Gifted Adolescents and Multipotentiality: Links with Stress, Anxiety, Perfectionism and Career Indecision

A thesis presented in partial fulfilment of the requirements for the degree of Masters in Educational Psychology at Massey University, Manawatū, New Zealand

Naomi Hnat

2018

ABSTRACT

Gifted and talented students are often thought to sail through school and life, due to their superior academic or non-academic abilities. However, this is not always the case, as gifted and talented students have characteristics and needs that are as diverse as those of any other population. Adolescence can be a particularly challenging time for these students, especially those who may consider themselves to be multipotentialed. Multipotentiality, defined as having varied and diverse abilities as well as the potential to succeed to a high level in a number of different fields, has been linked in the research literature to stress, anxiety, perfectionism, and career indecision in gifted adolescents. The current study aimed to investigate the level and manifestation of multipotentiality in a New Zealand sample of gifted adolescents, as well as its links to the aforementioned constructs. A mixed methods, sequential explanatory research design was used to explore these topics in a cohort of 23 Year 13 students identified by their school as gifted and talented. The students completed a questionnaire that combined the Perceived Stress Scale, the Zung Self-Rating Anxiety Scale, and the Child-Adolescent Perfectionism Scale, as well as questions on multipotentiality and career decision-making. Analyses revealed high levels of self-reported multipotentiality among the participants. Results also showed that stress, anxiety, self-oriented perfectionism, and career indecision were higher for females than for males. Three participants participated in a focus group, where the themes from the questionnaire were discussed in further depth. Results from the questionnaire and focus group indicated that for gifted adolescent girls in particular, being multipotentialed appeared to exacerbate stress, anxiety, perfectionism, and career indecision. However, being multipotentialed was found to be linked to lower stress and anxiety in adolescent males. Implications and suggestions are made in terms of how educators and counsellors can be more aware of the existence of multipotentiality and the impact it may have on the mental health of gifted adolescents.

ACKNOWLEDGEMENTS

"Life is effort." So says the body. "Life is blessing." So says the soul. - Sri Chinmoy

I would firstly like to thank my brilliant supervisors Dr. Tracy Riley and Dr. Alison Kearney for your wisdom and guidance throughout this project. Although I faced many seemingly insurmountable obstacles and doubts, I overcame them through your encouragement and support.

Thank you to the GATE students who gave their time to participate in my research, and to the school GATE co-ordinator for making this research possible. It was a pleasure working with you, and your contributions are highly valued and appreciated.

To my husband Theo - thank you for your kindness and love, and for constantly being at my side throughout this journey. Your hard work and perseverance in your own academic, professional, and creative pursuits have motivated me to raise my own expectations of myself and what I can achieve. You are my hero. To my mother Grace, my sisters Amanda and Miriam, and my friends Paulien, Jo, Kirsten, Max, Nic, and Hilary - thank you for being the best people I could ever ask to have in my life. You have all supported me so much and I wouldn't be here without you. Thank you for encouraging and inspiring me to do more, be more, and create more.

Lastly, I will be eternally grateful to all the fine young ladies of Con Brio and Vivace. Thank you for being the absolute joys and lights of my life throughout the past year. May you always make your voices heard. I hope that one day I will be able to return in some small way the blessing that you have given to me by being who you are.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

Over the past 20 or so years, a significant amount of research has been devoted to the study of multipotentiality and its effects on gifted and talented individuals, especially in regards to their mental health and career decision-making (Colangelo, 2002; Kerr, 1990; Neihart, Reis, Robinson, & Moon, 2002; Sajjadi, Rejskind, & Shore, 2001). Being a multipotentialed adolescent (defined as possessing varied and diverse abilities as well as the potential to succeed to a high level in a number of different fields) at first glance appears to be a trait that could surely only serve to be highly useful throughout life. Pair it with being gifted, and the two traits perhaps seem to complement each other perfectly, resulting in a picture of a capable and multitalented adolescent who is able to choose from various career pathways and face likely success in many of them.

However, lying beneath this picture are the hidden struggles and challenges that face this often vulnerable population of multipotentialed, gifted adolescents. Although being multipotentialed may have many benefits, there are also significant disadvantages that come along with it. To name but a few, these relate to having perfectionistic tendencies, feeling anxious and overwhelmed, feeling unable to make a satisfying career choice, and feeling significantly pressured by others to spread oneself out in order to not waste one's gifts (Colangelo, 2002; Greene, 2006; Hurst & Riley, 2014; Kerr, 1990). In order for multipotentialed gifted adolescents to overcome or avoid these potential negative effects, researchers and educators must be able to properly understand the nature of the effects that multipotentiality may have on mental health and career decision-making.

Before delving into the heart of this study, it is important to clarify what is meant by the term 'gifted and talented' in order to understand the population being studied. Thus, this chapter begins with a definition of giftedness in relation to the research that is the most relevant to school students in New Zealand today. This is followed by an explanation of why multipotentiality is a significant topic to be studied in the gifted and talented adolescent population. The chapter

concludes with a brief rationale for the current research, highlighting the need to better understand the non-academic related needs of gifted and talented students.

Defining Giftedness

Throughout history and across many different cultures and domains, expressions of giftedness have intrigued scholars as well as the general public (Robinson & Clinkenbeard, 2008). The modern, scientific study of giftedness is said to have begun in the nineteenth century, when Victorian scientists became interested in using multiple measures to investigate differences across people (Tannenbaum, 1958). In the twentieth century, research on giftedness was largely based around the intelligence quotient (IQ). In the decades following, researchers have used a wider variety of methods that go beyond IQ testing in order to investigate more specific skill differences amongst gifted individuals, as well as the neuropsychological, social, and emotional effects of giftedness (Robinson & Clinkenbeard, 2008).

Due to the breadth of current research in the field, definitions of giftedness vary among researchers and educators. Researchers in the area of cognitive psychology often use a high IQ to identify the gifted, whereas researchers in other fields (such as education or educational psychology) tend to use the definitions that individual school systems have employed to identify the gifted (Robinson & Clinkenbeard, 2008). As Kaufman and Sternberg (2008) point out, 'giftedness' is simply a label that changes according to the criteria which one sets.

In New Zealand, the Ministry of Education does not provide an 'official' definition of giftedness and talent. Instead, they have developed a set of criteria that are intended for schools to use as a guide to create their own conceptualisations (Ministry of Education, 2012). An underlying part of the Ministry's guidelines is that schools should "acknowledge that gifted and talented students demonstrate exceptionality in relation to their peers of the same age, culture, or circumstances" (Ministry of Education, 2012, p. 22). Another key aspect of their criteria is that

school definitions should reflect a multi-categorical approach. Riley, Bevan-Brown, Bicknell, Carroll-Lind, and Kearney (2004) identify six broad areas of giftedness and talent: intellectual/ academic, creativity and problem solving, expression through the arts, expression through physical/ sport, social/leadership abilities, and culture-specific abilities and qualities. However, they also recognise that schools may wish to include more categories in their conceptualisations of giftedness. This particular multi-categorical approach is very similar to those recommended by researchers in the United States (Brown et al., 2005), except for the inclusion of culture-specific abilities.

It is important to consider the influence of culture when defining giftedness, especially in the bicultural context of New Zealand. Research examining giftedness in the Māori population has led to significant findings for gifted and talented education in New Zealand. For instance, research by Bevan-Brown (2011) outlined several key components of a Māori concept of giftedness, some of which are markedly different to traditional Western concepts. For example, from a Māori perspective, giftedness can be expressed in both individual and group contexts. There is also an expectation that a person will use their gifts and talents to benefit others, and also that the nature of giftedness is holistic and interwoven with other Māori concepts such as whānau and whakapapa (Bevan-Brown, 2011). In addition to this, Māori concepts of giftedness are typically more wide-ranging in terms of recognised qualities and abilities. For instance, they acknowledge not only the cognitive, artistic, leadership, creative, and social domains, but also the spiritual, affective, aesthetic, psychomotor, and intuitive domains (Macfarlane & Moltzen, 2005).

The definition for giftedness used in the current study is based on individuals demonstrating exceptionality in one or more domains in relation to their peers (Ministry of Education, 2012). These domains may be individual school subjects or may be part of the categories/components described by Riley et al. (2004) and Bevan-Brown (2011), as outlined above. This definition also

aligns with the definition held by the school from which gifted students were drawn for participation in this study.

Meeting the Needs of Gifted and Talented Students in New Zealand Schools

Many schools in New Zealand have a system of identifying and providing for the subgroup of students that make up their gifted and talented cohort. In Riley and Bicknell's (2013) research which surveyed 327 schools, approximately 93% of New Zealand schools indicated that they have a co-ordinator or similar person who is responsible for gifted and talented education. This indicates that schools in general are making an effort in one way or another to provide for the unique needs of their gifted students. However, it can be argued that researchers and educators over the years have primarily tended to focus on the learning and cognitive needs of these students, with their emotional and social needs only becoming a growing topic of concern in more recent times (Ministry of Education, 2012). In order for gifted students to succeed to the best of their abilities, school programmes should aim to address their needs holistically. This research aims to contribute towards the growing understanding of the needs of gifted adolescents in New Zealand, with respect to the concept of multipotentiality and how it may relate to stress, anxiety, perfectionism, and career indecision.

Rationale for the Current Study

This study was undertaken because there was a lack of empirical research regarding multipotentiality in gifted adolescents in New Zealand. Multipotentiality is also not touched upon in the Ministry of Education’s latest published guidelines which are intended for educators and parents to address the needs of gifted and talented students (Ministry of Education, 2008; 2012), despite how it has been widely studied in gifted populations internationally (Neihart et al., 2002; Sajjadi et al., 2001). In order to investigate the phenomenon of multipotentiality and whether it is of

significant relevance to the mental health of gifted New Zealand youth, local and current research needs to be conducted in a manner that encourages exploration and depth of study. This study's mixed methods design offers both breadth and depth of understanding to this topic and makes it relevant to New Zealand students. With the pursuit of knowledge regarding gifted and talented students' needs, educators can be better equipped at addressing these and helping these individuals to lead fulfilling lives and reach their full potential in a way that does not sacrifice their mental health.

Overview of Chapters

The following chapter reviews the literature related to characteristics and profiles of giftedness, which then turns to a review of multipotentiality in relation to its various studied effects on gifted adolescents. Chapter 3 explains the two phase mixed methods approach that was utilised in this study, and gives a description of the data gathering tools and analysis procedures that were used. Results of the study are described in Chapter 4, and themes emerging from the research are explored. These results are discussed in greater detail in Chapter 5, linking findings to the existing literature and providing recommendations for practice and further research.

CHAPTER 2: LITERATURE REVIEW

Adolescence is a time during which individuals become more independent and make numerous decisions concerning their future. These decisions can be difficult for a number of reasons, and may be particularly challenging for gifted adolescents, especially those who exhibit signs of multipotentiality. This review begins with an outline of some of the most common characteristics and profiles of gifted students. The focus then shifts to an explanation of multipotentiality and how it manifests in gifted individuals, with adolescents being the primary topic of concern. This chapter finishes with the aims of the current study and the questions that are sought to be answered.

Characteristics of Giftedness

Although gifted children and adolescents share in the fact that their development is advanced in one or more cognitive, academic, or non-academic domains, they are as diverse as any other population (Robinson, 2008). Giftedness comes with an array of strengths and benefits, as well as challenges and vulnerabilities (Peterson, 2009). The following section provides a brief overview of some of the most common experiences of gifted young people, as well as how these differ among different types of gifted individuals.

Identification of the gifted. The main characteristics of giftedness can be derived from the ways in which gifted children are identified. Historically, intelligence tests have been and still are a popular method of identifying giftedness in countries such as the United States, where much of the research on giftedness takes place (Newman, 2008). Traditionally, a score that is two standard deviations above the mean (such as a score of 130 in standard measures of cognitive/intellectual abilities) has been used to classify an individual as intellectually gifted, although cutoff scores may vary between contexts (Mandelman, Tan, Aljughaiman, & Grigorenko, 2010).

Individual intelligence tests differ regarding what they measure. For example, the Wechsler Intelligence Scale for Children measures verbal comprehension, visual spatial skills, working memory, fluid reasoning, and processing speed (Wechsler, 2014) The Stanford-Binet Intelligence Scales measure fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory (Roid, 2003). Thus, an individual who demonstrates very high levels of one or more of these traits may be classed as gifted according to the intelligence testing perspective. Commonly used terms to describe the characteristics of individuals with high intelligence include rapid, able, superior, genius, and precocious (Mandeman et al., 2010).

In New Zealand however, intelligence tests form only one component of a wide array of methods recommended for identifying gifted and talented students (Ministry of Education, 2012). For example, teacher nomination is frequently used, and some of the most helpful criteria that teachers prefer to use in identifying gifted students are: creative, curious, quick to learn, initiates own learning, academically talented, motivated, and knowledgeable (Schack & Starko, 1990). Parent and peer nominations also provide insight into expressions of exceptional intellectual, academic, creative, artistic, and leadership abilities (Pfeiffer & Blei, 2008). For example, common characteristics of gifted students that may be noticed by parents and peers include the child in question being an early reader, learning new things earlier than their peers, developing abstract thinking earlier than their peers, and forming original ways of thinking about problems and ideas (Manning, 2006).

