). In theory, this inclusive conceptualisation of giftedness (Tapper, 2012) bodes well for future developments in schools' understanding, identification and provision for twice-exceptional students. Those within each school who have responsibility for gifted students are in a strong position to advocate for twice-exceptional students.

While there is much that New Zealand can learn from the twice-exceptional research conducted in the United States, there remain empirical gaps (Foley-Nicpon et al., 2011) and the identification systems and policies, and provision of services for these students, remain inconsistent across states. Moreover, questions around the efficacy of efforts to meet the needs of twice-exceptional students in the US abound (Foley-Nicpon, 2015). Important legislation enacted in the United States in 1975 on behalf of disabled children was not updated to include the possibility that students with disabilities might also be gifted until 2004 (Leggett et al., 2010). In 1985, Whitmore and Maker declared twice-exceptional students "the most misjudged, misunderstood and neglected segment of the student population" (p. 204), expressing concern that they may not reach their potential because of their restricted access to resources and opportunities. While a small number of researchers has continued to explore twice-exceptionality, on the whole, giftedness and disability have continued to be treated as separate in the literature (Lupart & Pryt, 1996). In the last decade, significant steps forward have been made, with the field's first comprehensive empirical review made in 2011 (Foley Nicpon et al.), and an operational definition offered by Reis et al., in 2014, which went on to inform the already mentioned National Twice-Exceptional Community of Practice (CoP) definition (Coleman & Roberts, 2015). However, in a 2015 special issue of *Gifted Child Today*, Foley-Nicpon describes twice-exceptional students in the same way Whitmore and Maker did in 1985; as "one of the most misunderstood populations

in today's educational system" (Foley-Nicpon, 2015, p. 249). This shows there is much room for improvement.

Teacher attitudes and understanding play a huge part in the adequate provision of services and support for twice-exceptional students. Many twice-exceptional students remain poorly understood and under-served because some teachers find it difficult to accept that academic potential can exist without accompanying performance (Brody & Mills, 1997; Reis et al., 2014). Moreover, narrow and unsupportive views of giftedness, such as resistance to acceleration and ability grouping, and an unwillingness to treat gifted students differently in the classroom for fears of elitism, are still held by some teachers. Similarly, narrow views of disability such as an unwillingness to consider that learning disabled students may also be gifted, are held by some teachers (Bianco & Leech, 2010; Troxclair, 2013).

The twice-exceptional student presents a conundrum to teachers and to our education system. Their potential is considerable, yet this potential often goes unseen or unrealised since their disabilities may mask their high abilities; or conversely, their abilities may partially compensate for their disabilities so that they perform averagely when compared to their peers (Brody & Mills, 1997; Morrison & Rizza, 2007; Neihart, 2008; Silverman, 2009). These students usually fall into three categories: those who are identified as gifted but whose learning disability is not recognised, those who are achieving at an expected level for their age and for whom neither their giftedness nor their disability is identified, and those whose learning disability is recognised but their giftedness is not (Baum, 1990). The responsibility of classroom teachers to understand, identify, and provide for this vulnerable population is therefore enormous - and indeed, a tall order given the lack of training and professional development that has historically been offered in this area (Bianco, 2005; Bianco & Leech, 2010; Karnes & Shaunessy, 2004; Townend & Pendergast, 2015; Wormald, 2011).

An impediment to both research and practice has been the lack of consensus on the definition of the terms *giftedness* and *disability* (Ronksley-Pavia, 2015). It is hoped that the definition recently provided by the Twice-Exceptional CoP will bring some consensus to the field, however it does not define these terms any further than stating that a twice-exceptional student demonstrates exceptional ability and disability (Foley-Nicpon, 2015). Both the terms *giftedness* and *disability* have been used inconsistently and, particularly in regard to *disability,* contradictorily within the literature (Foley Nicpon et al., 2011; Ronksley-Pavia, 2015). This inconsistency further complicates attempts to develop an understanding of twice-exceptionality. Further, much of the twice-exceptional literature focuses narrowly on learning disabilities rather than using the term *disability* to refer to a broad range of disabilities (Nielsen & Higgins, 2005; Ronksley-Pavia, 2015; Silverman, 2013), although Ronskley-Pavia notes that Foley-Nicpon et al. (2013), whose empirical study includes emotional and behavioural disabilities alongside specific learning disabilities, are an exception. This narrowness has hindered research in the area (Foley Nicpon et al., 2011; Ronskley-Pavia, 2015) resulting in significant gaps.

Inadequate definitions of twice-exceptionality hinder educators' response to twice-exceptional students' distinctive needs (Ronksley-Pavia, 2015). A twice-exceptional student is multi-faceted (Ronksley-Pavia, 2015) and their exceptionalities intersect in unique ways (Assouline et al., 2010; Dole, 2000; Reis et al., 2014), therefore a sound understanding of the student's specific disability is vital. Studies focused on specific populations within twice-exceptionality exist within the literature. The most frequently diagnosed disabilities are correspondingly the most studied: specific learning disabilities (e.g., Assouline et al., 2010; Barber & Mueller, 2011; Barton & Starnes, 1989; Wormald, Vialle, & Rogers, 2014), ADD (e.g., Foley-Nicpon, Rickels, Assouline, & Richards, 2012; Fugate & Gentry, 2015; Kaufmann, Kalbfleisch, & Castellanos, 2000) and ASD (e.g., Assouline, Foley Nicpon,

Dockery, 2012; Cash, 1999; Foley Nicpon et al., 2010; Rubenstein, Schelling, Wilczynski, & Hooks, 2015), are covered in some detail. However, teachers need a broad understanding of the ways in which various disabilities intersect with giftedness. While some authors disagree that learning disabilities have a neurological or genetic basis (Chapman & Tunmer, 2005) teachers should nonetheless be made aware of the growing research at the nexus of specific disabilities and neuroscience (e.g., Bireley, Languis & Williamson, 1992; Budding & Chidekel, 2012; Dichter & Belger, 2007; Foley-Nicpon et al., 2011; Gilger & Hynd, 2008; Kalbfleisch & Iguchi, 2008) so that their knowledge about learning disabilities has some scientific grounding.

The lack of consensus in the field relates not only to the semantic conflicts regarding the definition of the term twice-exceptionality and its composite concepts *giftedness* and *disability,* but also to the incidence of twice-exceptionality. There are a small number of researchers who question the existence of twice-exceptionality itself and strong criticism has been levelled at what some see as an over-dependence on IQ discrepancy as a method of identification (Lovett & Lewandowski, 2006; Lovett & Sparks, 2011; Neihart, 2008; Vaughn, 1989). Lovett (2013) has suggested that the gifted/learning-disabled category is a category of convenience that allows high-achieving parents whose children do not meet their expectations to gain access to labels that will allow the family to maintain their social status and also unlock maximum educational services for their children. While this may seem a fringe view, it is a vivid example of the varied perspectives in the field.

Researchers have also challenged an essentialist view of giftedness, a view which sees giftedness as fixed and genetically endowed (Tapper, 2012) as opposed to developmental and dynamic (Lovett, 2013; Tapper, 2012). This is a distinction that is relevant to New Zealand conceptions of giftedness (Tapper, 2012), particularly because schools have been mandated by the Ministry of Education (2012) to develop a broad and culturally sensitive definition of

giftedness. Society's stereotypical notions about giftedness (such as resistance to acceleration and resistance to differentiation out of fear that it may encourage elitism) still hold power, even amongst educators (Bianco & Leech, 2010; Troxclair, 2013). Additionally, negative suppositions have been found to underlie perceptions of students with disabilities (Singh & Ghai, 2009). Moreover, concerns over the field's lack of engagement with race, class, culture and gender (Valle, 2011) are also valid more broadly. Notions of giftedness and disability must consider the social and cultural milieu out of which they spring (Bevan-Brown, 2005, 2012; Freeman, 2005; Ronksley-Pavia, 2015; Tapper, 2012), and any research must consider and respect the experiences of twice-exceptional students as individuals situated in unique social and cultural contexts (Ronskely-Pavia, 2015; Tapper, 2012). These are all issues that are important to consider when undertaking twice-exceptional research, and they are particularly relevant to New Zealand's bicultural and multicultural context.

Points of Agreement - Identification and Strategies

While there remain areas of contention, the literature does show agreement on some key issues. Most practitioners recommend flexible, comprehensive and multi-faceted assessment strategies for identification of twice-exceptional students (e.g., Assouline et al., 2010; Baum, Schader & Hébert, 2014; Brody & Mills, 1997; Coleman & Gallagher, 2015; Foley Nicpon et al., 2011; Foley-Nicpon et al., 2013;Krochak & Ryan, 2007; McCoach, Kehle, Bray, & Siegle, 2001; Mee Bell, Taylor, McCallum, Coles, & Hays, 2015; Morrison & Rizza, 2007; Munro, 2002; Nielsen, 2002; Shevitz, Weinfeld, Jeweler, & Barnes-Robinson, 2003). A team approach to providing programming and remediation for twice-exceptional students is also frequently recommended (Baldwin, Omdal, & Pereles, 2015; Coleman & Gallagher, 2015; Foley-Nicpon & Assouline, 2015; Foley-Nicpon et al., 2013; Nielsen, 2002; O'Brien, 2014; Reis & Ruban, 2005; Reis et al., 2014). This team approach enables twice-exceptional students to access both gifted and special education services. Early

identification is stressed (Barnard-Brak, Johnsen, Pond Hannig, & Wei, 2015; Dole 2000; McCoach et al., 2001; Neihart, 2008; Reis et al., 2014; Shevitz et al., 2003; Townend et al., 2014).

Also highlighted are programmes and teaching strategies which focus firstly on the student's giftedness rather than their disability. The rejection of a deficit-based stance towards twice-exceptionality is almost unanimous - instead it is argued that talent development should be the focus (Baum & Owen, 2004; Foley Nicpon et al., 2011; McCoach et al., 2001; Neihart, 2008; Nielsen, 2002; Reis et al., 2014; Wen Wang & Neihart, 2015 Winebrenner, 2003). Content should be presented to students at the level of their cognitive ability, rather than at their skill level (Barton & Starnes, 1989), and the goal of any remediation must be independence, rather than dependence (Weinfeld, Barnes-Robinson, Jeweler & Shevitz, 2005). Differentiation, ability grouping, and curriculum compacting are strategies recommended for twice-exceptional students (Winebrenner, 2003); and acceleration may also be appropriate (Wardman, 2009). Some of these strategies directly challenge retrograde classroom practices which have remained entrenched in some schools, and highlight weaknesses in national-level policy and assessment practice in New Zealand. If we are going to move forward in our recognition and support for twice-exceptional students, shifts at a national, school and classroom level will be necessary.

Are Twice-Exceptional Students at Risk?

The risk and resilience literature has moved from a focus on risk factors towards resilience or protective factors, and an understanding of resilience as a complex process resulting from the interactions between risk and protective factors (Ballam, 2013; Dole, 2000; Masten, 2007). Resilience is developed as a response to difficult life events or personal vulnerabilities, therefore, the context that creates the risk may act as the mechanism which

compels the individual to overcome their challenges, particularly if there is a protective factor present (Luthar, Sawyer & Brown, 2006).

However, there is disagreement in the literature as to whether giftedness provides a protective factor or not. High levels of cognitive functioning have been identified as a protective factor (Masten & Coatsworth, 1998), but Luthar (1991) found that high intelligence can also work as a vulnerability factor. Most relevant to twice-exceptional students, Pfeiffer and Stocking (2000) identify uneven or asynchronous development as a risk factor because it can cause the student to feel very different or "out of place" from his or her peer group (Morelock, 1992, in Pfeiffer & Stocking, 2000).

Many researchers identify twice-exceptional students as at-risk students (Dole, 2000; Robinson, 1999) because their schooling is so often negative. These negative experiences include social problems, conflict with teachers, and academic frustration (Barber & Mueller, 2011; Baum et al., 2001; Foley Nicpon et al., 2010; Reis et al., 1997; Reis et al., 2014). Owing to the masking effect of their dual exceptionalities, they are frequently misdiagnosed. Either their giftedness allows them to compensate (often at great cost), so that the disability is rendered invisible, or the disability masks their giftedness and they appear to perform only passably (Assouline et al., 2010; Reis et al., 2014; Silverman 2009). This means that twice-exceptional students are often overlooked for selection for gifted and talented programming, especially if they are performing at a level commensurate with their age (Brody & Mills, 1997). Given that talent development has been identified as the most crucial aspect of provision for twice-exceptional students (Baum & Owen, 2004; McCoach et al., 2001; Neihart, 2008; Reis et al., 2014), this makes them vulnerable to underachievement (Sturgess, 2011), a situation which is best described as a failure to thrive (Assouline et al., 2010; Sturgess, 2011).