McAlpine and Reid (1996) conducted research in New Zealand regarding specific traits that are commonly shared among gifted students. They found that there were numerous reliable indicators of exceptional talent that fit into five umbrella categories. These are: learning, creative-thinking, motivational, social leadership, and self-determination characteristics. For instance, examples of exceptional learning characteristics include high levels of logical and analytical thinking, speed and accuracy in seeing patterns/relationships and mastering information, enjoyment

of intellectual challenge, and the ability to solve problems and recall a wide range of knowledge. Examples of exceptional creative-thinking characteristics include innovation, originality, abundance of ideas, a keen sense of humour, experimentation with novel ideas, and speculation about the future. Individuals with exceptional motivation typically demonstrate a high drive to succeed, are persistent with following tasks through to completion, prefer to work independently, and tend to be self-critical and evaluative.

Those who are gifted with social leadership skills are typically popular, communicate well with others, show initiative in group situations, inspire confidence in others, are adaptable in new situations, and are socially mature. Lastly, common behaviours of exceptional self-determination include questioning the status quo, asking searching questions, seeking out explanations, being interested in 'adult' problems, forthrightly expressing ideas and opinions, and preferring the company of older children and adults (McAlpine & Reid, 1996). Even though these traits and behaviours may be reliable indicators of exceptional talent, it is important to remember that gifted students are not a homogenous group, and that each individual has a unique skill set (Ministry of Education, 2012), which is often a blend different abilities and qualities.

Social and emotional characteristics of giftedness. There are many advantages to being gifted in one or more areas which go beyond simply having a high level of skill or intelligence. For example, Jensen (1998) outlines traits and outcomes that are associated with being intelligent, such as high educational and extracurricular attainment, eminence, occupational status and success, higher income, and achievement motivation. However, sometimes positive characteristics and behaviours such as those outlined above may present themselves in a negative light, depending on context. For instance, a student who prefers to work on their own may actively resist the idea of working with others. Similarly, a student who has exceptional knowledge recall may dominate classroom discussions (Ministry of Education, 2012). Some challenging behaviour may occur as a result of needs not being met; for example, a student who learns very fast and skips stages in

learning may become frustrated, disinterested and/or disruptive if they are required to work at the same speed as the rest of their class (Ministry of Education, 2012).

It is also not uncommon for giftedness to be accompanied by certain risks and challenges. One of the most common vulnerabilities is related to asynchronous development across the social, emotional, cognitive, and physical domains, which often leads to a feeling of not fitting in with peers (Morelock, 1992). In early adolescence, asynchronous development can lead to masking one's abilities in order to fit in (Ministry of Education, 2012). Advanced intellectual development may also result in poor impulse control, emotional outbursts, and low self-esteem (Pfeiffer & Stocking, 2000). Intellectually gifted students may also develop a serious or cynical perspective in life due to greater awareness of global concerns. Alternatively, this awareness may also inspire them to lead others in social change (Ministry of Education, 2012). At times, these individuals may feel responsible for fixing the problems that they see, which can result in frustration and depression for children who do not succeed in achieving these high goals (Pfeiffer & Stocking, 2000).

Relevant to this is the characteristic of perfectionism, which is common among gifted students (Pfeiffer & Stocking, 2000). According to Greenspoon (2006), these individuals believe that the only way to gain acceptance from others is by being perfect. Perfectionism can serve as motivation to keep students moving towards goals and aspirations. However, it can be a double-edged sword, leading to setting oneself unrealistically high standards, procrastination and indecision, severe anxiety in test situations, and avoidance of situations that pose a risk of failure (Ministry of Education, 2012; Pfeiffer & Stocking, 2000, Sampson & Chason, 2008). There is less risk of perfectionism occurring in individuals who are raised in family environments that are accepting, regardless of performance and achievement (Greenspoon, 2006). There has been significantly less research on the impact of educational environments on perfectionism, but Schruder, Curwen, and Sharpe (2014) suggest that teachers of students who experience struggles

due to perfectionistic tendencies should provide supportive learning environments and make it clear that mistakes are common and expected.

High expectations from oneself can often be accompanied by high expectations from others, which can create pressure to perform and exacerbate the fear of failure (Ballam, 2011). High expectations from parents and teachers, combined with excessive praise for accomplishing tasks may lead to a distorted sense of success and ability (Pfeiffer & Stocking, 2000). Furthermore, highly gifted students are at risk of misconceptions regarding their potential to reach levels of achievement that are far above their own ability, which can lead to depression, hopelessness, power struggles, and underachievement (Pfeiffer & Stocking, 2000).

Another characteristic that is present in some gifted children and adolescents is that of underachievement. Broadly speaking, this occurs when there is a "discrepancy between children's school performance and their abilities" (Rimm, 2008, p. 139). Some examples of common discrepancies are between IQ and school test scores, grades and abilities, and test scores and school reports. Research demonstrates that underachieving children generally lack internal locus of control and attribute success to luck, not effort (Rimm, 2008). Unlike high achieving gifted students, who often find motivation from comparing their superior performances to those of their peers, underachievers may lose hope of being 'winners' (Rimm, 2008). In their review, Reis and McCoach (2000) outlined the three most common contributors to underachievement in gifted students: firstly, the appearance of underachievement may be masking a more serious cognitive, emotional, or physical problem. Secondly, underachievement may occur due to a mismatch between the student and their classroom environment, and thirdly, it may occur due to low self-motivation, low self-regulation, or low self-efficacy. Furthermore, many underachievers are highly critical of themselves, especially regarding their academic abilities, and perceive themselves as inadequate (Reis & McCoach, 2000).

Different profiles of giftedness. Although there are many characteristics that are commonly shared among gifted individuals, there is also great diversity in the presentation of giftedness. In their establishment of a holistic theoretical perspective about different presentations of giftedness, Betts and Neihart (2004) developed six different profiles based on the needs, feelings, and behaviours of gifted children. These six profiles are summarised in Table 1 and briefly described below.

Table 1

Six Profiles of Giftedness (Betts & Heihart, 2004)

	Characteristics
The Successful	High achiever, self-critical and complacent, works for the grade
The Creative	Creative, bored, frustrated, sensitive, questions rules, high energy
The Underground	Desires to belong, insecure, devalues/discounts/denies talent
The At-Risk	Resentful, depressed, poor self-concept, disruptive, low achiever
The Twice/Multi Exceptional	Makes connections easily, inconsistent, seems average or below
The Autonomous Learner	Self-confident, intrinsically motivated, pursues passions, excited

According to Betts and Neihart (2004), as many as 90% of gifted individuals fall into *The Successful* type. These children typically do very well at school, having 'learned the system' well. However, this may also result in a loss of autonomy and creativity, contributing to underachievement in young adulthood. *The Creative* type refers to divergently gifted children who do not conform and have not learned to use the system to their advantage. These children are typically highly creative, question authority, and receive little recognition and few rewards. *The Underground* type largely refers to gifted adolescent girls who hide their gifts in order to feel more included amongst their non-gifted peers. This is often accompanied by insecurity, anxiety, and loss

of interest in previous passions. *The At-Risk* type refers to gifted students who feel that the system has rejected them and not met their needs. They are often angry, bitter, and resentful because of this and may have very low self-esteem.

The Twice/Multi Exceptional type encompasses the group of children who demonstrate superior ability in one or more domains, combined with one or more disabilities, such as autism spectrum disorder, a learning disability, or a physical disability (Moon & Reis, 2004; Neihart, 2008). Research has shown that these children commonly exhibit certain behaviours that are similar to other gifted children, but that they also exhibit behaviours that are more common among other learning-disabled students. For example, twice exceptional children may demonstrate good problem-solving and abstract reasoning skills, be intensely curious and actively seek information, and be creative thinkers. However, at the same time, they may be disruptive in class and may have difficulty doing tasks which stress memory, perceptual ability, or automatic skills such as sequencing and writing speed (Neihart, 2008). Lastly, *The Autonomous Learner* type refers to independent and self-directed students who make the school system work in their favour. They use their strong sense of personal power to create change in their own lives and often take up leadership roles in the community.

In brief, not all gifted students are confident high achievers who sail through school. Some individuals have their abilities masked by disability, while others choose to mask their abilities in order to feel accepted. Still others may rebel against the school system and underachieve (Ministry of Education, 2012). Furthermore, some gifted students are successful in many areas and have abilities and qualities which traverse multiple domains.

Multipotentiality

The preceding review gave a brief outline of some of the common characteristics and profiles of gifted children and adolescents. The following section now shifts its focus to reviewing

the literature on multipotentiality, which is one of the most widely studied topics in the giftedness literature and has captured the interest of researchers for many years (Neihart et al., 2002; Sajjadi et al., 2001). It is a trait that is often paired with giftedness, as the majority of gifted individuals are widely considered to be multipotentialed (Milgram, 1989; Sajjadi et al., 2001). The term multipotentiality is here defined, followed by a review of the various ways in which it affects the lives of gifted individuals, and adolescents in particular.

Defining multipotentiality. As with giftedness, there is no single agreed-upon definition of multipotentiality, although most definitions share common elements. For instance, a useful definition is provided by Frederickson and Rothney (1972), who state that multipotentiality is "the ability to select and develop any number of competencies to a high level" (p. vii). In a similar vein, Colangelo (2002) defines multipotentialed individuals as those "who have diverse talents and interests and who could succeed at a high level in a number of different fields" (p. 5). Kerr (1990) states that multipotentialed individuals have "a wide variety of interests, aptitudes, and abilities" (p. 1) which allow them to choose from a broad range of career options in which success is highly likely.

Thus, in essence, multipotentiality can be thought of as a concept with two different aspects. What the above definitions have in common is that they all speak firstly of varied and diverse abilities, as well as the potential to succeed to a high level in a number of different fields. Without this latter aspect, the concept of multipotentiality loses its meaningfulness (Colangelo, 2002), and refers more to one's current abilities rather than the potential to succeed. Therefore, it is these two aspects combined which form the fundamental basis of the term 'multipotentiality' as it is used in the current research.

Manifestations of multipotentiality throughout development. Multipotentiality manifests itself in numerous ways, such as through academic success in multiple areas, having a moderately high IQ (120-140), or having two or more exceptional abilities in different areas (such as

performing arts and computer science) (Kerr, 1990). The trait of multipotentiality may be viewed by the general public as a largely positive attribute, but researchers typically view it as both an advantage and a vulnerability (Colangelo, 2002; Sajjadi et al., 2001).

Kerr (1990) provides examples of specific ways in which multipotentiality manifests throughout the developing years and beyond, highlighting signs that may indicate that it is a concern. For example, in primary school, multipotentialed children excel in many school subjects but may have difficulty following through on tasks and making choices when they are given many options for projects. In early adolescence, these difficulties continue; despite participating in many social and extra curricular activities, they may show no clear preferences. During late adolescence, multipotentialed students may find themselves with overly busy schedules due to indecision related to school and future study planning. These students often accept multiple leadership roles and usually maintain high grades in all or most of their classes. However, they may experience periods of stress and exhaustion, demonstrated through depression, anxiety, or frequent illness. At university, multipotentialed students typically have multiple majors and/or changes of major. Although they often continue to have excellent grades and remain highly involved in extracurricular activities, they may struggle with the experience of giving up some interests in order to pursue others. During adulthood, these individuals perform well at work, but experience a feeling of being mismatched with their jobs and often hold multiple positions for short periods of time. They may also experience depression and feelings of apathy, alienation, and purposelessness (Kerr, 1990).

Multipotentiality in late adolescence. Late adolescence is a time during which individuals become more independent and begin to make multiple decisions about their future, usually concerning tertiary study and/or future career plans. For many multipotentialed adolescents, choosing a vocation is not as simple as pursuing an avenue of interest and working to hone one's craft. On the contrary, these individuals often anguish over the sheer abundance of available choices that they have (Rysiew, Shore, & Leeb, 1999). Multipotentiality and career indecision often co-exist

when abilities, motivation, interests, and opportunity all intersect, resulting in an often confusing and anxiety-inducing dilemma known as overchoice syndrome (Rysiew, Shore, & Carson, 1994). The more choices one has, the more complex the decision-making process tends to become (Greene, 2006). The realisation that "it is not possible to do all that they want to do or are capable of doing" (Reis & Hébert, 2008, p. 279) is often paired with depression, anxiety, and a feeling of being overwhelmed (Greene, 2006; Hurst & Riley, 2014). This is because in order to choose a career path, multipotentialed individuals often feel pained that they must give up numerous valid career options (Leung, Conoley, & Scheel, 1994). On the other hand, finding a way to somehow pursue all options may cause concern in mastering nothing and performing averagely in everything (Silverman, 1993).

As previously mentioned, it is common for gifted students to be perfectionists. This can be exacerbated by multipotentiality in the quest to narrow down career choices (Colangelo, 2002). Multipotentialed students often believe that a 'perfect' or ideal career exists for them and that they must find a way to pursue it successfully (Colangelo, 2002; Rysiew et al., 1999; Silverman, 1993). In this sense, multipotentialed adolescents tend to place a large responsibility on themselves (Rysiew et al., 1999). They place great importance on choosing a career that is not simply a way to make a living, but one that encourages self-actualisation and self-expression, while in the meantime making good use of many of their gifts and talents (Rysiew et al., 1999; Shore, Cornell, Robinson, & Ward, 1991). This perfectionism can be accompanied by a significant fear of failing to live up to one's potential, or a fear of making a choice that closes the door to other options (Kerr, 1990; Silverman, 1993). There is also a tendency for some individuals to choose 'safe' tertiary study options (Kerr, 1991). Many multipotentialed students are believed to lack focus, as they are often told that they "can be anything they would like to be" and are also encouraged to leave their options open well into early adulthood (Kerr, 1991; Silverman, 1993). The consequence of this is that they

may delay making important life decisions, more so than their non-multipotentialed gifted peers (Pfeiffer & Stocking, 2000).

Expectations and assumptions from adults also often play a role in the dilemmas faced by many multipotentialed adolescents, and pressure from parents and teachers may overwhelm their own preferences (Colangelo, 2002; Peterson & Moon, 2008). For example, multipotentialed adolescents may encounter high expectations from others to not 'waste' their gift (Hurst & Riley, 2014). They may also experience stress from adults' expectations to choose a career that is accompanied by prestige and financial success (Colangelo, 2002). Furthermore, sex role expectations and pressure to achieve at a high level may also add to this stress (Colangelo, 2002; Kerr, 1994). Longitudinal research by Gross (2006) studied highly gifted children who demonstrated evidence of multipotentiality in their early school years. Interestingly, it was found that the academic fields that these individuals ended up specialising in by their mid-20s generally did not reflect their own areas of greatest passion or talent, but what their teachers thought was the most important. As an illustration, two of the individuals in the study specialised in science subjects at university, but spoke of personal musical performances as being the peak moments of their lives.

Research has shown that some multipotentialed students may not only feel coerced by others to make career choices based on others' assumptions and expectations, but that they may in fact let this coercion make the decision for them (Colangelo, 2002; Jung, 2012; Rysiew et al., 1999). The combination of the above factors of overchoice, anxiety, stress, and internal and external pressure may result in an identity crisis or existential dilemma for multipotentialed adolescents who are trying to navigate their way into becoming independent, working young adults (Rysiew et al., 1999; Silverman, 1993).

Despite the wealth of research outlined above which may demonstrate that multipotentiality is more commonly a concern rather than a cause for celebration, there is some research that does not support this. For example, Sajjadi et al. (2001) found that multipotentiality did not seem to be

problematic for most individuals within their sample of 180 gifted youth. They argued that multipotentiality is largely a positive attribute in a society where career change is common and accepted, and where individuals are required to be adaptable. Likewise, Emmett and Minor (1993) found that few difficulties concerning multipotentiality were expressed amongst the 30 high school graduates that they interviewed regarding career decision-making processes. In a similar vein, research by Sosniak (1985) found that the multipotentialed individuals interviewed in the study (although they were older adults) were able to keep their options open and combine different interests to create satisfying careers.

Multipotentialed individuals are also likely to have uniformly high scores across different tests, as well as an endless thirst for knowledge, which can serve to set themselves up well for success at school and beyond (Reis & Hébert, 2008). Evidently, having the choice of pursuing many different options after secondary school can often be a blessing, as this means that individuals can still be successful in a second career if their first option falls through. Because multipotentialed adolescents have many high level skills and abilities, career interventions which focus on assessing their values (instead of their skill sets) can be very useful in simplifying the career decision-making process, therefore resulting in less inner turmoil for these individuals (Sampson & Chason, 2008). Thus, although it may have its disadvantages, multipotentiality does not always have to be a problem.

Research Questions for the Current Study

To date, there has been no known empirical research undertaken in New Zealand regarding multipotentiality in gifted adolescents. The vast majority of the available research reviewed above stems from North America and much of this is not up to date; therefore, local, current research in this field is important for educators and counsellors due to the cultural and educational differences

that New Zealand presents (Hurst & Riley, 2014). Thus, the primary research questions of the current paper can be summarised as follows:

1. What is the level of self-reported multipotentiality amongst gifted adolescents, as demonstrated in a New Zealand sample?
2. In what ways does multipotentiality manifest in gifted adolescents?
3. What is the nature of the relationships between multipotentiality and anxiety, career decision-making, perfectionism, and stress amongst gifted adolescents? What moderates these relationships?

The current research aims to investigate the answers to these questions in an empirical and exploratory manner, and the information gained is intended to shed light on the manifestation of multipotentiality in gifted adolescents in New Zealand. By gaining a clearer understanding of their needs and concerns, educators and counsellors will be better suited to assisting these young people to achieve their full potentials and to successfully choose satisfying and fulfilling careers.

CHAPTER 3: METHODOLOGY

This chapter begins with a description of the mixed methods sequential explanatory design and its justification for use in this study. This is followed by an in-depth explanation of the first phase of the study, which involved gathering quantitative data from gifted and talented adolescents via an online questionnaire. The second phase of the study is subsequently described, which involved collecting qualitative data from a focus group of participants who completed the online questionnaire. The chapter ends with an explanation of the ethics procedure that was undertaken before the data was gathered, including how each of the principles in the *Massey University Code of Ethical Conduct for Research, Teaching and Evaluations Involving Human Participants* (2015) was addressed.

Research Design

Mixed Methods

This study utilised a mixed methods, sequential explanatory research design (Ivankova, Creswell, & Stick, 2006). Mixed methods research designs collect, analyse and integrate both quantitative and qualitative data with the aim of gaining an in-depth understanding behind the research question(s) (Tashakkori & Teddlie, 2003). Quantitative data is typically number-based and can be interpreted via statistical analyses. Qualitative data, on the other hand, is usually more descriptive in nature and typically provides more detailed insight into the research problem. The overarching goal of mixed methods research designs is to expand one's understanding and gain depth of insight into the topic being studied, as opposed to corroborating findings within one study (Onwuegbuzie & Leech, 2004). The benefit of combining both quantitative and qualitative data into a single study is to take advantage of the strengths of each method and to therefore develop a more comprehensive overview of the topic being studied (Ivankova et al., 2006). For example, the major characteristics of quantitative research (such as explanation and standardised data collection) can be

combined with the complementary major characteristics of qualitative research (such as in-depth descriptive study and individual case information) (Johnson & Onwuegbuzie, 2004). Disadvantages of mixed methods designs typically relate to the length of time needed to undertake the research, as well as the complexity of analysis (Creswell, Plano Clark, Gutmann, & Hanson, 2003).

Tashakkori and Teddlie (2003) reported approximately forty different mixed methods research designs that have been used in the literature. Out of the six designs that are used most often, three are concurrent and three are sequential (Creswell et al., 2003). Among these, the sequential explanatory design is perhaps the most popular strategy for mixed methods research in the field of education (Creswell, 2009). This design is characterised by two distinct phases, the first being quantitative and the second being qualitative (Creswell et al., 2003). The qualitative data collected in the second phase helps to explain and elaborate on the quantitative data collected in the first phase. This strategy typically gives more weight to the quantitative data, with these results informing the qualitative data collection (Creswell, 2009). The qualitative component of the research is usually smaller and explores a few cases out of those studied in the quantitative phase (Creswell, 2005).

The mixed methods sequential explanatory design allows for the strengths of both quantitative and qualitative research methods to be combined in a complementary manner, without the occurrence of overlapping weaknesses between the two techniques (Johnson & Turner, 2003). Furthermore, this design can be particularly useful when quantitative data provides unexpected results, as the second stage can be used to examine the results of the first stage in greater detail (Creswell, 2009). Some of the challenges of using this type of mixed methods design include determining how much priority should be given to the quantitative data and how to select the sample that is to be studied in the qualitative phase (Creswell, 2005; Ivankova et al., 2006).

In the current study, the mixed methods sequential explanatory research design was selected based on its ability to capture both breadth and depth of insight into the research questions. Both

phases of the study enabled all three research questions to be investigated. In the first phase, an extensive amount of information was gathered from each participant, which was then elaborated upon in greater detail among a smaller number of participants in the second phase. The first phase of data collection was carried out via an online questionnaire, which is described in further detail in the Data Gathering Tools section of this chapter. The second phase involved collecting qualitative data from a focus group of participants who completed the online questionnaire, which built on the results from the first phase of the study.

Phase One

Participants

The participants of this study consisted of Year 13 students from a co-educational secondary school in the south island of New Zealand who were identified by their school as gifted and talented. The school has a Gifted and Talented Education (GATE) programme that operates at all year levels. The majority of GATE students were identified in Year 9 via entry test scores as well as teacher, parent, and peer nominations.

The total number of Year 13 students in the GATE programme at the school was 69. All of the Year 13 GATE students were invited via an email from the GATE programme co-ordinator to voluntarily participate in this study. The email contained an information sheet (see Appendix A) as well as the link to the online questionnaire (see Appendices B, C, D, E, and F), which is described below. After clicking on the link, students were invited to participate in the study and give their informed consent to participate before beginning the questionnaire. The total number of students who responded to the online questionnaire was 31. However, only 23 of these students answered a sufficient number of questions to be included in the analyses, as the remaining eight students did not submit responses past the first page. It is unknown why this occurred as no faults were found with the online system of questionnaire submission.

Data Gathering Tool: Online Questionnaire

The tool used for gathering data in the first phase of the study was an online questionnaire constructed by the researcher, using a combination of both established scales and original questions. These are described in the sections that follow.

Self-report methods such as questionnaires are used widely in social science research and are the most common data gathering tool used in psychological research (Fernandez-Ballesteros, 2004). The purpose of a questionnaire is for the participants to provide the researcher with answers to specific questions, while allowing the researcher to score responses in a systematic manner (Fernandez-Ballesteros, 2004). The main advantages of questionnaires include the richness of information that they may provide, ease of interpretability, and practicality of implementation (Lucas & Baird, 2006). For example, the respondent has access to information about themselves that may not be known to anyone else; this is particularly relevant to the themes of the current research because they are centred around self-perception and self-ratings. Research has also found that people answer questions about themselves more diligently compared to answering questions about other people, thus ensuring greater validity of responses (Paulhus & Vazire, 2007). Questionnaires are also efficient and inexpensive to administer, which makes them an ideal method for collecting data from a large group of people (Paulhus & Vazire, 2007).

The online questionnaire began with questions regarding basic demographic and educational details (see Appendix B). The questions required the students to state their age, gender, and school history (including length of participation in the GATE programme and chosen school subjects). Following this, each student was surveyed regarding their self-beliefs about multipotentiality, stress, anxiety, perfectionism, and career decision-making.

Multipotentiality. Each student was then asked to read these two separate statements regarding multipotentiality: “I possess a wide variety of talents” and “I have the potential to succeed

to a high level in a number of different fields and career options". They were asked to rate how much they believed these statements applied to themselves on a 7-point Likert Scale ranging from 1 (very untrue of me) to 7 (very true of me). They were then asked to provide a brief written justification for each response.

Stress. The Perceived Stress Scale (PSS) (Cohen & Williamson, 1988) was used to measure the level of stress that the students perceived themselves to be under. The PSS was originally developed by Cohen, Kamarck, and Mermelstein (1983) as a 14-item self-report questionnaire that was designed to measure "the degree to which situations in one's life are appraised as stressful" (Cohen et al., 1983, p. 385). It was developed based on Lazarus' (1974) theory of stress appraisal and was created due to a lack of psychologically valid measures of perceived stress at the time (Cohen et al., 1983). Research prior to this typically revolved around relatively objective measures of stress, such as the occurrence and effect of specific stressful life events (Dohrenwend, 1984).

A 10-item version of the PSS was later developed by Cohen and Williamson (1988), which is the version that was used in the current study (see Appendix C). This questionnaire retains 10 of the original 14 items from the first PSS. It was designed to provide insight into how unpredictable, uncontrollable, and overloading the respondents had found their lives in the past month (Cohen & Williamson, 1988). The items begin with, "In the last month, how often have you felt…", and are followed by phrases such as "nervous and stressed" and "that things were going your way". Participants responded on a 5-point Likert scale ranging from 0 (never) to 4 (very often). Reverse-scoring took place for four of the 10 items, as they are worded positively. The responses to the 10 questions were then added together to create a psychological stress score (out of a maximum score of 40), with higher scores indicating higher levels of perceived psychological stress. As the PSS is not a diagnostic measurement tool, there are no cut-off scores, and it is intended that comparisons are made between individuals in researchers' own samples (Cohen & Williamson, 1988). In the

current study, comparisons were made between participants in order to find out whether stress differed according to gender and also whether stress correlated with multipotentiality.

The PSS was selected for use in this study based on a number of factors. For instance, the items are easy to understand and are general in nature, which allows them to be applicable to many different sub-populations. The scale also possesses adequate test-retest reliability (with Cronbach alpha values consistently above 0.80) as well as convergent and divergent validity amongst diverse populations (Andreou et al., 2011; Cohen & Williamson, 1988; Roberti, Harrington, & Storch 2006). Of note, research has found that high PSS scores correlate with higher biomarkers of stress (such as cortisol) (van Eck & Nicholson, 1994). The PSS is also brief and widely available, making accessibility one of the key factors in the selection of this tool.