The propensity for underachievement amongst twice-exceptional students is compounded by the psychosocial issues they face. Many of these students have difficulty accepting their contradicting characteristics and live with anxiety (Reis et al., 2014). They experience their dualities as a profound discrepancy. They function in the space between what they *feel* able to do and *are currently* able to do (Brody & Mills, 1997; Mills & Brody, 1999). This is an emotional effect of the asynchrony that Silverman (2009) has identified as exaggerated in twice-exceptional students. Social-emotional characteristics common within this group are hypersensitivity, emotional liability, and high levels of frustration and self-criticism (Coleman, 2001; Dole, 2000; Neihart, 2008; Vespi & Yewchuk, 1992). A powerful fear of failure can result from the student's high expectations and low achievement (Vespi & Yewchuk, 1992), leading to task avoidance. These students confound their teachers and parents because of the seeming contradiction of their exceptionalities, and are often accused of laziness (Assouline et al., 2010; Sturgess, 2011). Socially, they can feel isolated and have difficulties finding true peers (Nielsen, 2002; Townend et al., 2014).

The literature suggests that twice-exceptional students typically have lower self-concept than their peers who are gifted without learning disability (Assouline et al., 2010; Baum & Owen, 1988; Dole, 2001; Schiff, Kaufman & Kaufman, 1981; Townend et al., 2014; Wen Wang & Neihart, 2015). Twice-exceptional students are more likely to experience repeated failure at school (Baum & Owen 1988) and this tendency often causes them to lose confidence (Baum et al., 2001). Confusion about their dualities may contribute to misattributions, feelings of helplessness and a general lack of motivation (Baum & Owen 1988; Schiff et al., 1981; Townend et al., 2014). Sturgess (2011) describes a "failure cycle" (p. 395) which begins with lack of achievement, is compounded by decreased self-esteem, which in turn results in less exposure to learning opportunities, more failure, and even lower self-esteem. This cycle explains the externalising behaviours that can occur in the classroom

such as defiance, aggression and hyperactivity (Barber & Mueller, 2011; Neihart, 2008; Nicpon et al., 2010; Reis et al., 1997; Sturgess, 2011; Townend et al., 2014). The potential that self-concept has to direct the experiences of twice-exceptional students cannot be underestimated.

Twice-exceptional students face a "double-edged sword" (Townend et al., 2014, p. 78) as they possess the low self-concept of both the gifted and the learning disabled. In other words, they are doubly vulnerable (Baum & Owen, 1988; Robinson, 1999). It is relevant to consider what factors could increase resilience in this population. Dole (2000) reviews the risk and resilience literature and considers its implications for twice-exceptional students. Several protective factors are identified, including early identification of the student's strengths and deficits, and parental and teacher support. Teacher support is particularly important where a student may not be receiving appropriate support at home (Barber & Mueller, 2011). Additionally, early identification of both exceptionalities is highlighted as it encourages self-knowledge, a characteristic of resilient individuals (Dole, 2000).

Teachers and Twice-Exceptional Students

To be able to provide the support that twice-exceptional students need, teachers need an understanding of the characteristics of these students. Foley-Nicpon et al. (2013) found that teachers' knowledge and experience with twice-exceptional students is generally limited, although they did find that teachers with responsibility for gifted students have typically had more experience with twice-exceptional students than regular classroom teachers. Wormald (2011) studied teachers in Australia to discover what they knew about gifted students with learning disabilities and found substantial confusion amongst teachers. The data showed that teachers had knowledge of gifted education and yet lacked confidence in identifying gifted students and providing for them. The data also showed a lack of understanding about the characteristics and needs of students who are gifted and have a learning disability. Wormald

found that teachers felt unable to identify these students not because of any unwillingness on their part, but because they were lacking the ability, knowledge and support to do so.

However, Wormald states that some teachers did not feel it was their responsibility to meet the needs of students with learning disabilities due to an inability to identify specific learning needs they would cater to and the specific strategies they would use. Other research has also shown a general lack of teacher understanding and knowledge about giftedness and disability (Boodoo, Bradley, Frontera, Pitts, & Brown Wright, 1989; Foley-Nicpon et al., 2013; Minner, 1990; Wormald et al., 2014). This research indicates that teachers' provision for the needs of students who are gifted and have a learning disability may be lacking on account of insufficient training in learning disabilities.

In addition, teacher attitudes have been shown to play a key role in the experience of gifted and learning disabled students in the classroom. Bianco and Leech (2010) report that when a disability label is present the teachers trained in gifted education are more likely to refer the student for gifted programming, while teachers with special education training are less likely. Moreover, Bianco and Leech (2010) found that teachers rated compliant behaviours over performance on academic tasks as being critical for school success, and concluded that stereotypic expectations such as these were an obstacle to identification of twice-exceptional students. They found that teachers typically refer students who conform to their expectations of gifted students. Minner (1990) also found that a learning disability label resulted in fewer gifted referrals. Davis and Rimm (2004) concluded that teacher referral was an unreliable method of identification of giftedness. These studies confirm that teacher expectations can be a barrier to gifted referrals. This is concerning for twice-exceptional students who, owing to the masking effect of their dualities, may not present as typical gifted students (Assouline et al., 2010; Reis et al., 2014; Silverman 2009). Teachers need more

training about the characteristics of twice-exceptional students and need to be aware of how their own attitudes and biases influence the way they perceive students.

In New Zealand, Needham (2012) studied primary teachers' perceptions of the socio-emotional characteristics of gifted children. She found that while teachers had positive attitudes towards them, the teachers were aware of their own lack of understanding about the needs of gifted children. The teachers studied expressed frustration at barriers such as lack of knowledge, lack of professional development, lack of time, and school pressure to focus on other students. Also in New Zealand, Rawlinson (2005) studied a programme based on Renzulli's enrichment triad model, looking at the link between self-concept, self-efficacy and giftedness. All students in the programme showed increased academic self-concept. An interesting by-product of the programme was that it resulted in a greater number of gifted referrals by the teachers involved, showing that teacher awareness can be increased by involvement in quality programming.

Although previous research clearly shows there is much work to be done to increase teacher knowledge about giftedness and disability, there is cause to be hopeful. Lewis and Milton (2005) found training created strong positive changes to teacher attitudes. Both Wormald (2011) and Needham (2012) found that teachers were aware of their lack of knowledge, and in Needham's study in particular were frustrated by this. Research therefore indicates that teacher awareness can be increased.

Research Aims

The aim of this study is to investigate New Zealand teachers' knowledge and attitudes towards twice-exceptional students, specifically, gifted students with learning disabilities. While it is important to have a broad understanding of the disability component of twice-exceptionality, given that there is little empirical literature in the field published from a New Zealand context, the defined focus chosen is appropriate as a preliminary study. The current

study seeks to uncover and describe teacher awareness and knowledge of these students, and their attitudes towards them. It investigates the strategies used by teachers to identify twice-exceptional students in their classrooms. Recommendations for professional development for teachers will be made so that these students can be better identified and provided for. In light of these aims, the following research questions will guide the study:

What attitudes and beliefs do New Zealand teachers hold toward twice-exceptional students?

How do New Zealand teachers identify and provide for twice-exceptional students in their classrooms?

Chapter 3: Methodology

This chapter presents the rationale for the research design of this study. It describes the study design, the participants, the methods of data analysis and the ethical issues relevant to this research. This research consists of an online mixed-methods survey that was completed by a convenience sample of New Zealand primary and secondary teachers. Permission was given by the principals of the participating schools for the teachers in their schools to be invited.

Research Design

The researcher positions herself as a critical realist. Critical realism, in merging ontological realism with epistemological relativism, contends that the world can be understood as an objective reality but that the way we perceive it is inherently subjective. The critical realist researcher therefore utilises methods that demonstrate consistency of meaning by providing triangulation (Madill, Jordan & Shirley, 2000). The use of multiple research methods can achieve this aim. A mixed-method design is consistent with the critical realist paradigm (Maxwell & Mittapalli, 2010).

A mixed-methods design is also appropriate for this study as it allows for both a breadth and depth of understanding of an area in which there is a currently a lack of research (Creswell, 2014). The blending of data can provide a more robust picture of the area being researched than either a qualitative or a quantitative method could provide alone (Creswell, 2014). This marrying of different kinds of data therefore achieves two aims; it brings depth to a relatively new area of research, and it also supports the critical realist's goal of demonstrating cohesion and constancy of meaning.

The research tool used for the quantitative part of the research consisted of an online survey which assessed teachers' attitudes and beliefs about academically diverse students.

Several open-ended qualitative questions were added to the survey by the researcher to enable a deeper understanding of teachers' insights and experiences.

The online survey was based on *The Survey of Practices with Students of Varying Needs* (SOP). This SOP was originally developed by the National Research Centre on the Gifted and Talented at the University of Virginia to assess attitudes and beliefs about academically diverse learners and appropriate instruction for them (Tomlinson et al., 1995). This attitudinal survey asked teachers to respond to statements referring to gifted students, students with learning disabilities, and various forms of differentiation. The SOP was modified so that it was relevant to the New Zealand context. Some of the wording was changed slightly, for example, references to "average students" or "remedial students" were removed or replaced with "students with learning disabilities," as this is language New Zealand teachers would be more comfortable using. Any statements that included strategies that were not relevant across the curriculum, such as references to "workbook exercises," were removed. Additionally, the original SOP used a language-based Likert scale (strongly agree, agree, don't agree, strongly agree and don't know) and this was replaced with a numbered scale (0-100) for greater precision and ease of use by the respondents.

A pilot study was carried out using the modified SOP. Twenty-three participants completed the pilot survey. Feedback from the participants enabled the SOP to be further modified where necessary for clarity and ease of use. The quantitative data from the pilot study were analysed using a bivariate correlation and the researcher investigated any items with correlations higher than 0.85. Two items met this criterion. The researcher determined that one of these was less clearly worded, and therefore was subsequently removed from the SOP since the high correlation indicated that little information would be gained by its inclusion. The responses to the qualitative part of the survey enabled the researcher to modify

the open-ended questions for clarity, as feedback indicated that one question in particular was overly wordy and difficult for the participants to understand.

The modified SOP consisted of three parts and is included in full in Appendix A. Part 1 consisted of 31 attitudinal statements such as “gifted students are easy to identify in the classroom” and “students with learning disabilities may need additional time to practice to master basic skills.” Teachers were asked to rate their feelings towards the statements by identifying a numbered point on a 0-100 slider between “strongly disagree” and “strongly agree.” Part 2 of the SOP asked teachers to rate their confidence in their ability to identify and meet the needs of gifted and learning disabled students.

Part 3 was a group of six open-ended questions about teachers’ knowledge and professional training in meeting the needs of twice-exceptional students. The questions explored the experiences of teachers as they met the needs of a twice-exceptional student in the classroom, or asked them to imagine what they would do *if* they had a twice-exceptional student in the classroom.

Sample

The sample was intended to be a random stratified sample, thus initially a random sample was created that represented 10% of all primary and secondary schools in New Zealand. This sample was stratified geographically and so that there was a balance between primary and secondary schools. The sample consisted of 254 primary and secondary schools across New Zealand.

The principals at each school were invited to take part in the research by email. A participant’s information sheet (PIS) specific to the principals was attached to the email which invited them to take part. The principals were asked to give their written permission by completing a consent form which was also attached. Once they had given their permission, an email directed at teachers, with a teacher PIS attached, was forwarded to them. This email

was either forwarded to teachers by the principal or by an admin person. The teachers' email included the link to the online survey.

The sample yielded a small number of participants, and the overall response level was low. Permission was sought from the Ethics Committee to modify the consent process so that signed consent forms were not required from principals. Once this permission was granted, the teachers' email was also sent to several subject association groups and subject-specific mail lists, including the gifted and talented listserv. Thus, the final sample is better described as a convenience sample, since participants opted in and there is no way to know how representative the sample is of the overall teacher population.

Participants

More than half of the teachers surveyed in this study were under 49 years of age (n = 67) and only six were male. Of the 67 teachers, just under half of them had some form of administrative or pastoral responsibility. Nine had responsibility at senior leadership level. Four teachers worked in a support role such as the Resource Teacher: Learning and Behaviour (RTLB). Twenty-four had leadership or pastoral responsibilities. More than half of the teachers (38/67) held a position of responsibility for gifted students. While the exact role they fulfilled in their schools is not known, many of these teachers would be the gifted and talented coordinators for their schools. Just over a third of the teachers (26/67) held a position of responsibility for students with learning disabilities. Again, the exact role these teachers held is not known, but it is likely they held the position of Special Education Needs Coordinator (SENCO). Eighteen of those teachers held a position of responsibility for both gifted students and learning disabled students. This suggests they held dual roles as both the gifted and talented coordinator and SENCO for their schools.

Just under half of the teachers (35/67) had some kind of post-graduate qualification. Thirty-three teachers had undertaken formal study in the area of learning disabilities. Twenty-

seven of them had undertaken formal study in the area of giftedness. Eighteen teachers had undertaken study in both areas.

Only 17 of the teachers had been teaching for less than 10 years. Just over half of the teachers were working in a secondary school context, and five of them were teaching across both secondary and primary schools. Most teachers surveyed were teaching in a state school. Thirteen were working in an integrated school, and 10 in a private school.

In terms of gender this sample has a greater number of females than the New Zealand teaching population. Female teachers make up 73% of the teaching population (Ministry of Education, 2004), and this sample is 91% female. The sample is somewhat more representative in terms of age than gender. More than half of the teachers in this sample were under 49 years of age (53%) and just over two-thirds of the New Zealand teaching population are under 49 years of age (66%).

Ethical Considerations

Ethical approval was sought and obtained from the University of Auckland Human Participants Ethics Committee in April 2016 for three years (Reference Number 016843).

The random sample naturally excluded schools that the researcher is currently in relationship with. Communication with both principals and teachers was written in a very clear manner without coercion. The researcher did not contact any of the teachers personally; rather the teachers' email was forwarded by a member of staff of that school. After permission was granted to modify the consent process, the email was also forwarded by the moderators of the subject associations and listservs it was sent to. The online survey was completely anonymous, and respondents' ISP addresses were not recorded.

The open-ended questions could have possibly given rise to incidental findings. If this had happened, the researcher would have handled carefully any negative or harmful data uncovered. In any case, the researcher used composite stories to assure anonymity. The

researcher's contact details were on the information sent to interview participants, so that she could be contacted directly if the participants had any concerns or issues following their completion of the survey.

Analysis

Quantitative data

Survey responses were entered into the statistical software package SPSS and analysed. Descriptive statistics were obtained for demographics. Tests of normality were carried out on all survey items, with results indicating that all items departed significantly from normality ($p < 0.05$) except one - *gifted students can make it on their own without teacher direction* - which did not significantly differ from normality. Despite the departure from normality, means and standard deviations for the items in the survey were calculated to assist interpretability of the differences between groups. However, to determine whether any differences were statistically significant, Mann-Whitney *U* non-parametric tests were used, since these do not rely on a normal distribution. A two-tailed alpha level of less than 0.05 was used to analyse for significant items.

Qualitative data

Thematic analysis is an appropriate method for a critical realist framework (Braun & Clarke, 2006). The responses to the open-ended questions were read and re-read for familiarisation. During the re-read, initial codes were noted by highlighting key words and identifying concrete categories. This was repeated and these initial codes were entered into a spreadsheet and any data unnoticed previously was coded. This spreadsheet was then analysed for overarching themes. Several of the initial codes were merged under one theme. This was repeated twice as the themes were tested for appropriateness across the data set. The themes were then reviewed to check for internal consistency. Further themes were then

merged with others to more reliably represent the responses. Finally, the themes were examined to confirm that they were indeed discrete categories.

In order to protect participant anonymity, the qualitative responses were not analysed by demographics. Variables that could allow identification of an individual teacher were not analysed. Additionally, respondents answered the final section of open-ended questions inconsistently, meaning that the sample size for each question varies slightly in some cases.

Chapter 4: Results

Quantitative Data

The means and standard deviations for all quantitative items in the survey are shown in Table 1. Mann-Whitney U tests were carried out to investigate differences amongst the following groups: teachers who had training in gifted education, teachers who had training in learning disabilities, teachers who had responsibility for gifted education, teachers who had responsibility for students with learning disabilities, and finally with teachers who had responsibility for *both* gifted education and students with learning disabilities, and teachers who had training in *both* gifted education and learning disabilities (see Tables 2 - 6). The following table shows the means and standard deviations for all items in the SOP for all teachers.

Table 1

Means and Standard Deviations for all Items in SOP

Survey Items	Mean	SD
1. A student who is learning disabled will usually be a low achiever in most subjects.	28.9	24
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	43.9	35.1
3. Gifted students can make it on their own without teacher direction.	22.8	21
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	51.7	27.4
5. It is important to assess students' knowledge about the topic before beginning a new unit.	84.1	20.3
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	73.5	25.8
7. Gifted students will take their regular assignments and make them more challenging on their own.	27.3	24.4
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	74.8	24
9. Students with learning disabilities may need additional time to practice to master basic skills.	78.3	23.2
10. An effective way to identify gifted students is to look for students with the highest grades.	23.8	21.9
11. In the classroom, content should be varied to match students' interests and abilities.	86.9	16.8
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	16	19.5
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	10.7	14.7
14. Students who are learning disabled are usually poor readers.	26.8	25

15. Average students need to spend most of their time working in teacher-directed activities.	25.1	21.4
16. Gifted students need longer assignments since they work faster.	17.2	22.5
17. Working too hard in school leads to burn-out in gifted students.	37.5	27.2
18. Learning disabled students do not do well in most subjects.	23.9	19.1
19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	29.3	26.5
20. Gifted students are easy to identify in the classroom.	30.1	23.6
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	78	31.7
22. Gifted students should be encouraged to direct their own learning.	73.8	22.1
23. Having some students work on different assignments results in unfair grading.	14.6	19.9
24. Some underachievers are actually gifted children.	84	28.9
25. Placing students in mixed ability groups is more detrimental than beneficial.	44.1	29.9
26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	36.2	30.9
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	15.7	24.6
28. All students in the class should take the same test to show mastery of the material in a unit.	26.1	24.5
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	28.3	25.2
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	19.5	23.6
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	34.9	28
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	73.3	22.4
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	71.1	23.9
34. How confident are you? Accommodating varying levels of ability in my class.	77.4	20.3
35. How confident are you? Assessing where students are at and designing appropriate lessons.	77.9	16.7
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	75.7	20.9
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	74.9	22
38. How confident are you? Identifying gifted students.	74.7	23.4
39. How confident are you? Identifying learning disabled students.	77.5	18.3

Colour legend

Response -ve for 2e

Response +ve for 2e

It was decided not to analyse by level of education or by professional position, as the size of the sample and number of different pathways and positions made the groupings too small to compare. Aggregation was explored between types of schools and initial exploration

revealed marked differences in the pattern of results between private and integrated; however, the groups were too small to analyse satisfactorily so this analysis was not explored further.

The Mann-Whitney *U* tests comparing responses from teachers who have training in gifted education (*n*=38) versus those who did not (*n*=26) showed several significant items (see Table 2). Those with training in gifted education were significantly less likely to agree that *gifted students can make it on their own without teacher direction* (*p* =.018), more likely to agree that *if students have already mastered some of the material before starting a unit, they should be given alternative assignments* (*p* =.018), more likely to agree that *in the classroom content should be varied to match students interests and abilities* (*p*=.007), and less likely to agree that *learning disabled students who are gifted will need to concentrate their study to remediate their weaknesses so they can go on to use their areas of strength* (*p* =.038). These results indicate that teachers who have training in gifted education were more likely to endorse variation of the curriculum while still believing that students need teacher support.

Table 2

Mann-Whitney U Test Comparing Mean Ranks for Teachers Who Have Training in Gifted Education

Survey Items	**Mean Rank**		***U***	**z**	***p***
	Yes	**No**			
1. A student who is learning disabled will usually be a low achiever in most subjects.	25.4	31.2	439.5	-0.746	.456
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	49.9	39.5	395.0	-1.422	.155
3. Gifted students can make it on their own without teacher direction.	30.7	16.6	252.5	-2.375	.018
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	53.5	50.4	458.5	-0.486	.627
5. It is important to assess students' knowledge about the topic before beginning a new unit.	81.6	85.9	494.5	-0.591	.555
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	67.5	77.6	380.5	-1.698	.09
7. Gifted students will take their regular assignments and make them more challenging on their own.	26.5	28	406.5	-0.344	.731
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	67.8	79.6	346.5	-2.36	.018
9. Students with learning disabilities may need additional time to practice to master basic skills.	73.6	81.7	441.0	-0.965	.335
10. An effective way to identify gifted students is to look for students with the highest grades.	25.2	22.6	318.5	-0.956	.339

11. In the classroom, content should be varied to match students' interests and abilities.	81.7	90.5	331.0	-2.715	.007
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	20.5	12.4	331.5	-1.699	.089
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	13.5	8.1	235.0	-1.089	.276
14. Students who are learning disabled are usually poor readers.	30.7	23.8	354.5	-1.306	.191
15. Average students need to spend most of their time working in teacher-directed activities.	25.3	24.9	401.5	-0.605	.545
16. Gifted students need longer assignments since they work faster.	23.2	11.9	303.0	-1.433	.152
17. Working too hard in school leads to burn-out in gifted students.	36.9	37.9	434.0	-0.171	.864
18. Learning disabled students do not do well in most subjects.	18.7	27.9	346.0	-1.435	.151
19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	38	22.9	289.5	-2.08	.038
20. Gifted students are easy to identify in the classroom.	32.9	27.9	382.0	-0.718	.473
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	73.5	81.2	379.5	-1.453	.146
22. Gifted students should be encouraged to direct their own learning.	71.8	75.1	428.0	-1.062	.288
23. Having some students work on different assignments results in unfair grading.	21.3	9.3	204.5	-1.647	.099
24. Some underachievers are actually gifted children.	77	88.7	430.5	-1.079	.281
25. Placing students in mixed ability groups is more detrimental than beneficial.	35.1	49.8	298.0	-1.805	.071
26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	39.1	34.1	345.5	-0.817	.414
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	15.4	16	329.0	-0.083	.934
28. All students in the class should take the same test to show mastery of the material in a unit.	18.3	32.1	224.5	-1.801	.072
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	29.9	27.1	343.5	-0.484	.628
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	24.3	15.7	212.0	-1.879	.06
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	40.1	30.6	318.0	-1.534	.125
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	62.5	80.9	248.5	-3.25	.001
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	72.4	70.2	462.0	-0.266	.79
34. How confident are you? Accommodating varying levels of ability in my class.	74.1	79.6	412.5	-0.959	.337
35. How confident are you? Assessing where students are at and designing appropriate lessons.	77.7	78.1	467.0	-0.196	.845
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	68.2	80.9	299.0	-2.545	.011
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	76.1	74	477.0	-0.056	.955
38. How confident are you? Identifying gifted students.	61.5	83.6	219.0	-3.498	<.001
39. How confident are you? Identifying learning disabled students.	75.8	78.7	439.0	-0.587	.557

The Mann-Whitney *U* tests comparing responses from teachers who have responsibility for gifted students (n=36) versus those who did not (n=28) also showed several significant items (see Table 3). Those with responsibility for gifted students were less likely to agree that *the regular curriculum will challenge all students if the teacher is interesting and exciting* (p=.002), and they were less likely to agree that *gifted students can make it on their own without teacher direction* (p<.001). They were more likely to agree that *if tests indicate that a student has acquired basic skills, then the teacher should omit the regular*

assignments and modify the curriculum for the student (p=.002), and they were less likely to agree that *allowing students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism* (p<.001). Teachers with responsibility for gifted students were also less likely to agree that *learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength* (p=.005). They are more likely to agree that *work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner* (p=.006), and less likely to agree that *If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas* (p<.001). These teachers were also less likely to agree that *in teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects* (p=.005), less likely to agree that *teachers should modify content only, since all students need to use the same processes and can generate the same projects* (p=.005) and less likely to agree that *placing students in groups with students of the same ability is more detrimental than beneficial* (p=.007). Finally, they were more confident in *identifying gifted students* (p<.001). These results indicate that teachers who have responsibility for gifted students were more likely to endorse variation of the curriculum and more likely to allow a learning disabled student who is also gifted to work at the level of their strengths rather than their weaknesses.