Anxiety. The Zung Self-Rating Anxiety Scale (SAS; Zung, 1971) is the assessment method chosen to measure anxiety in the current study. It is a 20-item self-report questionnaire that is designed to quantify an individual's level of anxiety (see Appendix F). The items are grouped into four areas of anxiety manifestations: autonomic, cognitive, motor, and central nervous system symptoms. Each item consists of a first-person statement that describes a symptom of anxiety, with respondents indicating the degree to which they have experienced each symptom in the past one to two weeks before taking the test. Examples of statements include, "I get upset easily or feel panicky", and, "I can feel my heart beating fast". These statements are followed by a 4-point Likert scale ranging from 1 (none or a little of the time) to 4 (most or all of the time). To reduce the effect of response bias, items 5, 9, 13, 17, and 19 are positively worded, and so are reverse scored before summing all responses to create a total raw score. Raw scores (which range from 20 to 80) may be converted into index scores (ranging form 25 to 100), with scores below 45 being classified as within the normal range, and scores above 75 being classified as extreme anxiety (Zung, 1971). Researchers may use either raw or index scores, but this should be clearly stated (Crawford, Cayley, Lovibond, Wilson, & Hartley, 2011).

The SAS has been used in research to measure anxiety in both clinical and nonclinical samples (Zammit, Weiner, Damato, Sillup, & McMillan, 1999; Borkovec & Inz, 1990). It has been found to have a Cronbach alpha level of 0.83, indicating good internal reliability (Crawford et al., 2011). The SAS was chosen for the current research based on its brevity, accessibility, and straightforward wording, as well as its encapsulation of both somatic and affective symptoms of anxiety.

Perfectionism. The tool used for measuring perfectionism was the Child-Adolescent Perfectionism Scale (CAPS) (Flett et al., 2016 (see Appendix D). This is a 22-item questionnaire that consists of statements requiring responses on a 5-point Likert scale ranging from 1 (false - not at all true of me) to 5 (very true of me). The CAPS has two dimensions: self-oriented perfectionism and socially prescribed perfectionism. The former refers to exceptionally high personal standards and a strong drive to achieve those standards, whereas the latter refers to the belief that other people expect or demand one to be perfect. For instance, items from the self-oriented dimension include, “I try to be perfect in everything I do”, and, “I always try for the top score on a test”. Examples from the socially prescribed dimension include, “There are people in my life who expect me to be perfect”, and, “People around me expect me to be great at everything”. The level of perfectionism on each dimension is determined by summing the scores from the relevant items, with the three positively worded items being reverse scored.

The CAPS has been used to measure perfectionism in over 50 published studies (Flett et al., 2016). It has demonstrated acceptable levels of internal consistency, as well as evidence for temporal stability in longitudinal research (Flett et al., 2016). The CAPS was selected as the measurement tool for perfectionism in the current research due to its accessibility, brevity, and multidimensional nature.

Career decision-making. The final set of questions related to career decision-making processes among the participants. Unlike the other constructs outlined above, there were deemed no

suitable established scales measuring career decision-making that were accessible, brief, well-reviewed, and appropriate for the current research. Therefore, five items were created to measure this construct for the purposes of this study (see Appendix E). Specifically, these statements are centred around the level of ease or difficulty in making a career decision, perception about the number of career options available and the impact this has on one's decision-making process, and beliefs about how much of a role career choice plays in defining the individual. As with the CAPS, participants were asked to respond to these statements on a 5-point Likert scale ranging from 1 (false - not at all true of me) to 5 (very true of me).

The five items that made up the career decision-making construct were intended to be particularly relevant to Year 13 students, who are naturally faced with numerous decisions related to career paths and further study throughout their final year of high school. In other words, the questions were specifically aimed at individuals who had not yet embarked on a career. Care was also taken to ensure that the questions were balanced between being positively and negatively worded.

Data Analysis

In order to preserve validity of the established questionnaires, the original wording and scale system was retained. All participants completed the questionnaire using Survey Monkey (2017). The data were exported to Excel and the responses for the PSS, SAS and CAPS were scored according to the scoring criteria established for each of these scales. Statistical analyses were then carried out to explore each of the three research questions as outlined below.

Level of multipotentiality. Mean scores and standard deviations were calculated for the two questions related to multipotentiality. The scores for both items were then averaged to form overall multipotentiality scores for each participant, which were plotted on a graph. A *t*-test was then performed to compare male and female multipotentiality scores.

Manifestations of multipotentiality. Correlational analyses were then conducted between these overall multipotentiality scores and the number of subject areas studied, for each gender separately. This was done in order to find out whether multipotentiality was related to the diversity of school subjects studied by the participant, and whether this effect was different for males and females.

The nature of the relationships between the scales. Individual scores were plotted on graphs for the PSS, SAS, CAPS, and career decision-making questions. The means and standard deviations were then calculated for male and females separately for each scale, and gender differences were examined using *t*-tests. Correlational analyses were then performed, comparing multipotentiality scores with the scores for stress, anxiety, perfectionism, and career decision-making.

Phase Two

Participants

At the end of the online questionnaire, participants were invited to be part of a focus group conducted by the researcher. The researcher's email address was provided at the end of the questionnaire and participants interested in the focus group were asked to make contact via email. Those who emailed were in return asked questions relating to gender, ethnicity, what area(s) they believe themselves to be gifted/talented, and whether they believe they are multipotentialed. These questions were asked in case it was deemed necessary to divide the participants into separate focus groups based on differing responses. The students were also emailed a focus group information sheet (see Appendix G).

Out of the 31 students who responded to the online questionnaire, five students (all female) volunteered to participate in a focus group. However, only three students participated in the focus

group, as the other two did not respond to further emails about planning a time and date for the session.

Data Gathering Tool: Focus Group

A focus group was selected for use in the second phase of the research because it gives researchers access to different types of information in comparison to questionnaires. The aim of a focus group is to offer researchers a broad range of viewpoints via small group, interactive discussions of a specific set of topics (Hennink, Hutter, & Bailey, 2010). One of the main purposes is to provide a comfortable and non-threatening environment in which participants are encouraged to express their points of view (Litosseliti, 2003). Primarily, focus groups provide an opportunity to explore topics in an in-depth manner, which may not always be the case with questionnaires (Stewart & Shamdasani, 2014). In focus groups, there is also room to explore topics which may be highly relevant to the research but which may not be able to be captured in a questionnaire. Focus groups also collect high quality information in a more time-efficient way when compared to individual interviews (Acocella, 2012). One of the disadvantages of focus groups is that some participants may not feel comfortable self-disclosing personal information (Krueger & Casey, 2000). It is therefore highly important for the moderator to endeavour to create an atmosphere where participants feel relaxed and are encouraged to exchange their feelings and views (Rabiee, 2004). Efforts were made along these lines in the current study, by the researcher sharing refreshments and building rapport before the session formally began.

The focus group primarily involved discussion around the themes of multipotentiality, stress, anxiety, perfectionism, and career decision-making. The session was also sound recorded to aid analysis. Discussion was largely generated by the researcher who asked open-ended questions and asked the students to discuss their views on particular subtopics. Several of these subtopics emerged after the analysis of the questionnaire results. For example, students were asked to discuss

whether they believed it was equally valuable to focus one's time and effort on a few areas compared to being involved in many different occupations and hobbies. They were also asked to discuss how much control they felt they possessed over their own career choices, as well as whether they believed being multipotentialed was linked in any way to feeling stressed or anxious. The overall aim of the focus groups was to discuss the topics covered in the questionnaire and to add further insight to this data.

Data Analysis

The qualitative data gathered from the focus group were analysed via thematic analysis. This involved a six-step process as outlined by Braun and Clarke (2006), consisting of data familiarisation, generation of initial codes, searching for themes amongst the codes, reviewing themes, defining and naming themes, and producing the report. To clarify, the recording was carefully transcribed and reviewed, with each idea being assigned a code. These codes were then sorted into potential themes according to similarity. The themes were then refined and were reported within an analytic narrative. The qualitative information collected from the focus group was used to add insight into trends that were found during the analysis of the data gathered from the questionnaire, as well as to provide additional information in order to answer the research questions in greater depth.

The results from both phases of the study were analysed separately and then integrated via a joint display at the end of the Results chapter, which linked findings from the questionnaire with relevant findings from the focus group. This was then elaborated upon in detail in the Discussion chapter. This is an example of integrating through 'connecting' using the 'weaving approach' as outlined by Fetters, Curry, and Cresswell (2013).

Ethics

This study was granted ethics approval by the Massey University Human Ethics Committee (see Appendix H for the approval letter). Prior to this, the principles as outlined in the *Massey University Code of Ethical Conduct for Research, Teaching and Evaluations Involving Human Participants* (2015) were addressed, as outlined below.

Respect for persons was applied by informing participants that they had the right to withdraw from participating at any time, without giving a reason for doing so. Participants' personal dignity and beliefs were also respected throughout the research process. Participants also gave their *informed and voluntary consent* before participating. When they were sent the initial invitation to participate in the study, the students were given an information sheet containing the details of the research and the content of the online questionnaire. They were also informed that they could contact the research team at any stage and for any reason. Participants were informed that completing the online questionnaire implied their consent. The initial invitation to students also included a parental information sheet and consent form, to be used only in cases where the participant was under 15 years of age. However, all of the participants in this study were 16 years and older. Focus group participants were given an additional information sheet and a consent form prior to participation. Throughout the research process, emphasis was made on the voluntary nature of participation.

Care was also taken to address the *minimisation of harm to participants, researchers, institutions and groups*. The information sheets acknowledged that participants may experience feelings of stress, discomfort, or anxiety while answering the questionnaire or participating in the focus group, due to the nature of the topics covered. To address this, participants were informed that they may withdraw from participation at any point. Additionally, at the end of the information sheets and questionnaire as well as at the start of the focus group, participants were given a list of

resources that they may utilise (such as school counsellors and Youthline) if they felt that the questions provoked significant feelings of stress or anxiety.

Respect for privacy and confidentiality was addressed by informing participants that their questionnaire responses would remain anonymous at all times and also that no attempt would be made to link their participation in the focus group with their questionnaire responses. In order to avoid the researcher having access to students' contact details or identities, the GATE co-ordinator at the school emailed the GATE students on behalf of the researcher. Focus group participants gave their real name and email address to the researcher, but were informed that pseudonyms would be used in the presentation of the data. By giving their informed consent for the focus group, participants agreed not to disclose any of the information discussed to anyone else. The school was informed that all measures would be taken to protect its identity, although this cannot be 100% guaranteed. All data and consent forms were kept in password protected computer files and were accessed solely by the research team.

Social and cultural sensitivity was practiced in all communications with the participants, in relation to their age and likely ethnic diversity. Furthermore, this research did not contain *unnecessary deception* or *conflict of interest* of any kind.

Conclusion

In summary, the mixed methods sequential design was selected for use in the current study due to its encapsulation of both quantitative and qualitative data analysis. The first phase of the study involved the collection of quantitative data in the form of an online questionnaire sent out to Year 13 GATE students. The questionnaire contained questions and items relating to participants' self-rated multipotentiality, stress, anxiety, perfectionism, and career decision-making. The second phase of the study involved the collection of qualitative data in the form of a focus group comprised

of three students who had completed the online questionnaire. The following chapter details the results of these analyses and addresses the three research questions underpinning the current study.

CHAPTER 4: RESULTS

This chapter describes the results of the analyses from both phases of the study. This is done sequentially and then followed by integration. The results from the questionnaire are detailed first; included in this is a description of the occurrence of self-reported multipotentiality in relation to the two multipotentiality items on the questionnaire. This is followed by an examination of the manifestation of multipotentiality in relation to subject choices and gender. Each of the constructs of multipotentiality, stress, anxiety, perfectionism and career decision-making are then analysed, with particular attention paid to gender disparities. An in-depth statistical analysis of the relationships between multipotentiality and the other constructs is then provided. The section following this outlines a summary of the information gained from the focus group, as grouped into themes which emerged during the analysis of the transcript. This chapter concludes by integrating the data gained from both phases of the study.

Phase One: Questionnaire Results

Demographics

After initial reading of responses, 23 out of 31 participant responses were deemed to be complete enough to be included in the analyses. The eight participants who were excluded from all analyses did not complete more than the first page. Out of the 23 remaining participants, one participant did not complete the Zung Self-Rating Anxiety Scale (SAS), and another participant did not complete the SAS, Child-Adolescent Perfectionism Scale (CAPS), and career decision-making questions. Therefore, these participants were excluded from analyses of the scales that they did not complete. The other 21 participants completed the full questionnaire and were included in all analyses.

In total, there were responses from 15 females and eight males included in the analyses. There were 18 participants aged 17 and five participants aged 18.

Level of Self-Reported Multipotentiality

The first research question concerned exploring the level of self-reported multipotentiality among gifted and talented adolescents. This question was addressed in phase one of the study via two items in the questionnaire. The first item was, "I possess a wide variety of talents, interests, and abilities", and the second item was, "I have the potential to succeed to a high level in a number of different fields and career options". Participants were asked to rate their responses to both items on a 7-point Likert scale ranging from 1 (very untrue of me) to 7 (very true of me).

The data for the responses to these two items are displayed in Table 2. Included in the table are the means and standard deviations (SD) of each item. The rows of the table show the results separately for females, males, and all participants combined.

Each participant responded to both multipotentiality items similarly. For example, eight participants selected the same response for both items (such as 5 and 5), whereas 11 participants selected responses that were within one number of each other (such as 5 and 6). The remaining four participants selected answers that were within two numbers of each other (such as 5 and 7). This demonstrates that in general, participants believed they possessed a wide variety of talents, interests, and abilities to the same level as believing they had the potential to succeed to a high level in a number of different fields and career options.