Table 3

Mann-Whitney U Test Comparing Mean Ranks for Teachers Who Have Responsibility for Gifted Students

Survey Items	**Mean Rank**		***U***	**z**	***p***
	Yes	**No**			
1. A student who is learning disabled will usually be a low achiever in most subjects.	27.4	30.8	30.8	-.773	.440
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	32.5	57.6	57.6	-3.030	.002
3. Gifted students can make it on their own without teacher direction.	13.9	32.7	32.7	-3.481	.000
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	49	54.9	54.9	-.499	.618

5. It is important to assess students' knowledge about the topic before beginning a new unit.	85.4	82.5	82.5	-1.061	.289
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	80.7	64.7	64.7	-3.128	.002
7. Gifted students will take their regular assignments and make them more challenging on their own.	23.1	31.8	31.8	-1.927	.054
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	76.8	72.1	72.1	-1.117	.264
9. Students with learning disabilities may need additional time to practice to master basic skills.	76.4	80.7	80.7	-.206	.837
10. An effective way to identify gifted students is to look for students with the highest grades.	20.1	28.3	28.3	-1.540	.124
11. In the classroom, content should be varied to match students' interests and abilities.	87.1	86.8	86.8	-.444	.657
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	11.9	20.4	20.4	-1.803	.071
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	3.5	17.9	17.9	-3.575	.000
14. Students who are learning disabled are usually poor readers.	23.5	30.8	30.8	-1.197	.231
15. Average students need to spend most of their time working in teacher-directed activities.	22.8	27.6	27.6	-1.090	.276
16. Gifted students need longer assignments since they work faster.	12.8	21.8	21.8	-1.956	.050
17. Working too hard in school leads to burn-out in gifted students.	31.4	44	44.0	-1.732	.083
18. Learning disabled students do not do well in most subjects.	22.3	25.8	25.8	-1.061	.289
19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	21.1	39	39.0	-2.794	.005
20. Gifted students are easy to identify in the classroom.	29.2	31.2	31.2	-.236	.813
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	81.9	73.2	73.2	-2.737	.006
22. Gifted students should be encouraged to direct their own learning.	77.9	68.4	68.4	-2.447	.014
23. Having some students work on different assignments results in unfair grading.	10.6	18.6	18.6	-2.359	.018
24. Some underachievers are actually gifted children.	84.2	83.6	83.6	-2.205	.027
25. Placing students in mixed ability groups is more detrimental than beneficial.	51.9	33.5	33.5	-2.296	.022
26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	35.2	37.4	37.4	-.633	.526
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	10	23	23.0	-3.352	.001
28. All students in the class should take the same test to show mastery of the material in a unit.	25.1	27.3	27.3	-.929	.353
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	27.4	29.4	29.4	-.880	.379
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	14.8	24.6	24.6	-2.839	.005
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	25.3	45.1	45.1	-2.703	.007
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	79.3	65.9	65.9	-2.292	.022
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	73.2	68.5	68.5	-.763	.445
34. How confident are you? Accommodating varying levels of ability in my class.	78.8	75.5	75.5	-.583	.560
35. How confident are you? Assessing where students are at and designing appropriate lessons.	79.7	75.8	75.8	-.624	.533
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	80.5	69.6	69.6	-1.981	.048
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	76	73.5	73.5	-.590	.555
38. How confident are you? Identifying gifted students.	84.3	62.3	62.3	-3.475	.001
39. How confident are you? Identifying learning disabled students.	79.2	75.4	75.4	-1.025	.305

The Mann-Whitney *U* tests comparing responses from teachers who have training in learning disabilities (*n*=32) versus those who did not (*n*=32) showed several significant items. Those with training in learning disabilities were more confident at *adapting my lessons to*

meet the needs of learning disabled students (p=.021). They were also more confident at *individualising instruction to meet the needs of learning disabled students* (p=.013). Since only two items were significant, the full table of ranks is not shown. These results indicate that teachers with training in learning disabilities were more confident at adapting lessons and instruction to meet the needs of learning disabled students, but otherwise did not differ from the overall sample.

In contrast with the analyses comparing those with training in catering for students with learning disabilities, the Mann-Whitney *U* tests comparing responses from teachers with responsibility for students with learning disabilities (n=24) versus those who did not (n=39) showed several significant items (see Table 4). Those with responsibility for students with learning disabilities were more likely to agree that *if tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student* (p=.007), and less likely to agree that *to assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way* (p=.009). These teachers were less likely to agree that *learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength* (p=.043), and less likely to agree that *having some students work on different assignments results in unfair grading* (p=.022). They were more likely to agree that *some underachievers are actually gifted children* (p=.003), and less likely to agree that *if a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas* (p=.021). Finally, they were more confident at adapting lessons to *meet the needs of learning disabled students* (p=.006), and more confident at *individualising instruction to meet the needs of learning disabled students* (p=.023). They are also more confident at *identifying gifted students* (p=.042) and *identifying learning disabled students* (p=.038). The complete list of

items and rankings is shown in Table 4. These results indicate that teachers who have responsibility for students with learning disabilities were more likely to endorse variation of the curriculum and allow students to work at different levels, and more likely to allow a learning disabled student who is also gifted to work at the level of their strengths rather than their weaknesses.

Table 4

Mann-Whitney U Test Comparing Mean Ranks for Teachers Who Have Responsibility for Students With Learning Disabilities

Survey Items	**Mean Rank**		***U***	**z**	***p***
	Yes	**No**			
1. A student who is learning disabled will usually be a low achiever in most subjects.	29.6	28.8	454.0	-.199	.843
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	49.8	40.8	416.5	-.729	.466
3. Gifted students can make it on their own without teacher direction.	18.5	25.5	304.0	-1.330	.184
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	46.9	53.8	401.0	-.949	.343
5. It is important to assess students' knowledge about the topic before beginning a new unit.	86.9	82	414.0	-1.411	.158
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	82.4	67.5	291.0	-2.710	.007
7. Gifted students will take their regular assignments and make them more challenging on their own.	24.3	29.3	357.5	-.879	.380
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	77.7	72.2	413.5	-1.257	.209
9. Students with learning disabilities may need additional time to practice to master basic skills.	78.3	77.7	413.0	-1.031	.303
10. An effective way to identify gifted students is to look for students with the highest grades.	22.5	25.2	320.5	-.555	.579
11. In the classroom, content should be varied to match students' interests and abilities.	88.8	85.4	396.5	-1.645	.100
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	7	20.9	241.5	-2.602	.009
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	8.7	12	230.0	-.964	.335
14. Students who are learning disabled are usually poor readers.	27.5	27.1	402.0	-.078	.937
15. Average students need to spend most of their time working in teacher-directed activities.	22	27.6	347.0	-.941	.347
16. Gifted students need longer assignments since they work faster.	15.5	17.2	351.5	-.198	.843
17. Working too hard in school leads to burn-out in gifted students.	29.6	41.8	292.5	-1.796	.073
18. Learning disabled students do not do well in most subjects.	20.3	25.7	313.5	-1.565	.118
19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	23.7	33.8	275.0	-2.028	.043
20. Gifted students are easy to identify in the classroom.	27.7	31.8	384.5	-.548	.584
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	78.3	77.2	339.0	-1.814	.070
22. Gifted students should be encouraged to direct their own learning.	76	71.6	432.5	-.843	.399
23. Having some students work on different assignments results in unfair grading.	10.2	17.4	167.0	-2.295	.022
24. Some underachievers are actually gifted children.	89.6	79.7	289.5	-2.936	.003
25. Placing students in mixed ability groups is more detrimental than beneficial.	37.1	49.2	331.0	-1.444	.149

26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	32	38.9	330.5	-.887	.375
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	7.9	21.5	206.0	-2.309	.021
28. All students in the class should take the same test to show mastery of the material in a unit.	18.9	30.4	214.0	-1.783	.075
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	25.6	30.3	325.5	-.726	.468
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	12.6	24.1	205.5	-1.874	.061
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	33.2	36	376.0	-.422	.673
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	74.2	72	430.5	-.460	.646
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	80.8	63.8	271.5	-2.747	.006
34. How confident are you? Accommodating varying levels of ability in my class.	82.7	73.2	340.5	-1.755	.079
35. How confident are you? Assessing where students are at and designing appropriate lessons.	82.5	74.2	341.0	-1.746	.081
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	78.3	73.2	366.0	-1.387	.166
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	82.8	68.8	304.0	-2.280	.023
38. How confident are you? Identifying gifted students.	81.2	69.9	306.5	-2.032	.042
39. How confident are you? Identifying learning disabled students.	81.7	74	318.0	-2.076	.038

The Mann-Whitney *U* tests comparing responses from teachers who have responsibility for both gifted and learning disabled students (n=18) versus those who did not (n=46) also showed several significant items (see Table 5). These teachers are more likely to agree that *if tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student* (p<.001), and less likely to agree that *to assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way* (p=.035). They are less likely to agree that *allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism* (p=.044) and less likely to agree that *learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength* (p=.009). They are less likely to agree that *having some students work on different assignments results in unfair grading* (p=.042) and more likely to agree that *some underachievers are actually gifted children* (p=.004). They are less likely to agree that *if a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more*

advanced content in other areas (p=.010), and they are also less likely to agree that *in teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects* (p=.020). Finally, these teachers are more confident at *identifying gifted students*. These results indicate that teachers with responsibility for both gifted and learning disabled students were more likely to endorse variation of the curriculum, to allow students to work on different assignments, and more likely to allow a learning disabled student who is also gifted to work at the level of their strengths rather than their weaknesses.

Table 5

Mann-Whitney U Test Comparing Mean Ranks for Teachers Who Have Responsibility for Both Gifted and Learning Disabled Students

Survey Items	**Mean Rank**		***U***	**z**	***p***
	Yes	**No**			
1. A student who is learning disabled will usually be a low achiever in most subjects.	29.2	28.7	413.5	-.007	.994
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	40.9	45	369.5	-.665	.506
3. Gifted students can make it on their own without teacher direction.	14.8	25.9	218.5	-1.947	.051
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	47	53.5	368.0	-.687	.492
5. It is important to assess students' knowledge about the topic before beginning a new unit.	87.2	82.9	389.5	-1.121	.262
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	88.4	67.4	205.5	-3.346	.001
7. Gifted students will take their regular assignments and make them more challenging on their own.	25.9	27.9	320.0	-.620	.535
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	76.9	73.8	392.0	-.954	.340
9. Students with learning disabilities may need additional time to practice to master basic skills.	74	80.1	427.5	-.138	.890
10. An effective way to identify gifted students is to look for students with the highest grades.	22.1	24.5	291.0	-.389	.697
11. In the classroom, content should be varied to match students' interests and abilities.	87.7	86.6	396.5	-1.023	.306
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	7.8	19	226.5	-2.104	.035
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	4.2	13.1	141.0	-2.017	.044
14. Students who are learning disabled are usually poor readers.	25.1	27.4	347.5	-.075	.940
15. Average students need to spend most of their time working in teacher-directed activities.	24.6	25.2	344.0	-.134	.894
16. Gifted students need longer assignments since they work faster.	15.9	17.7	280.0	-.727	.467
17. Working too hard in school leads to burn-out in gifted students.	27.8	41	250.0	-1.706	.088
18. Learning disabled students do not do well in most subjects.	19.2	25.8	267.5	-1.611	.107

19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	16.6	34.4	201.0	-2.613	.009
20. Gifted students are easy to identify in the classroom.	30.9	29.8	363.0	-.099	.921
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	79	77.6	292.5	-1.927	.054
22. Gifted students should be encouraged to direct their own learning.	77.8	72	365.0	-1.213	.225
23. Having some students work on different assignments results in unfair grading.	11.3	15.8	140.0	-2.037	.042
24. Some underachievers are actually gifted children.	88.8	81.9	260.0	-2.845	.004
25. Placing students in mixed ability groups is more detrimental than beneficial.	46.3	43	356.5	-.382	.703
26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	30.8	38.6	288.0	-1.082	.279
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	7.6	19.4	159.0	-2.571	.010
28. All students in the class should take the same test to show mastery of the material in a unit.	22.1	27.8	210.5	-1.233	.218
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	26.6	29.1	296.5	-.483	.629
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	9.6	23.3	144.5	-2.326	.020
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	30.7	36.6	312.5	-.616	.538
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	74.3	72.9	413.0	-.075	.940
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	78	68.2	320.0	-1.472	.141
34. How confident are you? Accommodating varying levels of ability in my class.	80.9	75.8	356.5	-.924	.356
35. How confident are you? Assessing where students are at and designing appropriate lessons.	80.9	76.6	367.5	-.758	.449
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	79.4	74	342.0	-1.140	.254
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	80.3	72.5	352.0	-.991	.321
38. How confident are you? Identifying gifted students.	85.3	70.1	259.5	-2.278	.023
39. How confident are you? Identifying learning disabled students.	77.8	77.3	398.0	-.300	.764

The Mann-Whitney *U* tests comparing responses from teachers who had training in both gifted education and learning disabilities (*n*=20) versus those who do not (*n*=44) showed some significant items (see Table 6). Teachers who have had training in both gifted education and learning disabilities were less likely to agree that *if tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student* (*p*=.041). They were less likely to agree that *work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner* (*p*=.030), and they were less likely to agree that *gifted students should be encouraged to direct their own learning* (*p*=.040). They were more likely to agree that *having some students work on different assignments results in unfair grading* (*p*=.38) and more likely to

agree that *in teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects* (p=.022). Finally, they were less confident in *adapting lessons to meet the needs of gifted learners* (p=.005), less confident in *individualising instruction to meet the needs of gifted learners* (p=.012) and less confident in *identifying gifted students* (p=.002). These results indicate that teachers who have training in both gifted education and learning disabilities are not as likely to endorse variation of the curriculum, are not as likely to allow students to work on different assignments and are not as confident in identifying or meeting the needs of gifted learners.

Table 6

Mann-Whitney U Test Comparing Mean Ranks for Teachers Who Have Training in Both Gifted Education and Learning Disabilities Via Mann-Whitney U Test

Survey Items	**Mean Rank**		***U***	**z**	***p***
	Yes	**No**			
1. A student who is learning disabled will usually be a low achiever in most subjects.	29.1	34	372.0	-.987	.324
2. The regular curriculum will challenge all students if the teacher is interesting and exciting.	33.4	32	432.0	-.279	.780
3. Gifted students can make it on their own without teacher direction.	32.3	27.4	299.0	-1.051	.293
4. Students with learning disabilities find it difficult to work on their own without teacher direction.	32.3	32.6	435.5	-.065	.948
5. It is important to assess students' knowledge about the topic before beginning a new unit.	28.5	36.5	368.5	-1.572	.116
6. If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student.	25.8	36.2	306.5	-2.044	.041
7. Gifted students will take their regular assignments and make them more challenging on their own.	28.6	30.7	362.5	-.441	.659
8. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	27.8	36.2	352.5	-1.660	.097
9. Students with learning disabilities may need additional time to practice to master basic skills.	31.8	33.6	437.5	-.346	.729
10. An effective way to identify gifted students is to look for students with the highest grades.	28.3	27.8	336.0	-.106	.915
11. In the classroom, content should be varied to match students' interests and abilities.	27.3	37.1	342.0	-1.937	.053
12. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	34.8	28.2	320.0	-1.391	.164
13. Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism.	27.1	23	218.5	-.975	.330
14. Students who are learning disabled are usually poor readers.	29.1	31.2	372.5	-.432	.666
15. Average students need to spend most of their time working in teacher-directed activities.	29.5	31	380.0	-.314	.754
16. Gifted students need longer assignments since they work faster.	29.8	27.8	334.5	-.437	.662
17. Working too hard in school leads to burn-out in gifted students.	29.7	30.9	392.5	-.264	.792
18. Learning disabled students do not do well in most subjects.	27.2	32.1	334.5	-1.029	.303
19. Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength.	35.1	27.6	283.0	-1.575	.115

20. Gifted students are easy to identify in the classroom.	31.1	29.4	367.5	-.360	.719
21. Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner.	24.8	35.3	286.5	-2.173	.030
22. Gifted students should be encouraged to direct their own learning.	25.8	36.2	306.0	-2.054	.040
23. Having some students work on different assignments results in unfair grading.	30.4	21.5	161.5	-2.074	.038
24. Some underachievers are actually gifted children.	26.8	35.8	325.5	-1.864	.062
25. Placing students in mixed ability groups is more detrimental than beneficial.	25.5	31.8	280.5	-1.282	.200
26. While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students.	33.6	26.9	268.0	-1.426	.154
27. If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas.	29.4	25.1	248.5	-.961	.337
28. All students in the class should take the same test to show mastery of the material in a unit.	24.4	26.7	254.5	-.519	.604
29. Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule.	28.1	27.9	330.5	-.045	.964
30. In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects.	32.1	22.1	169.0	-2.287	.022
31. Placing students in groups with students of the same ability is more detrimental than beneficial.	32.3	28	323.5	-.925	.355
32. How confident are you? Adapting my lessons to meet the needs of gifted learners.	22.6	36.4	241.5	-2.787	.005
33. How confident are you? Adapting my lessons to meet the needs of learning disabled students.	27.8	34	346.0	-1.244	.214
34. How confident are you? Accommodating varying levels of ability in my class.	26.6	34.5	321.5	-1.607	.108
35. How confident are you? Assessing where students are at and designing appropriate lessons.	29.7	33.1	383.5	-.688	.492
36. How confident are you? Individualising instruction to meet the needs of gifted learners.	23.5	36	260.0	-2.515	.012
37. How confident are you? Individualising instruction to meet the needs of learning disabled students.	26.7	34.5	323.0	-1.585	.113
38. How confident are you? Identifying gifted students.	21.4	36.3	218.5	-3.038	.002
39. How confident are you? Identifying learning disabled students.	28.9	33.4	368.0	-.917	.359

Qualitative Data

Six open-ended questions at the end of the survey provided an opportunity to explore the classroom experiences of these teachers with twice-exceptional students. Most respondents believed they had taught a twice-exceptional student in their classroom (53/58). The themes that emerged from the qualitative responses are described under four broad sections: teacher identification of twice-exceptional students; classroom strategies; support and PLD for teachers; and finally, teachers' commitment to twice-exceptional students.

Teacher identification of twice-exceptional students.

The majority of the respondents described the identification of the twice-exceptional student as happening within the school (44/56). A small number (12) of those respondents

stated that the identification was carried out by themselves as teacher or by other teachers in the school. These teachers appeared confident in their own estimation of the student ("as the teacher I think he fits the category"). Some mentioned use of tests and assessments to confirm their judgement and a small number mentioned a team approach including other staff, RTLB or outside experts. Some of these teachers were aware of tensions surrounding the identification of these students. One had "some difficulty getting the school… to recognise that she was not simply an uncoordinated normal student" and another that "recognition of learning disability was school-wide and official; recognition of giftedness not so much."

Just under half of the respondents described the identification of the student as happening via an external expert (25/56), and 12 of those responses referred specifically to an educational psychologist. Many of these responses described a multi-faceted approach to identification, where an external report was referred to alongside school testing and observation. Again, there was some mention of conflict here, with some responses referring to psychologist reports which confirmed teacher observations, and one response which stated "the diagnoses… are not always supported by our own knowledge of the students." One teacher touched on equity issues related to accessing private educational psychologists; describing parents who can afford such assessments as "lucky."

Classroom strategies.

Teachers were asked about the strategies they would use with a twice-exceptional student in their classroom; strategies that they either *have* used with a twice-exceptional student, or *would* use if they were teaching such a student. The themes that emerged were: *teacher-student relationship; modifications to assessments or curriculum; specific strategies; focus on student's strengths; relationships with whānau (family);* and *relationships with other students.*

The most common theme was *teacher-student relationship*. Thirty-one responses were coded by this theme and these responses pointed to the importance of mutual understanding between the teacher and the student. One of the responses described a relationship where there had been a lack of understanding on the teacher's part. This teacher described a scenario where "I had no training prior to having a twice-exceptional student in my class – the year was a disaster." The student "learned little and we were both frustrated." Another teacher had a very different experience, and reported building "a trusting relationship" by tapping into the student's interests. This teacher's aim was for the student to feel "successful and valuable" in the classroom. In a similar vein, another teacher stated, "it's important to get to know the student well… when you have taught one twice-exceptional student, strategies you used for them won't necessarily work for others." One teacher also referred to tapping into the student's interests as a way to build relationship, emphasising that "being present and understanding them is key."

Just under half of the responses were coded with the theme *modifications to assessments or curriculum* (30/56). Responses coded by this theme included "independent learning programme and extension work," and "free choice activities, more focus on ideas and less on accuracy (for certain tasks)." A "range of options for structuring and presenting tasks" was described, as well as allowing extra time. Differentiation of content was

mentioned, and opportunities where "work that was easy" could be extended. Some form of student choice or autonomy was mentioned several times, with one teacher stating that "the only teacher strategy that works is to… be student focused."

The next most frequent theme was *specific strategies*. Twenty-five responses referred to strategies such as use of computers for word-processing, voice to text technology, visual aids, oral presentation of information, talking books, and one-on-one tutoring. One teacher also mentioned using PowerPoint presentations to reduce the amount of copying off the board by students. These strategies appeared to be linked to a particular learning disability, and several teachers mentioned that their choice of strategy would depend entirely on the individual student. The purpose of these strategies was clearly student-centred. Teachers talked about the need to "limit the frustration" of the student's disability and provide for their "areas of weakness."

Fewer respondents referred to the need to *focus on student's strengths* (10/56). These teachers talked about using the student's strengths to "boost their confidence" and to "get around the barrier presented by their exceptionality in order to nurture… their giftedness."

One teacher talked about the need to "focus on what they can do" and another emphasised the importance of providing "opportunities" for the student "to be recognised for [their] talents."

Finally, a small number of teachers mentioned developing relationships with whānau (family) in their responses (8/56). This theme pointed to the importance of developing a relationship with the student's wider whānau, particularly by maintaining good lines of communication. An even smaller number of responses (7/56) were coded with the theme relationships with other students. This theme covered both strategies that brought students together, such as buddy systems, mixed ability groups and grouping like-minded students, as well as strategies that allowed students to work on their own if they preferred.

Support and PLD for teachers.

Teachers were asked to describe the support they were given as they met the needs of twice-exceptional students. Almost half of the respondents (31/56) identified receiving support from the SENCO and less than a third (19/56) identified support from the gifted and talented coordinator. A small number of teachers (14/56) felt supported by their RTLB, and four respondents described receiving support from an external expert. A handful of teachers noted parents were supportive (4/56), and the same number again referred to feeling supported by their senior leadership. Notably, 10 teachers categorically stated having received no support at all as they provided for their twice-exceptional students, and other teachers found it very difficult to get support for themselves and their student. One teacher found their SENCO "useful for 'tracking' 2e students" but "unhelpful" in identifying and providing support. Another teacher noted that the RTLB had "flatly refused" to work with twice-exceptional students. This is not a surprising finding, as there is no official mandate for an RTLB to work with gifted students. Another teacher also experienced conflict in seeking support for their twice-exceptional student, reporting that "every step" was "a fight and an argument." Conversely, one respondent described the support they received from the RTLB as "exceptional."

Teachers were asked to describe any PLD they had taken part in which covered twice-exceptional students specifically. Only 17 (17/55) respondents indicated they had taken part in PLD, and described it as either coming from a gifted perspective or a learning disabilities perspective. Of these 17, most responses described PLD that was based in a gifted perspective or was carried out by providers in the gifted area (14/17). A very small number of teachers described PLD that was carried out by learning disability-related providers (3/17).

Teachers' commitment to twice-exceptional students.

Finally, teachers were asked to elaborate on what they saw as "the most pressing need" of a twice-exceptional student. These answers covered a breadth of responses, and showed genuine commitment and concern towards twice-exceptional students.