The responses to these two items were averaged to produce a multipotentiality score for each participant. This was done in order to use participants' multipotentiality in correlational analyses with other constructs. The data for this multipotentiality score can be seen in the bottom three rows of Table 2. These multipotentiality scores were used for all subsequent analyses.

Although the multipotentiality scores were slightly lower for males ($M = 4.94$, $SD = 1.37$) than for females ($M = 5.33$, $SD = 0.96$), this difference was not statistically significant, $t(10) = 0.75$, $p = .48$. Thus, the level of self-reported multipotentiality among males and females was similar.

Table 2

Means and Standard Deviations for the Two Multipotentiality Items, Including the Overall Multipotentiality Score

	Mean	SD
Item 1: Female	5.33	1.11
Item 1: Males	5.13	1.55
Item 1: All	5.26	1.25
Item 2: Females	5.33	1.05
Item 2: Males	4.75	1.49
Item 2: All	5.13	1.22
Multipotentiality score: Females	5.33	0.96
Multipotentiality score: Males	4.94	1.37
Multipotentiality score: All	5.20	1.11

Figure 1 provides a visual representation of the multipotentiality scores (of males and females combined) charted against the number of respondents. As can be seen, two participants' multipotentiality scores fell below "neutral" (4), and two participants' scores fell at "neutral". The remaining participants' scores fell above "neutral", with approximately two thirds of the total responses falling between "somewhat true of me" (5) and "true of me" (6).

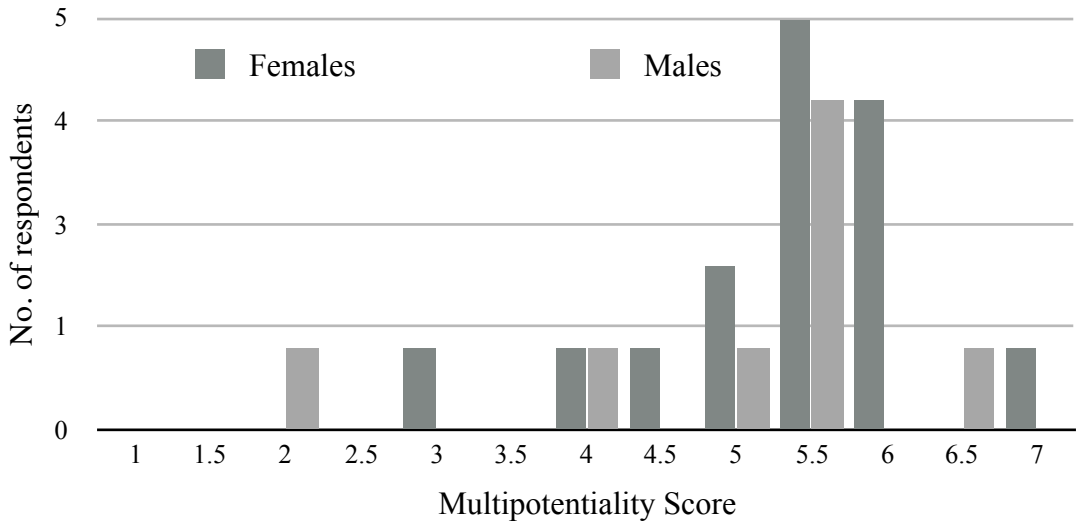

Figure 1. Distribution of multipotentiality scores for females and males.

Thus, it can be seen that the distribution of multipotentiality scores as reported by this sample of gifted and talented adolescents is skewed to the right, with 19 out of 23 participants reporting that they believed they were multipotentialed to some degree.

Manifestation of Multipotentiality

The second research question concerned how multipotentiality manifests in gifted adolescents. In the first phase, this was addressed in relation to the number and type of school subjects taken.

In the questionnaire, participants were asked to state their Year 13 school subjects. Their responses were then grouped into the eight curriculum areas as outlined in The New Zealand Curriculum (Ministry of Education, 2007). These results are displayed in Table 3. "Total occurrences per subject area" refers to the total number of times that a subject within each subject area occurred in the questionnaire responses. For example, there were 23 occurrences of arts subjects amongst the respondents, 14 of which were from females and nine of which were from males. "No. of participants per subject area" refers to the number of participants who took at least

one subject from that particular subject area. For instance, 13 participants took at least one arts subject, eight of whom were female and five of whom were male.

Thus, the most popular subject areas were The Arts, Science, Social Sciences, Mathematics and Statistics, and English. In both The Arts and Science subject areas in particular, there was a tendency for participants to take more than one subject within each area, as shown by the discrepancies between the total occurrences per subject area and the number of participants per subject area.

Table 3

Total Occurrences Per Subject Area and Number of Participants Per Subject Area

	Total occurrences per subject area			**No. of participants per subject area**		
	Female	Male	All	Females	Males	All
English	12	5	17	12	5	17
Mathematics and Statistics	13	6	19	11	5	16
Science	15	7	22	9	4	13
Social Sciences	13	5	18	10	4	14
Technology	3	5	8	2	5	7
The Arts	14	9	23	8	5	13
Languages	3	1	4	3	1	4
Heath and Physical Education	3	1	4	2	1	3

Figure 2 displays the number of subject areas taken by both males and females separately. For example, eight females and three males each took subjects across four different subject areas.

On its own, this data does not appear to be particularly meaningful. However, when examined in relation to multipotentiality scores, an interesting trend is revealed.

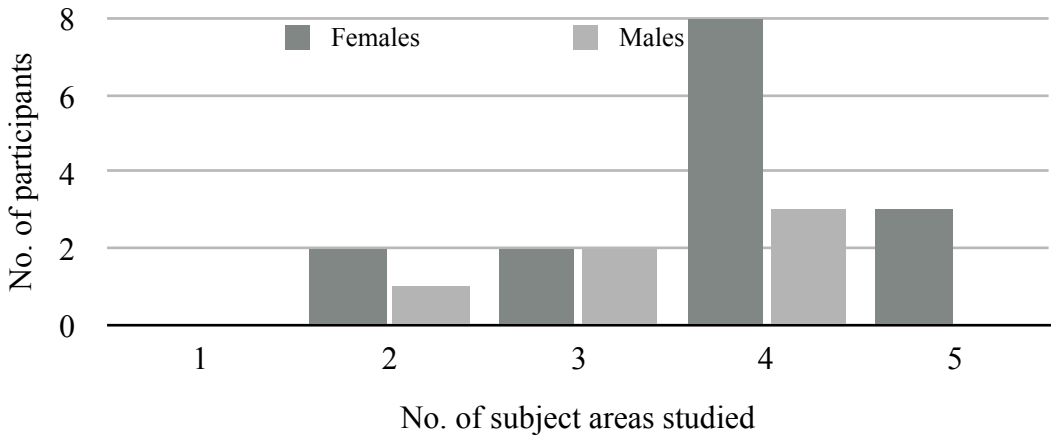

Figure 2. Number of subject areas studied by male and female participants.

There is a strong correlation between multipotentiality score and number of subject areas studied amongst females, $r(13) = .71$, $p < .01$. A visual representation of this correlation can be seen in Figure 3. For males, a moderate correlation was found between multipotentiality score and number of subject areas studied (see Figure 3), however this was not statistically significant, $r(6) = .49$, $p = .22$. This means that one of the ways in which multipotentiality manifests itself in gifted and talented adolescents is through the number of different subject areas taken at school. For instance, females with higher multipotentiality scores tended to take a wider range of subject areas than females with lower multipotentiality scores.

No meaningful relationships were found between individual subject areas and multipotentiality scores. For example, no link was found between multipotentiality and the number of subjects taken within the Social Sciences umbrella. This was likewise for all subject areas.

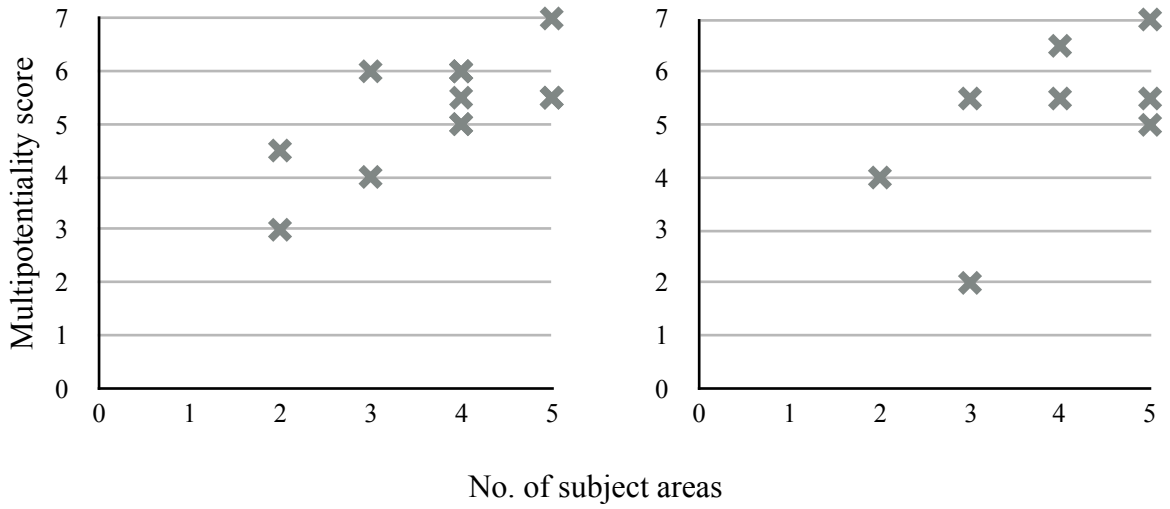

Figure 3. Number of subject areas studied by females (left); and males (right).

Relationships Between Multipotentiality and Stress, Anxiety, Perfectionism, and Career Decision-Making

Addressing the third research question involved exploring the nature of the relationships between multipotentiality and stress, anxiety, perfectionism, and career decision-making. This question was addressed in both phases of the study. In the questionnaire, the participants completed the PSS, CAPS and SAS, as well as five questions regarding career decision-making. The results of these are subsequently analysed, followed by an investigation into the correlations between multipotentiality and each of the other constructs.

Stress. The PSS was the tool used to measure stress in the questionnaire. It consisted of ten items that participants responded to on a 5-point Likert scale ranging from 0 (never) to 4 (very often). Reverse scoring was undertaken for four of these items, as they were worded positively. The responses to the ten items were then added together create a psychological stress score (with possible scores ranging from 0-40). Higher scores indicated higher levels of perceived psychological stress.

The distributions of the perceived stress scores for males and females are shown in Figure 4. As can be seen by the slightly overlapping distributions, females tended to score higher than males. For instance, all except one of the female participants scored above the halfway point of 20, whereas all except one of the male participants scored below 20. This indicates that in general, females had relatively high levels of stress whereas males had comparatively low levels of stress. Furthermore, the five lowest scores overall were from males, whereas the nine highest overall scores were from females.

Perceived stress scores for females ($M = 26.87$, $SD = 5.55$) were shown to be significantly higher than for males ($M = 14.13$, $SD = 6.31$), $t(12) = 4.80$, $p < .001$. In other words, females had a greater level of perceived stress than males in this sample.

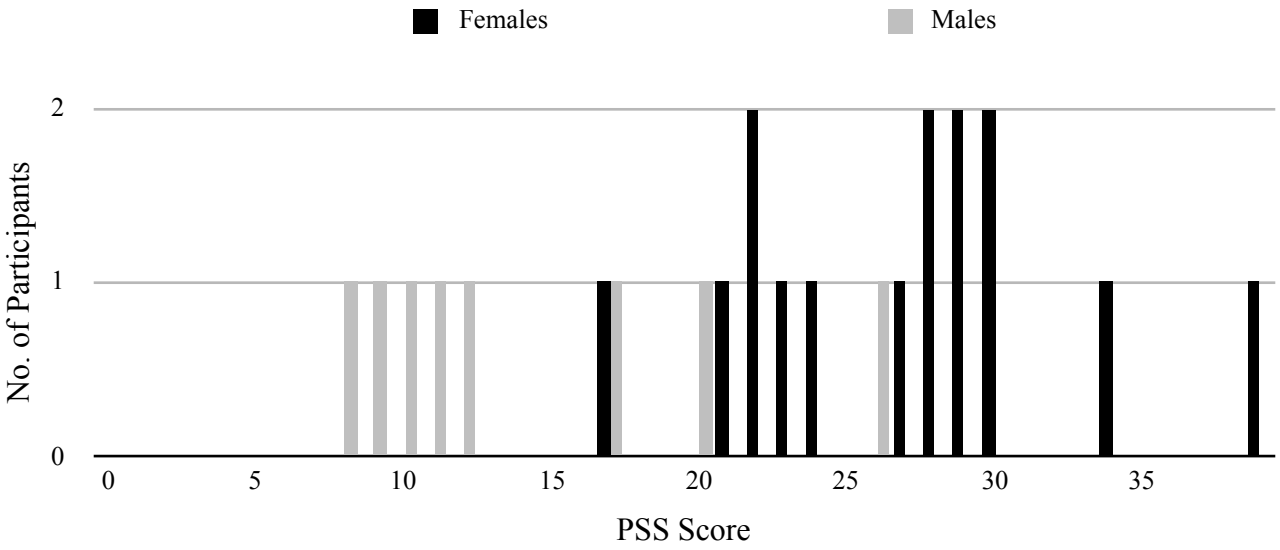

Figure 4. PSS (stress) scores for males and females.