Just under half of the teachers (33/56) identified the most pressing need of these students as having their *strengths acknowledged and challenged*. One response described this need as being "recognised for what they can do rather than what they can't do." Another teacher stated, "some people judge 2E learners on their lowest factor… rather than really get to know them and the way they think." One respondent summed it up succinctly: "to be recognised as gifted."

Almost that number again (28/56) stated that the twice-exceptional student's *need to be understood* was most important, so that they were "not just assumed as being average or a difficult student." One teacher described the student's need for "a teacher who gets it and supports them," and another to "have their voice heard." One respondent referred to the student's need for empathy and another stated; "emotional support is important."

A third of the responses (17/56) pointed to the need for the student to have *both exceptionalities identified,* so that "their giftedness" is not "limited by their… learning disabilities." One teacher articulated the inherent contradiction that a student who requires both extension and remediation presents to teachers. They stated that the student's most pressing need is "to be recognised for their abilities while still receiving the support they need for their disabilities" and for those two needs to be recognised as "concurrent… rather than paradoxical." Interestingly, only a few responses (13/56) identified *minimising and supporting the student's weakness* as the key need.

A small number of responses (9/56) pointed to the need for more *support and education for teachers,* such as "quality PD" and "a strong school support network to ensure

continuum of provision." One teacher noted that the school needs to be able to provide the student with opportunities to both "extend and remediate," and in that particular teacher's case the school's timetable precluded this because the gifted programme and the learning needs class were held "at the same time."

Finally, a very small number of teachers (4/56) stated that the student's need for *self-acceptance* was their most pressing. These teachers believed that twice-exceptional students needed "to experience success and believe in themselves… to value their unique selves and become less bothered by their difficulty in learning."

Chapter 5: Discussion and Conclusion

Results from this study of 67 New Zealand primary and secondary teachers showed that the respondents had some knowledge of twice-exceptional students and how to provide for them in the classroom. In particular, the groups that showed statistically significant differences in how they responded to the survey questions compared with the overall sample were teachers who have responsibility for gifted students, teachers with responsibility for learning disabled students, and particularly dual-role teachers with responsibility for *both* gifted and learning disabled students. These teachers showed attitudes that are in line with the literature's recommendations for provision for twice-exceptional students, such as willingness to differentiate work, assessments and curriculum. This chapter will discuss these results in light of the study's research questions. Educational implications, limitations of the study and potential directions for future research will be outlined.

Educational research is the art of the possible (Medawar, 1979, in Wellington, 2000). This researcher was looking for a generalisable sample from a broad spectrum of teachers across New Zealand primary and secondary schools, however more than half of the 67 teachers who responded to the online survey had responsibility for either gifted students or students with learning disabilities. Therefore, rather than uncover any trends that are generalisable to the general teaching population, this study has uncovered strong indications regarding the potential that teachers who hold positions of responsibility for gifted students and learning disabled students have to be of support to twice-exceptional students.

Research Question 1: What Attitudes and Beliefs do New Zealand Teachers Hold Towards Twice-Exceptional Students?

The survey used in this study was the SOP developed by the National Research Center on the Gifted and Talented staff at the University of Virginia (Tomlinson et al., 1995).

This SOP was developed to explore teacher attitudes and beliefs about academically diverse learners and the instruction strategies teachers used to meet their needs. The researcher amended the original survey to suit a New Zealand context. The amended attitudinal survey asked teachers to respond to 31 statements referring to gifted students, students with learning disabilities, and various forms of differentiation strategies.

As a whole, the teachers in this study showed evidence of attitudes that were positive for twice-exceptional students. These attitudes showed a willingness to consider the possibility that a student who does not present as a typical gifted student may actually be gifted. They also showed understanding that a learning disabled student is not always a low-achieving student. These teachers as a whole were open to differentiation. They were more likely than not to be willing to omit regular assignments and modify the curriculum for a student who has already mastered basic skills. Most importantly, they were less likely to require a learning disabled student who is also gifted to remediate areas of weakness (such as spelling) before allowing them to go on to use their areas of strength.

While these results may seem positive on the whole, given the nature of the sample they are not generalisable to the general population of classroom teachers. Over half of these teachers had responsibility either for gifted students or for learning disabled students. Therefore, it is expected that these teachers would have positive attitudes towards twice-exceptional students to some degree. Analysis of specific groups showed that when teachers who have responsibility for gifted students and teachers who have responsibility for learning disabled students are closely examined, these groups show consistent evidence of attitudes that point to the ability to provide appropriately for twice-exceptional students in the classroom. When these specific groups of teachers are considered, it can be concluded that there is some cause for hope for twice-exceptional students in New Zealand.

Teachers With Responsibility for Gifted Students

The results of this study highlight teachers with responsibility for gifted students as an important resource in New Zealand schools. These teachers hold key understandings and attitudes towards twice-exceptional students and are more likely to provide appropriate interventions and support for the twice-exceptional students in their classrooms than other teachers in this study. This group of teachers represents an important source of expertise in this area.

In particular, the significant items for this group are evidence that teachers with responsibility for gifted students showed positive attitudes towards twice-exceptional students in three key ways:

- They were less likely to require a learning disabled student who is also gifted to remediate areas of weakness (such as spelling) before allowing them to move on to more complex or difficult work.
- They were more likely to differentiate the curriculum and allow a student to do different assignments if that student has shown mastery of basic skills.
- They were less likely to believe that allowing a student to work on different assignments fosters elitism in the classroom.

These are important findings. Twice-exceptional students need to be able to work at the level of their cognitive ability rather than skill level (Barton & Starnes, 1989), as their skill level may be affected by their learning disability. They need to be, as one teacher in this study noted, “recognised for what they can do rather than what they can’t do.” When teachers focus disproportionately on the student’s disability, the student misses out on the extension and challenge they require as gifted students. Researchers agree that talent development is the most important aspect of provision for twice-exceptional students (Baum, 1998; Baum & Owen, 2004; McCoach et al., 2001; Neihart, 2008; Reis et al., 2014). Twice-exceptional

students need teachers who are able to look past their disability while drawing out and extending their areas of giftedness, or else students are at risk of entering the "failure cycle" described by Sturgess (2011, p. 395) of which underachievement is the outcome.

Teachers With Responsibility for Learning Disabled Students

Teachers with responsibility for learning disabled students (such as SENCO), are also an important resource in New Zealand schools. The teachers in this sample with responsibility for learning disabled students hold understandings and attitudes that bode well for twice-exceptional students. This group's results for the items that relate to twice-exceptional students were as good, or almost as good as the results for teachers with responsibility for gifted students. This group of teachers represents an important body of knowledge that schools can benefit from.

In particular, with some cross-over between teachers with responsibility for gifted students, teachers with responsibility for students with learning disabilities showed positive attitudes towards twice-exceptional students in these ways:

- They were less likely to require a student to remediate areas of weakness (such as spelling) before allowing them to move on to more complex or difficult work.
- They were more likely to differentiate the curriculum and allow a student to do different assignments if that student has shown mastery of basic skills.
- They were more likely to consider that an underachieving student could be gifted.

That a student can be both gifted and learning disabled is a relatively recent discovery (Foley-Nicpon et al., 2013; Leggett et al., 2010) which some teachers struggle to comprehend (Brody & Mills, 1997). Teachers with responsibility for learning disabled students, however, were more likely than other teachers in this sample to understand the seeming contradiction these students present. This group of teachers was in fact more likely to consider that an underachieving student could be gifted than teachers with responsibility for gifted students

were. This is an important finding, as research with preservice teachers has shown that they expect to be able to identify gifted students easily by their accomplishments (Olthouse, 2014). It is also in contrast to Bianco & Leech (2010) who found that teachers of students with learning disabilities were *least* likely to refer students with learning disabilities for gifted programming. The difference between the two groups (teachers with responsibility for gifted students and teachers with responsibility for learning disabled students) suggests that greater collaboration and knowledge-sharing between teachers responsible for these seemingly disparate groups of students would be beneficial.

Teachers Who Have Responsibility for *Both* Gifted and Learning Disabled Students

To further highlight this point, a surprising finding of this research was that the group of teachers who had responsibility for *both* gifted and learning disabled students had the best results of all groups analysed in terms of attitudes towards appropriate provision for twice-exceptional students. This group of 21 dual-role teachers showed positive attitudes towards twice-exceptional students in these ways:

- They were more likely to differentiate the curriculum and allow a student to do different assignments if that student has shown mastery of basic skills.
- They were less likely to believe that information should be presented to all students in the same way to ensure they have the same knowledge.
- They were less likely to believe that allowing a student to work on different assignments fosters elitism in the classroom.
- They were less likely to require a student to remediate areas of weakness (such as spelling) before allowing them to move on to more complex or difficult work.
- They were more likely to consider that an underachieving student could be gifted.
- They were less likely to believe that all students should generate the same projects and assessments.

These are very positive attitudes towards provision strategies appropriate for twice-exceptional students, for whom appropriate provision involves strategies used with both gifted students *and* learning disabled students (Nielsen, 2002, 2008; McCoach et al., 2001; Winebrenner, 2003). These positive attitudes could be attributed to the fact that, given they work with both gifted and learning disabled students, this group of dual-role teachers are more likely to come into contact with twice-exceptional students. It is also possible that because of their dual roles this group has more PLD opportunities. However, the simplest explanation is that these teachers understand twice-exceptional students more easily because they have knowledge and understanding about both giftedness and learning disabilities. As one teacher in this study stated, twice-exceptional students need a teacher who "gets it" and having experience working with both gifted and learning disabled students perhaps gives these teachers a head start in understanding twice-exceptional students and their needs.

This finding echoes the literature which recommends that a team approach be used to identify and provide for twice-exceptional students (Baldwin et al., 2015; Coleman & Gallagher, 2015; Foley-Nicpon & Assouline, 2014; Foley-Nicpon et al., 2013; Morrison & Rizza, 2007; Nielsen, 2002; O'Brien, 2014; Reis & Ruban, 2005; Reis et al., 2014). It shows that the best outcomes for twice-exceptional students come when the knowledge from the gifted field is combined with the knowledge from the learning disabilities field. This can happen when one teacher has responsibility for both groups of students or it can be achieved perhaps more realistically by collaboration between the teacher in charge of gifted students and the teacher in charge of learning disabled students. This collaboration would ideally be supported at least by the RTLB and the classroom teacher, (O'Brien, 2014). This would provide the kind of team approach advocated by the literature.

Comparison of Teacher Groups

There were only two items that were significantly different from the overall sample for all three teacher groups outlined above; these teachers were all more likely to differentiate the curriculum and less likely to require a learning disabled student who is also gifted to remediate areas of weakness before working in areas of strength. These are important attitudes for teachers to hold in light of the twice-exceptional literature. The twice-exceptional literature confirms unanimously that meeting the students' needs for challenge and talent development must come *before* the student's learning disabilities are addressed (e.g., McCoach et al., 2001; Nielsen, 2002, 2008; Winebrenner, 2003).

The group of teachers with responsibility for gifted students had slightly different results to the group of teachers with responsibility for learning disabled students. The teachers with responsibility for gifted students were slightly less likely to differentiate lessons for students who had already shown mastery of basic skills. However, in contrast, they were slightly less likely than teachers with responsibility for learning disabilities to require a learning disabled student who is also gifted to remediate their areas of weakness before using their strengths. Neither of these differences was significant.

Interestingly, the group of teachers with responsibility for learning disabled students and the group of teachers with responsibility for both gifted and learning disabled students were both more likely to consider that an underachieving student could be gifted. This item was not significant for the group of teachers with responsibility for gifted students. This suggests that teachers who work with learning disabled students are more likely to be aware that a gifted student may not be a high-achiever. This gives hope that twice-exceptional students who have been identified as learning disabled may also be identified as gifted by the teacher with responsibility for learning disabled students. PLD that supports these teachers in

identifying gifted underachievers would be beneficial. Further issues relating to identification will be discussed in the following section.