Perfectionism. The 22-item CAPS is divided into two dimensions: self-oriented perfectionism and socially prescribed perfectionism. Participants responded to each item on a 5-point Likert scale ranging from 1 (false - not at all true of me) to 5 (very true of me). Three of the items were reverse scored due to being positively worded. Responses for 12 of the items were summed to create a score for self-oriented perfectionism (possible range of 0-60), and responses for

the remaining eight items were summed to create a score for socially prescribed perfectionism (possible range of 0-50).

Figure 5 displays the distributions for self-oriented perfectionism for males and females. Every participant scored above the halfway point of 30 on this dimension, skewing both distributions to the right. This indicates that on average, participants demonstrated relatively high personal standards and a drive to achieve those standards. Figure 6 displays the distributions for socially prescribed perfectionism for males and females. Again, both distributions are slightly skewed to the right, indicating that many of the participants shared the belief that to some degree, other people expect them to be perfect.

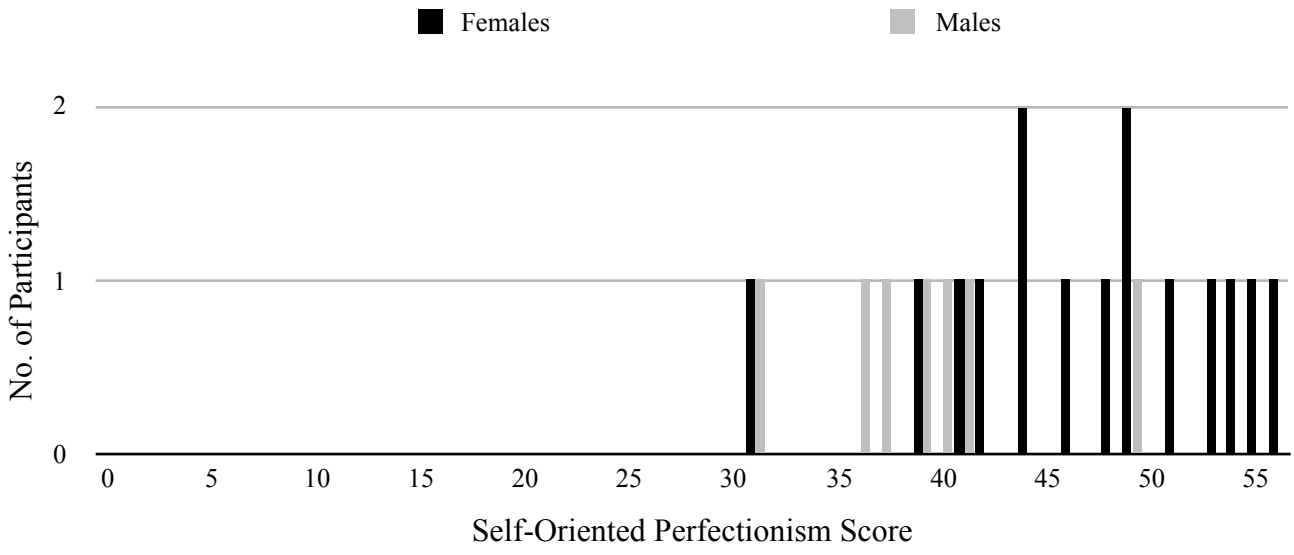

Figure 5. Self-oriented perfectionism scores (from the CAPS) for males and females.

Females (M = 46.80, SD = 6.84) scored significantly higher than males (M = 39, SD = 5.51) on the self-oriented perfectionism dimension, $t(14) = 2.86$, $p = .01$. On the socially prescribed perfectionism dimension, however, females (M = 32.07, SD = 7.69) did not score statistically significantly higher than males (M = 30.86, SD = 8.28), $t(11) = 0.33$, $p = .75$. In other words, females had higher levels of self-oriented perfectionism than males, but both genders had similar levels of socially prescribed perfectionism.

Figure 6. Socially prescribed perfectionism scores (from the CAPS) for males and females.

Anxiety. The 20-item SAS was the tool used to measure anxiety in the questionnaire. Participants responded on a Likert Scale ranging from 1 (none or a little of the time) to 4 (most or all of the time). Five items were reverse scored due to positive wording. Item scores were summed to create a total raw score, which was then converted into an index score ranging from 0-100. Scores below 45 are considered to be within the normal range, whereas scores between 45-59 indicate minimal to moderate anxiety. Scores between 60-74 indicate marked to severe anxiety, and scores that are 75 and over indicate extreme anxiety.

As can be seen in Figure 7, the distribution for males is slightly skewed to the left, whereas the distribution for females is slightly skewed to the right. Out of the seven male participants who completed this question, five scores fell within the normal range and two scores indicated marked to severe anxiety. Contrastingly, out of the 14 female participants who completed this question, six scores indicated minimal to moderate anxiety, seven scores indicated marked to severe anxiety, and one score indicated extreme anxiety.

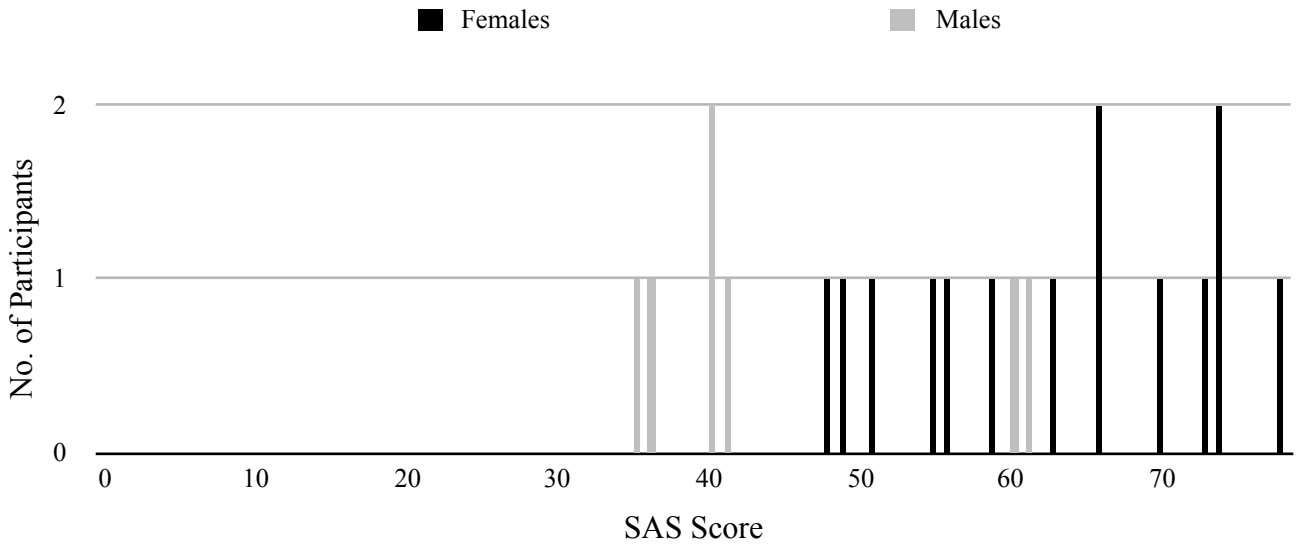

Figure 7. SAS (anxiety) scores for males and females.

As a group, females ($M = 63.00$, $SD = 10.11$) had statistically significantly higher SAS scores than males ($M = 44.71$, $SD = 11.01$), $t(11) = 3.69$, $p < .01$. In other words, females demonstrated higher levels of anxiety than males in this sample.

Career decision-making. The five questions that formed the career decision-making scale were created solely for the purposes of this study. Participants responded on a Likert scale ranging from 1 (false - not at all true of me) to 5 (very true of me). Two of the items were reverse scored as they were positively worded, with higher scores indicating greater levels of career indecision. As these questions do not form an established, validated scale, males and female responses are shown individually for each question in Table 4. Females indicated higher levels of career indecision on all items. In Item 1, females ($M = 4.13$, $SD = 0.74$) scored statistically significantly higher than males ($M = 2.71$, $SD = 1.11$), $t(8) = 3.07$, $p = .015$. This was the same for Item 4 (females, $M = 3.80$, $SD = 1.26$; males, $M = 2.14$, $SD = 1.07$), $t(13) = 3.19$, $p = .007$. This demonstrates that females in this sample found it harder to make decisions and specifically that they felt there were so many career options available, making it difficult to decide which to choose.

The differences between scores for males and females in the remaining three items were approaching significance. In Item 2, females ($M = 4.00$, $SD = 1.25$) scored higher than males ($M =$

2.71, *SD* = 1.38), *t*(10) = 2.09, *p* = .06. The results were similar for Item 3 (females, *M* = 3.27, *SD* = 1.53; males, *M* = 2.14, *SD* = 1.35), *t*(13) = 1.74, *p* = .11 and for Item 5 (females, *M* = 4.07, *SD* = 0.80; males, *M* = 2.71, *SD* = 1.50), *t*(7) = 2.25, *p* = .06. Overall, compared to males, females in this sample found it more difficult to make a career decision and were less sure about which career to follow after high school. Females also felt more strongly than males that their career choice would define who they are as a person. However, the differences between the genders for these three items was only approaching significance.

Table 4

Mean Scores for Responses to the Career Decision-Making Items

	Females	Males
Item 1 "It is easy for me to make decisions" (reverse scored)	4.13	2.71
Item 2 "I find it difficult to make a career decision"	4.00	2.71
Item 3 "I am sure about what career I will follow after I finish high school" (reverse scored)	3.27	2.14
Item 4 "I feel like there are so many career options available, which makes it difficult to decide which to choose"	3.80	2.14
Item 5 "I believe that my career choice will define who I am as a person"	4.07	2.71

The mean scores for each of the constructs of stress, perfectionism, anxiety and career decision-making are summarised in Table 5. Seen in this way, it is clear that the mean scores for all participants combined is not indicative of the true results, due to the fact that females as a group had higher scores on all the constructs. Therefore, the following section explores the relationships between multipotentiality and the other constructs by taking into account the effect of gender.

Table 5

Mean Scores for the PSS, CAPS, SAS and Career Indecision

	Females	Males	All
Stress (PSS)	26.87	14.13	22.43
Self-Oriented Perfectionism (CAPS)	46.80	39	44.32
Socially Prescribed Perfectionism (CAPS)	32.07	30.86	31.68
Anxiety (SAS)	63	44.71	56.90
Career Indecision	19.27	12.43	17.09

Relationships between constructs. After the basic statistics for each construct were calculated (see above section), the third research question was addressed by exploring the nature of the relationships between multipotentiality and stress, perfectionism, anxiety, and career decision-making. This was done by calculating the correlations between multipotentiality and each of the other constructs. Table 6 displays the results of the correlations between multipotentiality and stress, perfectionism and anxiety. The results show three strong negative correlations for males. That is, stress, self-oriented perfectionism, and anxiety all correlated negativity with multipotentiality. All other correlations did not reach statistical significance. The results of this table are interpreted in detail in the subsequent sections.

Table 6

Correlations (r-values) Between Multipotentiality Scores and SAS, CAPS, and SAS Scores

	Multipotentiality
PSS (Stress) - all participants	-.18
Females	-.13
Males	-.89***
Self-oriented perfectionism - all participants	-.03
Females	.14
Males	-.74*
Socially prescribed perfectionism - all participants	.11
Females	.40
Males	-.33
SAS (Anxiety) - all participants	-.14
Females	.03
Males	-.86**

* $p < .10$

** $p < .05$

*** $p < .01$

Stress and multipotentiality. There was no correlation between multipotentiality scores and PSS scores amongst all participants, $r(21) = .49$, $p = .41$. When examining each gender separately, a gender effect was revealed, as displayed in Figure 8. While there was no relationship between multipotentiality scores and PSS scores for females, $r(13) = -.13$, $p = .64$, there was a strong negative correlation between these scores for males, $r(6) = -.89$, $p < .01$. This indicates that for males, higher levels of self-reported multipotentiality were related to lower levels of stress.

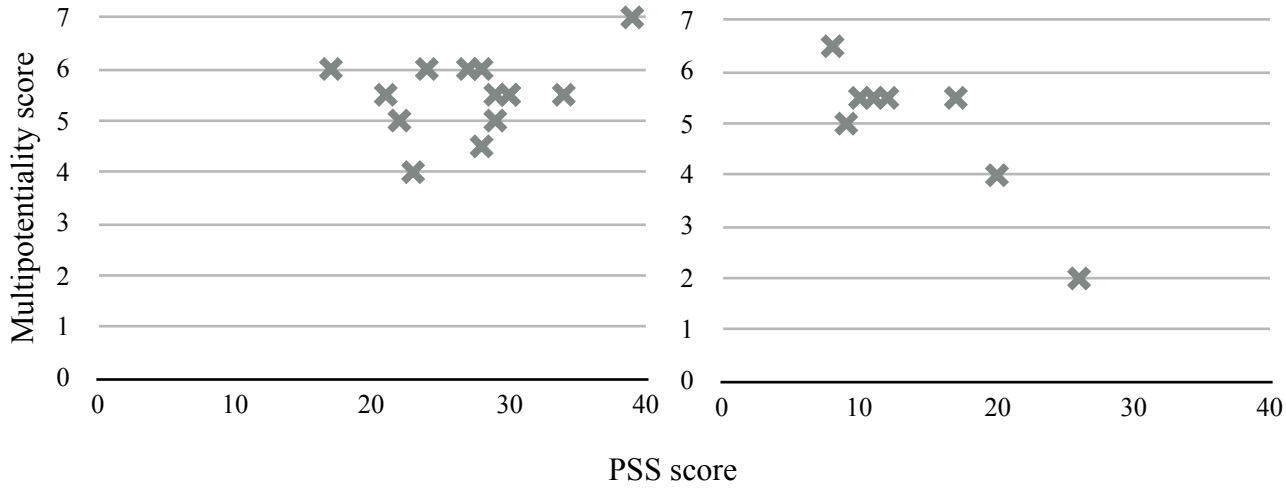

Figure 8. PSS versus multipotentiality scores for females (left); and males (right).