Key attitudinal differences were also noted between the group of teachers who had *training* in both learning disabilities and gifted education, and the group of teachers who had *responsibility* for both learning disabled and gifted students. The group of teachers who had training in both learning disabilities and gifted education, in comparison with the rest of the sample, showed slightly less positive attitudes towards twice-exceptional students. These teachers were not as likely to endorse variation of the curriculum, not as likely to allow students to work on different assignments, and less likely to agree that work that is too easy frustrates a gifted learner. They were less confident in adapting lessons for gifted students and also less confident in identifying gifted students (see following section.) Conversely, the group of teachers who had *responsibility* for both learning disabled and gifted students showed positive attitudes towards twice-exceptional students in these areas, such as a willingness to differentiate the curriculum and willingness to allow students to work on different assignments (see previous section.)

This suggests that having *responsibility* for both gifted and learning disabled students is more beneficial than having *training* in both of those areas alone. It is possible that those with experience working with these students are more confident and more experienced, leading to more positive attitudes. It could be inferred that teachers with training only in these areas are aware of the complexities involved in meeting the needs of these students, but lack the confidence that would enable them to do so (Moon, Callahan & Tomlinson, 1999). However, it must be kept in mind that the sample sizes for these two groups are small, and the sample overall is non-representative. Additionally, we do not know exactly what or how much training this group of teachers have had. The results may be an anomaly, but they point to a need for more research into these differences.

Research Question 2:

Part A: How do New Zealand Teachers Identify Twice-Exceptional Students?

In contrast with Wormald's case studies of twice-exceptional students where all diagnoses were made by outside experts, most of the identification of twice-exceptional students discussed by teachers in this study happened within schools. Diagnoses were made either solely by the teacher's own judgement ("as the teacher I think he fits the category"), or by the teacher in tandem with other professionals in the school (such as SENCO, teacher in charge of gifted students, and RTLB). In both scenarios, some respondents referred to school assessments and testing as part of the diagnostic process.

This finding is also in contrast with several other studies which show that the identification of twice-exceptional students was in most cases initiated by parents and involved privately accessed testing by experts outside the school system such as educational psychologists (Brownstein, 2015; Dare & Nowicki, 2015; O'Brien, 2014; Spiers Neumeister et al., 2013). Given that this sample is made up largely of teachers with responsibility for either gifted students or learning disabled students, it is likely that this study does not describe the experience most twice-exceptional students in New Zealand have in receiving a diagnosis (if they receive one at all). Overall, the teachers in this sample rated themselves as confident in identifying gifted students and in also identifying learning disabled students. It is reasonable to conclude that teachers who are more confident at identifying exceptional students will do so with more frequency than those who are less confident.

The group of teachers who had responsibility for gifted students rated themselves as very confident in identifying gifted students. This may seem obvious, but it is relevant for twice-exceptional students whose giftedness often goes unrecognised. In two of the three categories identified by Baum (1990) the student's giftedness is not identified. This makes identification of the student's giftedness a priority. Unfortunately, the failure of teachers to

identify a twice-exceptional student's giftedness may be related to the negative attitudes some teachers hold towards disability labels. (Bianco & Leech, 2010; Minner, 1990). Teachers have also been shown to rate compliant behaviours over performance on academic tasks as being critical for school success, and stereotypical expectations as these could be an obstacle to identification of twice-exceptional students (Bianco & Leech, 2010). The more confident teachers are at identifying gifted students, and the better the understanding they have of the varying characteristics of atypical gifted learners, the better chance the twice-exceptional student has of being recognised for both exceptionalities.

Interestingly, the group of teachers who rated themselves *most* confident at identifying gifted students and also at identifying learning disabled students was the group of dual-role teachers who had responsibility for *both* gifted students and for learning disabled students. In contrast, the teachers who had training in either gifted education or learning disabilities or both, but did not hold positions of responsibility, were *least* confident at identifying gifted students and learning disabled students. This suggests that those with training only are aware of the challenges and complexities involved with identifying exceptional students, but lack the experience that would give them confidence. A similar finding was identified by a study into preservice teachers' attitudes towards academically diverse students before and after professional development. This study showed preservice teachers' attitudes to differentiation were *less* positive in post-testing; suggesting that teachers can become slightly less confident, or perhaps more realistic about their abilities after training because of the greater awareness they have of the complexities involved in meeting the needs of academically diverse students (Moon et al., 1999). In any case, the value of the dual-role teachers' experience working with both gifted students and learning disabled students seems clear.

Although the majority of respondents referred to the identification of twice-exceptional students as happening within the school, the process was not described as being trouble-free in every case. A small number of teachers mentioned some kind of conflict relating to the identification of a twice-exceptional student. One teacher described the struggle they had to get the school to agree to the diagnosis of twice-exceptionality; they had "difficulty getting the school… to recognise that she was not simply an uncoordinated normal student." Another respondent referred to conflict between assessment reports produced by external experts such as educational psychologists, and teachers' own opinions about the students in question.

This suggests that teachers do not always agree with the experts' diagnoses. Reluctance on the school or individual teacher's part to accept these externally produced reports has also been identified by other studies (O'Brien, 2014; Wormald, 2009). This points to the need for specific training regarding cognitive assessments, both in preservice courses and in PLD, to support teachers in interpreting these reports and making use of their recommendations. Cognitive testing has been identified as a key part of a broad, multi-faceted and multi-dimensional assessment process for twice-exceptional students (Brody & Mills, 1997; Foley-Nicpon & Assouline, 2015; Krochak & Ryan, 2007; McCoach et al., 2001; Morrison & Rizza, 2007; Nielsen, 2002; Reis et al., 2014). Given the emotional and academic risks that twice-exceptional students face if they are not identified and provided for adequately, it is imperative that teachers are given the training and support they need to be able to utilise the important resource that cognitive assessments represent. At the same time, consideration needs to be given to school-based identification processes that do not rely on cognitive testing, given that many twice-exceptional students will come from families who do not have the financial resources to access this private testing.

Part B: How Do New Zealand Teachers Provide for Twice-Exceptional Students in the Classroom?

Modifications to Student Work, Assessments and Curriculum

The teachers in this study named a broad and comprehensive group of strategies that they used or would use with a twice-exceptional student in the classroom. Encouragingly, just under half of the teachers in this study stated that one of the ways they would provide for a twice-exceptional student in their classroom is by making modifications to the student's work, assessments and curriculum. In other words, some form of differentiation. This was the second most commonly stated strategy by teachers in this study.

Crucially, more than a third of these teachers showed clearly that they would use modification strategies that catered to *both* the students' giftedness and disability. For example, teachers mentioned modifications that were targeted at the student's giftedness such as independent learning programmes and extension work, opportunities where easy work could be extended, high level thinking activities and investigations. Several teachers also referred to the importance of tapping into the student's interests. This is a positive finding, as twice-exceptional students need teachers who can see their strengths first and foremost, and are able to cater to them, even when their performance in testing or assessments is not consistent and may even at times fail to confirm their high ability.

While talent development should be the focus of remediation for these students (Baum & Owen, 2004; Baum et al., 2014; Foley Nicpon et al., 2011; McCoach et al., 2001; Neihart, 2008; Nielsen, 2002; Reis et al., 2014; Wen Wang & Neihart, 2015;), it is vitally important that they also receive the support and modifications that are warranted by their learning needs. The teachers in this study were aware of this. They discussed modifications that were focused on supporting the student's disability more often than they discussed modifications that responded to the student's giftedness. They confidently referred to

modifications such as extra time, simplified texts, flexibility with deadlines, oral methods of assessment, allowing students to focus on ideas rather than accuracy in some tasks, and giving options for presentation of work.

Just under half of these teachers also discussed technologies and strategies that were targeted at specific learning disabilities, such as dyslexia. They referred to strategies and technologies such as computers for word-processing, voice to text technology, visual aids, oral presentation of information, and talking books. Encouragingly, these teachers showed they had a good understanding of a range of specific learning disabilities and on the whole seemed capable of providing the modifications and support appropriate for them. The focus of these disability-specific strategies was to "limit the frustration" of the student's disability. This approach is confirmed by the literature, which stresses the importance of supporting the student to work at their cognitive level (Barton & Starnes, 1989) so that the learning disability does not hinder the student's progress.

Indeed, a number of the teachers in this study highlighted focusing on the student's strengths as an actual strategy they would use to provide for twice-exceptional students in the classroom. These teachers clearly understood the need to use the student's strengths as a "boost" to their confidence, as this can be low in a twice-exceptional student. This lack of confidence and low self-concept can be attributed to their hypersensitivity, self-criticism (Coleman, 2001; Dole, 2000; Neihart, 2008; Vespi & Yewchuk, 1992) and the failure they may have experienced in their previous schooling history (Assouline et al., 2010; Barber & Mueller, 2011; Foley Nicpon et al., 2010; Ng et al., 2016 Reis et al., 2014; Silverman, 2009). Encouragingly, the teachers in this study were motivated to focus on what the student could do, rather than what they could not do and sought to provide opportunities for their twice-exceptional students to be recognised for their talents.

Teacher-Student Relationship

The most frequently mentioned strategy for provision for these students was to develop a strong teacher-student relationship. These teachers understood the basis of this relationship to lie in their understanding of the student and the student's strengths and weaknesses. One teacher described building a "trusting" relationship with a twice-exceptional student by tapping into his interests. Another teacher reiterated the importance of getting to know the student as an individual; "when you have taught one twice-exceptional student, strategies you used for them won't necessarily work for others." It was clear that many of these teachers understood that "being present and understanding them is key." The importance of the teacher's role in providing for the needs of twice-exceptional students and encouraging their self-concept cannot be underestimated (Barber & Mueller, 2011; Bianco & Leech, 2010; Coleman & Gallagher, 2015; Townend & Pendergast, 2015).

When a teacher fails to build a positive relationship with the twice-exceptional student, the effects can be damaging for the student and disheartening for the teacher. One teacher described such a failed relationship as a "disaster" because they had not received any training about twice-exceptionality prior to having the student in their classroom. The teacher admitted the student "learned little and we were both frustrated." Teachers need support and training to be able to build positive relationships with their twice-exceptional students. The uneven profile of a twice-exceptional student and their seemingly contradictory needs present a challenge for even the most experienced and well-intentioned teacher.

Only one-quarter of the teachers in this study had ever taken part in any PLD that related to twice-exceptionality. This is an indication that while teacher understanding about twice-exceptional students may have increased in a general sense, there is a lack of specific training in this area at a school level. Moreover, given the proportion of teachers in this sample who had responsibility for either gifted students or learning disabled students, much

of the PLD referred to in this study may have been targeted to teachers in those roles of responsibility, rather than being available to general classroom teachers. PLD relating to twice-exceptionality is needed for all teachers, not only those who have responsibility for gifted students or learning disabled students.

Limitations

The main limitation of this study is the non-representative sample. The invitation to participate in this study went out to teachers via either the principal of the school or the moderator of the online listerv, and the teachers themselves were under no compulsion to respond. This method therefore suggests there is likely to be a sampling bias. Those who did respond were possibly interested in taking part because they already had some knowledge of twice-exceptional students. This, added to the fact that half of the sample held positions of responsibility for gifted and/or learning disabled students in schools, means that this sample is not generalisable to the general teaching population. The size of the sample (n=67) is also a limitation.

Another limitation is that the teacher groups analysed are not completely mutually exclusive. There is a small overlap between the groups, and this was noted and the results were considered in light of this. Importantly, the results for each analysis were different, indicating that the groupings gave useful results, despite the overlap.

Additionally, a further limitation is that the demographics questions in the survey did not ask for specific role titles when asking the teacher about their teaching position. This means that while we know which teachers have responsibility for gifted students and which teachers have responsibility for learning disabled students, it is not known what their official role is in this capacity. Similarly, the demographics section did not ask specifically what training the teachers had had when they stated they had training in either learning disabilities

or gifted education. There could be considerable variation between the type and length of training these teachers were referring to.

Conclusion

This study focused on students who are gifted and also have a learning disability, while acknowledging that a range of disabilities can intersect with giftedness in a twice-exceptional student. The study aimed to uncover the attitudes and beliefs that New Zealand primary and secondary teachers hold towards twice-exceptional students. This study also sought to understand how they are currently identifying and providing for them in the classroom.

The results show that teachers who have responsibility for gifted students, teachers who have responsibility for learning disabled students, and teachers who have responsibility for *both* gifted students and learning disabled students are key resources for twice-exceptional students. These groups of teachers are more likely than other teachers in this study to make appropriate provisions for twice-exceptional students in the classroom, and are more willing to consider that a learning disabled student may also be gifted. Given that twice-exceptionality is a relatively new field – especially in New Zealand where there is little published empirical research – these results give cause for cautious optimism. If the resource and knowledge that these groups of teachers represent can be shared amongst their school communities, our twice-exceptional students will benefit. All teachers need the support and training that will enable them to identify and provide for twice-exceptional students in the classroom.