Perfectionism and multipotentiality. No correlation was found between multipotentiality scores and self-oriented perfectionism scores on the CAPS amongst all participants, $r(20) = -.03$, $p = .89$. However, a gender effect was revealed when examining male and female scores separately (see Figure 9). There was no correlation between both scores in females, $r(13) = .14$, $p = .62$, but there was a strong negative correlation found in males, which was approaching significance, $r(5) = -.74$, $p = .06$. In other words, higher levels of multipotentiality were linked to lower levels of self-oriented perfectionism in males, but not for females.

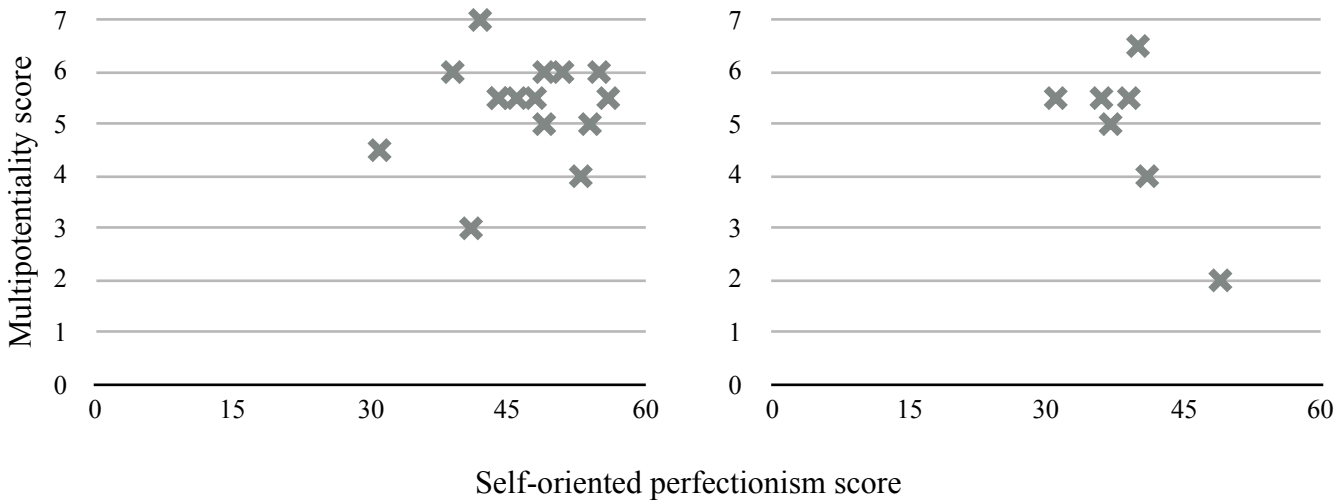

Figure 9. Self-oriented perfectionism scores versus multipotentiality scores in females (left); and males (right).

Although no correlation was found amongst all participants between multipotentiality scores and socially prescribed perfectionism scores on the PSS, $r(20) = .11$, $p = .63$, Figure 10 depicts an interesting trend. There was a visual trend towards a moderate positive correlation between females' multipotentiality and socially prescribed perfectionism scores. However, this was not statistically significant, $r(13) = .40$, $p = .14$. Conversely, there no trend between the same two variables for males, $r(5) = -.33$, $p = .47$. This indicates that there was a possible trend for females with higher levels of multipotentiality to have higher levels of socially prescribed perfectionism, compared to females with lower levels of multipotentiality.

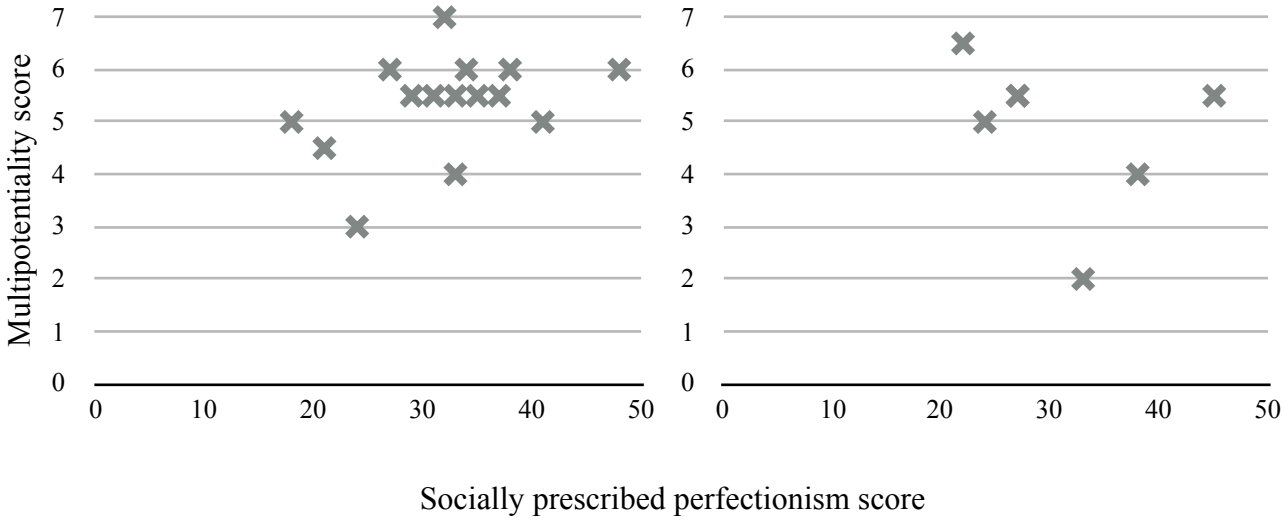

Figure 10. Socially prescribed perfectionism scores versus multipotentiality scores in females (left); and males (right).

Anxiety and multipotentiality. There was no correlation found between multipotentiality scores and SAS scores amongst all participants, $r(19) = -.14$, $p = .55$. However, another gender effect was found. Although there was no relationship between multipotentiality and SAS scores for females, $r(12) = .03$, $p = .92$, there was a strong negative correlation for males, $r(5) = -.86$, $p = .01$. These results are depicted in Figure 11. These results suggest that for the males in this sample, higher levels of multipotentiality corresponded to lower levels of anxiety.

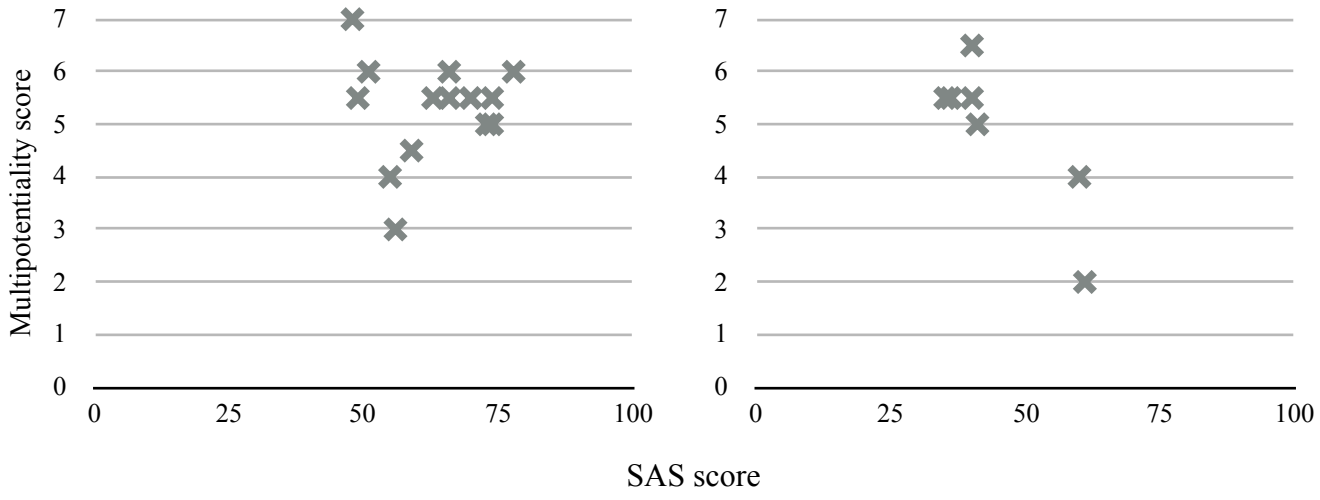

Figure 11. SAS scores versus multipotentiality scores in females (left); and males (right).

Career indecision and multipotentiality. Each of the five questions relating to career decision-making were examined separately in terms of correlations with multipotentiality. No correlations were found for Items 1 or 3, either for all participants, or for males and females separately. However, trends were found for the remaining three items, as outlined below.

There was no correlation amongst all participants between Item 2 and multipotentiality, $r(20) = .21$, $p = .34$. However, as seen in Figure 12, there was a moderate positive correlation approaching significance for females, $r(13) = .48$, $p = .07$. There was no correlation for males, $r(5) = -.31$, $p = .50$. These results show that females with higher multipotentiality scores tended to find it more difficult to make a career decision compared to females with lower multipotentiality scores.

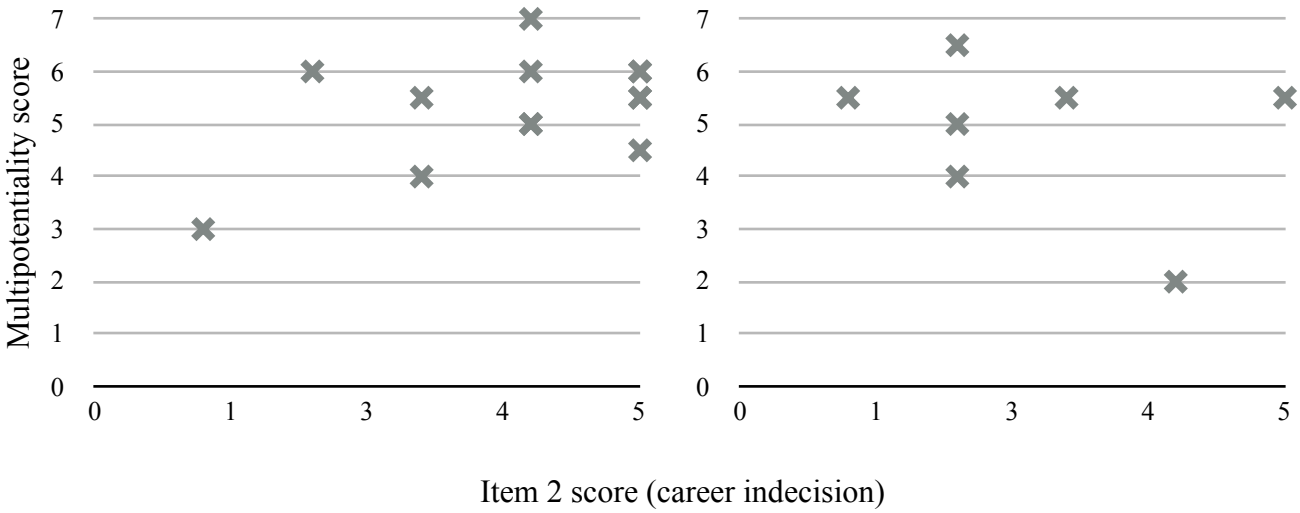

Figure 12. Item 2 score versus multipotentiality score for females (left); and males (right).

As the wording of Item 4 is closely related to that of Item 2, it is unsurprising that the results for these items are very similar. There was no correlation amongst all participants between multipotentiality and Item 4, $r(20) = .29$, $p = .19$, although this result is again moderated by gender. The female data suggested a positive correlation with marginal significance, $r(13) = .44$, $p = .10$, whereas the male data showed no correlation, $r(5) = -.14$, $p = .76$ (see Figure 13). This reveals similar information as the data from the Item 2 results, with higher multipotentialed females tending

to find that the large number of available career options makes it more difficult for them to decide on a career.