While this sample is not representative, the results overall also give some cause for hope. More than three-quarters of the teachers in this sample believed they had taught a twice-exceptional student. This suggests that New Zealand teachers do have some knowledge of twice-exceptionality and how it presents in students, indicating that the term “twice-

exceptional" has some familiarity amongst New Zealand teachers. The teachers in this study on the whole were willing to consider that a student who is gifted may not fit their expectations of what a gifted student looks like. They were open to differentiation and were less likely to require a learning disabled student who is also gifted to remediate areas of weakness before going on to use their areas of strength.

The attitudes shown by teachers in this sample indicate that pockets of knowledge and understanding about twice-exceptionality exist in some New Zealand schools, particularly amongst teachers who have responsibility for gifted and learning disabled students. This knowledge is a key resource for twice-exceptional students and their teachers and should be harnessed, developed and shared.

A point to note for further research is the importance of student autonomy for twice-exceptional students. Several teachers discussed using the student's own interests, giving the student choices, and being "student focused." Studies have shown that students learn more when in an environment that is supportive of their autonomy (Hofferber, Eckes, & Wilde, 2008). Twice-exceptional students in particular are more likely to thrive if they are in a classroom environment where they feel respected, supported and understood (Coleman & Gallagher, 2015; Townend & Pendergast, 2015). Any remediation or provisions for these students must have independence rather than dependence as their ultimate goal (Weinfeld et al., 2005), as the aim of all efforts to support and extend a twice-exceptional student should be to build competency by focusing and amplifying strengths (Terjesen, Jacofsky, Froh, & DiGiuseppe, 2004). In this way, the student is able to thrive, in spite of their difficulties (Baum et al., 2014).

This study makes a modest contribution to the nascent twice-exceptional literature in New Zealand. It highlights the need for New Zealand schools to consider the ways in which their systems and programme delivery could be disadvantaging this population of students,

specifically where being identified as learning disabled precludes a student from accessing gifted programming or vice versa. This study contributes to the risk and resilience literature by reiterating the importance of the teacher as a protective factor for twice-exceptional students.

More research is needed to quantify the incidence of twice-exceptionality in New Zealand classrooms, and to uncover the identification processes (or lack of) in use by general classroom teachers. More research into the attitudes and classroom practice of regular classroom teachers who do not have responsibility for gifted or learning disabled students is warranted, as it may be that these teachers have limited knowledge of twice-exceptional students. Given the potential that these under-identified and under-served students represent (Moltzen, 2011) any efforts to support and educate teachers in meeting their needs deserve to be prioritised.

Appendix A

Teacher Knowledge and Attitudes Towards Twice-exceptional Students

Research Project Title: What knowledge and beliefs do teachers hold about twice-exceptional students in New Zealand?

Researcher: Ms Idoya Munn

Supervisor: Dr Kane Meissel

We would like to invite you to participate in a research project. You have been approached because you are at a school which has been selected as part of a sample of representative schools, identified to give a broad geographical mix, and to provide a balance between secondary and primary schools. Your principal has given written permission to invite you to participate.

The purpose of this research is to investigate teacher knowledge and attitudes towards twice-exceptional students. That is, students who are gifted while also having a learning disability.

This research seeks to uncover and describe teacher awareness and knowledge of these students. It will investigate the strategies used by teachers to identify and provide for students in their classrooms and to make recommendations for professional development for teachers so that these students can be better identified and provided for.

This invitation is to ensure you are fully aware of the nature of this research. Your participation in the study will involve this online survey which will take less than fifteen minutes to complete.

This research asks you to: ·

Give consent for your responses to be used for the purposes of this research project. All of your responses will be kept completely anonymous at every stage of the research. No IP addresses will be recorded. All collected data will be stored in a secure password protected database at the University of Auckland for six years and destroyed thereafter. ·

Complete the following online survey about your knowledge and experience of twice-exceptional students, specifically, about your beliefs regarding teaching strategies and pedagogies appropriate for gifted and learning disabled students. If you are not aware of

having worked with any twice-exceptional students your responses are still important for the purposes of this research.

You have the right to discontinue the survey at any stage during the survey process, but once you have completed the survey your responses are anonymous and therefore not able to be withdrawn. The data from the online survey will be analysed and used for a Masters' level research dissertation. The data will also be used to write academic articles and presentations. At no stage will any one school or individual be referred to. The data gathered by the online survey will remain completely confidential. Reports, articles and feedback arising from this research will not identify any sources of the data.

If you would like a summary of the research findings, please email the researcher.

Thank you very much for your time and effort in making this important research possible. We would be very happy to provide more information about the project on request.

If you have any questions or concerns you wish to discuss, please contact the researcher.

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For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 ext. 83711 Fax: 64 9 3737432. Email: ro-ethics@auckland.ac.nz

Approved by the UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE on APRIL 14th 2016 for (3) years. Reference Number 016843.

If you have read the participant information and would like to continue the survey, please click YES to continue (you have the right to discontinue the survey at any point as well). If you do not wish to continue, please click NO to withdraw.

- ❍ Yes, I have read the participant information. I would like to continue this survey. (1)
- ❍ No, I do not want to participate in this survey. (2)

Q1 Gender:

- ❍ Male (1)
- ❍ Female (2)

Q2 Age Range:

- ❍ 20-29 (1)
- ❍ 30-39 (2)
- ❍ 40-49 (3)
- ❍ 50-59 (4)
- ❍ 60 + (5)

Q3 Please identify your highest educational qualification:

- ❍ Teaching Diploma (1)
- ❍ Graduate Certificate (15)
- ❍ Graduate Diploma (2)
- ❍ Bachelor's Degree (3)
- ❍ Bachelor's Honours (4)
- ❍ Post-Graduate Certificate (10)
- ❍ Post-Graduate Diploma (16)
- ❍ Master's Degree (6)
- ❍ EdD or professional doctorate (7)
- ❍ PhD (8)
- ❍ Other (9)

Q4 Please indicate the professional position you currently hold:

- ❍ Teacher (1)
- ❍ Teacher with management or pastoral responsibility (eg. Syndicate Leader, Dean, HOD, HOF) (9)
- ❍ School administrator (DP, AP or Principal) (2)
- ❍ School administrator (DP, AP or Principal) with teaching load (3)
- ❍ School administrator (DP, AP or Principal) with support or advisory responsibility (eg. SENCO) (4)
- ❍ Advisory or support teacher (eg. RTLB) (5)
- ❍ Advisory or support teacher with teaching load (eg. SENCO) (6)
- ❍ Guidance Counsellor (7)
- ❍ Careers Advisor (8)

Q5 How many years have you been teaching:

- ❍ 1-3 years (1)
- ❍ 3-6 years (2)
- ❍ 6-10 years (3)
- ❍ 10 years + (4)
- ❍ 20 years + (5)

Q6 What is your teaching area? (Select all that apply.)

- ❑ Primary (1)
- ❑ Secondary (2)
- ❑ Special Education (3)

Q32 Do you have a specialist teaching area?

- ❑ Yes (1)
- ❑ No (2)

If No Is Selected, Then Skip To Is your school:

Q33 What is your specialist teaching area?

Q7 Is your school:

- ❍ State (1)
- ❍ Integrated (2)
- ❍ Private (3)

Q8 Does your school have any form of provision for gifted and talented students?

- ❍ Yes (1)
- ❍ No (2)

Q9 Does your school have any form of provision for students with learning disabilities?

- ❍ Yes (1)
- ❍ No (2)

Q10 Do you hold any position of special responsibility for gifted and talented students in your school?

- ❍ Yes (1)
- ❍ No (2)

Q11 Do you hold any position of special responsibility for students with learning disabilities in your school?

- ❍ Yes (1)
- ❍ No (2)

Q12 Have you ever done any formal study or training in the education of gifted students?

- ❍ Yes (1)
- ❍ No (2)

Q13 Have you ever done any formal study or training in the education of students with learning disabilities?

- ❍ Yes (1)
- ❍ No (2)

Q14 Please read each statement and move the slider to the point that best describes your feelings about the statement.

_____ A student who is learning disabled will usually be a low achiever in most subjects. (12)

_____ The regular curriculum will challenge all students if the teacher is interesting and exciting. (1)

_____ Gifted students can make it on their own without teacher direction. (2)

_____ Students with learning disabilities find it difficult to work on their own without teacher direction. (3)

_____ It is important to assess students' knowledge about the topic before beginning a new unit. (4)

_____ If tests indicate that a student has acquired basic stills, then the teacher should omit the regular assignments and modify the curriculum for that student. (5)

_____ Gifted students will take their regular assignments and make them more challenging on their own. (6)

_____ If students have already mastered some of the material before starting a unit, they should be given alternative assignments. (7)

_____ Students with learning disabilities may need additional time to practice to master basic skills. (20)

_____ An effective way to identify gifted students is to look for students with the highest grades. (11)

Q31 Please read each statement and move the slider to the point that best describes your feelings about the statement.

_____ In the classroom, content should be varied to match students' interests and abilities. (1)

_____ To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way. (2)

_____ Allowing gifted students to work on assignments that are different from the rest of the students is playing favourites and fostering elitism. (3)

_____ Students who are learning disabled are usually poor readers. (4)

_____ Average students need to spend most of their time working in teacher-directed activities. (5)

_____ Gifted students need longer assignments since they work faster. (6)

_____ Working too hard in school leads to burn-out in gifted students. (7)

Q29 Please read each statement and move the slider to the point that best describes your feelings about the statement.

_____ Learning disabled students do not do well in most subjects. (1)

_____ Learning disabled students who are gifted will need concentrate their study to remediate their weaknesses so they can go on to use their areas of strength. (2)

_____ Gifted students are easy to identify in the classroom. (3)

_____ Work that is too easy or boring frustrates a gifted child just as work that is too difficult frustrates an average learner. (4)

_____ Gifted students should be encouraged to direct their own learning. (5)

_____ Having some students work on different assignments results in unfair grading. (6)

_____ Some underachievers are actually gifted children. (7)

_____ Placing students in mixed ability groups is more detrimental than beneficial. (9)

Q27 Please read each statement and move the slider to the point that best describes your feelings about the statement.

_____ While it is appropriate for students to work on different assignments commensurate with their ability levels, the means of assessment should be the same for all students. (1)

_____ If a gifted student is doing poorly in spelling, it is necessary to deal with the weakness in spelling before presenting more advanced content in other areas. (2)

_____ All students in the class should take the same test to show mastery of the material in a unit. (3)

_____ Removing special education and gifted students from the classroom for special classes is disruptive to the class schedule. (4)

_____ In teaching gifted students, teachers should modify content only, since all students need to use the same processes and can generate the same projects. (5)

_____ Placing students in groups with students of the same ability is more detrimental than beneficial. (7)

Q17 How confident do you feel about the following? Rate from 0 (no confidence) to 100 (very confident) by moving the slider to the point that best describes how confident you feel.

_____ Adapting my lessons to meet the needs of gifted learners. (1)

_____ Adapting my lessons to meet the needs of learning disabled students. (2)

_____ Accommodating varying levels of ability in my class. (3)

_____ Assessing where students are at and and designing appropriate lessons. (4)

_____ Individualising instruction to meet the needs of gifted learners. (5)

_____ Individualising instruction to meet the needs of learning disabled students. (6)

_____ Identifying gifted students. (7)

_____ Identifying learning disabled students. (8)

Q47 Please answer the following questions as fully as you are able. Have you ever taught a twice-exceptional student? How did they fit the label twice-exceptional?

Q48 How was the student identified as twice-exceptional?

Q50 What support were you given by wider school systems and support staff as you met the needs of this student (such as RTLB, GATE coordinator, or SENCO)?

Q49 Thinking about your experience with that student, OR imagining what you would do if you had a twice-exceptional student in your class, what strategies would you use to provide for them in the classroom?

Q52 Have you ever taken part in any PLD that covers twice-exceptional students specifically? If so, could you please describe it?

Q53 What do you think is the most pressing need of a twice-exceptional student?

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