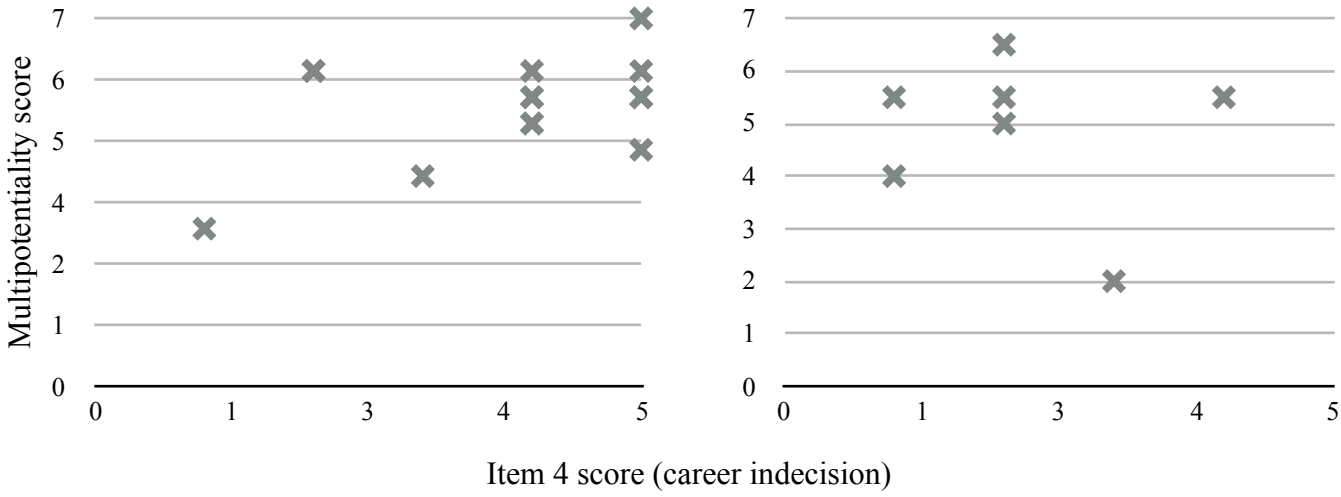

Figure 13. Item 4 score versus multipotentiality score for females (left); and males (right).

There was no correlation between multipotentiality and Item 5, either for the whole sample, $r(20) = -.12$, $p = .56$, or for males, $r(5) = -.10$, $p = .83$. However, there was a moderate negative correlation amongst females which approached significance, $r(13) = -.50$, $p = .06$. The results are shown in Figure 14. This means that for females, being less multipotentialed was related to believing that their career choice will define them as a person, whereas the opposite was true for females who were more multipotentialed.

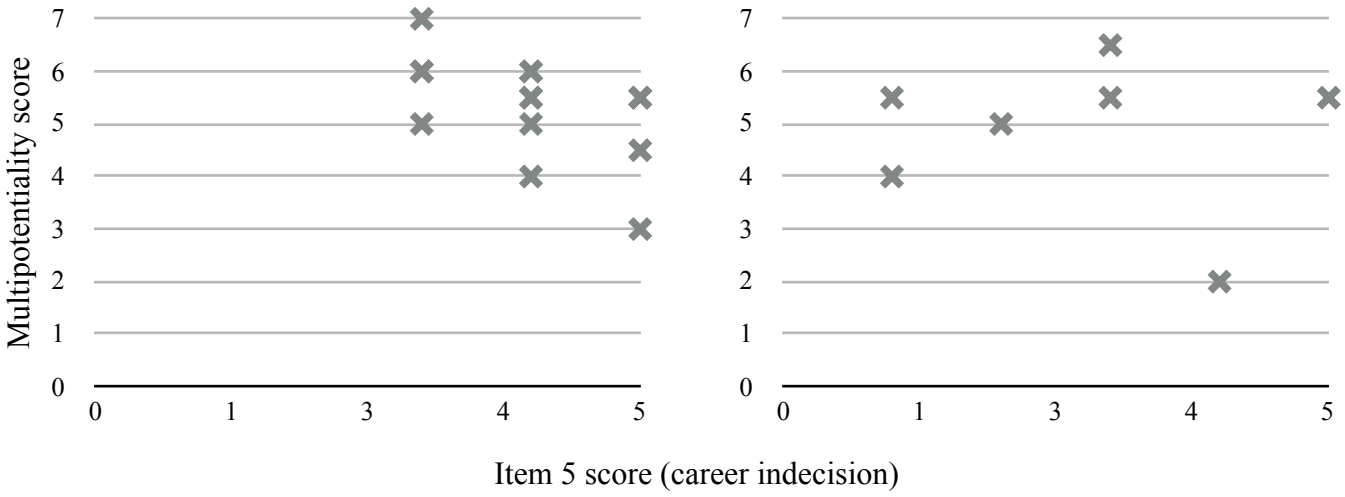

Figure 14. Item 5 score versus multipotentiality score for females (left); and males (right).

Conclusion

A number of major conclusions can be drawn from the analysis of the questionnaire data. Firstly, there was a high level of self-reported multipotentiality amongst this sample of gifted and talented adolescents. Secondly, females with higher multipotentiality levels tended to study a greater range of subjects compared to females with lower multipotentiality levels. Furthermore, females scored higher than males in this sample in terms of stress, anxiety, and self-oriented perfectionism. For males, higher levels of multipotentiality were related to lower levels of stress, anxiety, and self-oriented perfectionism. However for females, higher levels of multipotentiality were related to a greater belief that their career choice would define them as a person, as well as greater difficulty in choosing a career due to the large number of options available.

Phase Two: Focus Group Results

During the focus group, the three participants (Marta, Sophie, and Jenny) discussed the concepts presented in the questionnaire, and were probed to elaborate on why they thought or felt a certain way. The focus group results were analysed using thematic analysis. This resulted in the emergence of several common themes which are described below.

Multipotentiality

Current talent and future potential. Each of the three participants believed they demonstrated high levels of skill across at least three disciplinary areas. These included English, science, economics/commerce, humanities, arts, leadership, and sports. The participants had all received multiple awards in recognition of their abilities, several of which were top prizes or awards of a similar value. Sophie also said, "…last year, I…excelled across the board, I got [excellence] endorsed in every subject."

When asked about their perceived potential to succeed in various careers/fields, all three expressed that they believed they had the potential to succeed in diverse areas, which were related to the areas in which they had experienced recognition and success. Additionally, all participants expressed a belief that they had the potential to succeed (in career terms) in at least one subject that they had previously dropped at high school due to various reasons.

Having a narrow focus versus diversifying one's skills. The participants were asked to discuss whether they believed being a "jack of all trades" was more or less valuable than having a very small number of areas on which to focus intensively. All three participants expressed that they had chosen to spread themselves across multiple areas and that in general they believed this to be a good thing. However, all of them qualified this with reservations. For example, Marta expressed that having a wide variety of interests and abilities is beneficial as it provides opportunities and choice in the long run, despite being a source of confusion due to feeling "like you're being pulled in lots of directions." In a similar vein, Sophie said, "It's good to have a variety of interests and things you get validation from being good at. But when you get to the point where everything you're doing is something that could take you on a path, you start trying to go in every direction at once. And…it ends up not being good."

Jenny said that being multipotentialed is “useful” in terms of meeting many different people, but added that, “At the same time I’m kind of sad that I’ll never be the best at that thing, because I have so many interests.” (This is also related to self-oriented perfectionism, which is discussed shortly.) A similar sentiment was expressed by the other participants multiple times throughout the focus group. Marta said, “I do wish that from a young age I had kind of gone, ‘oh I’m definitely a maths person or I’m definitely a humanities person’”. Sophie also said that a part of her “wishes” she had narrowed down her focus at a younger age in order to avoid current confusion about which career path to pursue. Marta expressed that getting “good grades in everything” contributes to her confusion.

Despite feeling like having a smaller and more focussed number of interests would have benefits, the three participants individually spoke about why they had not chosen to do this. Marta said that putting “all your eggs into one basket” could result in expectations not being met or difficulty in finding a job, which would mean starting again “from scratch”. Sophie agreed with this and the pair discussed “opportunity cost” and missed opportunities from narrowing one’s focus too early. Sophie added that it would be unfortunate to focus on one area only to realise after some time that you no longer enjoyed it. As for Jenny, she said, “I can’t do one thing for a long time because I get bored.” Sophie and Marta agreed to this and said that they have dropped a hobby or subject due to boredom, despite excelling in that area.

Deciding on a Career: Important Influences

All three participants had decided that they were going to attend university after graduating high school. However, they had not yet all selected their individual paths of study. Jenny said that deciding on a career/study path was neither easy nor hard, and she had narrowed down her choices to one general type of degree. Marta said that it was “pretty tricky” to decide on a career whereas Sophie said it was “very, very hard.” Sophie and Marta felt that they did not have enough

information in order to decide on their tertiary study plans, despite seeking out information and advice from various sources.

One of the main factors involved in all participants' career decision-making was that of job opportunities. All three participants expressed a desire to pursue further studies in either the arts, humanities, or English. However, they each said that their career choice is largely dependent on job availability. They perceived the fields of science, commerce and economics to have a significantly greater amount of job opportunities as well as being higher paid, making them more attractive as career paths, despite the fact that the students experienced an equal or greater amount of interest and success in the arts, humanities or English.

Marta said that one of the reasons she found it hard to decide on a career was because, "You don't know if you're gonna get bored of something, even if you like it now." Later in the conversation, she added, "I really didn't want to focus on just one thing because what if you put all your energy and time into that and you get to it and it's not what you expected or you aren't able to find a career path that works out for you." Marta and Jenny both stated that being stimulated in their jobs was very important, and Sophie said that she wanted to pursue one of her favourite subjects due to interest. Sophie and Jenny also spoke about how they would like to combine their interests in different subjects into a single subject or degree programme.

When asked about what a career means to them in personal terms, all three participants agreed that careers have a very large impact on one's life. In Marta's opinion, a career takes up the majority of one's life and shapes one's views. Sophie spoke about the pressures of making the correct decision, adding:

> "I feel it's always been, like, you're leading up to your career. You're not leading up to a relationship. You're not leading up to having good health. You're leading up to having a good job and getting lots of money. Like, that's what it's all about. Like at school, no matter

how much they preach, ‘take care of yourself’, it’s school first and then it’s health, and then relationships. Like, ‘get lots of sleep but…succeed and overwork!’” - Sophie

Perfectionism and Stress

Although they were initially addressed separately during the focus group, it was evident that the themes of perfectionism and stress overlapped during the discussion. Marta and Sophie both described themselves as being perfectionists in certain ways, especially when given significant time to complete a task (such as an assignment, as opposed to an exam). Jenny described how she used to “suffer from heaps of [self-oriented] perfectionism problems” but that she has overcome this and her current attitude is to try her best at what she does.

When pulling apart the issue in more detail, Marta stated, “It’s not so much that I’m stressed because I’m good at multiple things…I feel the stress more in what other people think of my achievement.” She expressed that if she does not succeed in a particular subject, her family query this as a problem, due to their expectations for her to be successful in all areas. She added that some of her stress stems from her own perfectionism, but that most of it comes from her perceived expectations of others, saying, “It does give me more stress that there are [high] expectations of me in every field.” Jenny said that she holds high expectations of herself, but that she tries to remain practical minded. She said she can feel “a bit anxious” and “overwhelmed” if she does not “stay on top of things”. She said that she receives pressure from her parents to perform perfectly in certain areas, but not in others.

Sophie also expressed that other people (such as parents and teachers) assume she will excel in different areas and consistently receive top grades and awards, and that she feels pressured to meet their expectations. She said, “[I’m] always being told…you’re really smart, you can do this and this and this.” However, she said that she feels more pressure from her own expectations to achieve outstanding results at school. Having done so in the past, she feels pressure to meet that

same high standard. Sophie and Marta also discussed their shared stress that they experience when they do not understand a concept straight away in a particular subject:

> Sophie: "I've never really experienced just *not* getting something just right off the bat."
>
> Marta: "Yeah at the start of the year…I actually wanted to cry because I didn't understand!"
>
> Sophie: "Yeah, I just…I didn't understand! Like, I had to ask questions…and when they were answered I didn't know what it was. But, like, last year I found it easy and I was getting excellence."

Later in the discussion, Sophie added:

> "I mean I know I shouldn't be embarrassed about not getting something, but I am. Just like, knowing that I need to spend time at something to get it right. And after not spending time to get something right always, I don't know how to spend time to get something right. And that's especially evident in [a certain subject] this year. Because last year I got things off the bat and this year if I don't get it I'm like, 'I can't do it.'" - Sophie

For both Sophie and Marta, their prior experiences of understanding concepts instantly when they were explained during class lead to confusion and distress when they found they had to dig deeper to grasp something that was difficult - an issue which they had rarely or never experienced prior to this year. After speaking about her success at school, Sophie added, "…if I don't do something right the first time it's like 'well what's the point?"

Being told what to do. Under the overarching theme of perfectionism and stress, the participants also spoke about the presence and influence of other people's opinions on their life choices. For example, Jenny stated that many people tell her she "should" try a particular activity

(such as learning an instrument) on the basis that they believe she would be very good at it. In a slightly different vein, Marta said that other people often assume that she will pursue a particular field if they see her demonstrating excellence in that area. She added that she feels she has to consider these opinions from others and that they play a role in her confusion regarding career choices. Sophie felt that other people push her towards studying a certain subject due to a perceived higher number of job opportunities, even though she enjoys and excels more in a different subject.

Integration of Results

Merging the quantitative and qualitative data from the study leads to a greater depth of understanding compared to analysing each phase alone. Table 7 provides a visual representation of the results from both phases. The first column outlines the broad constructs measured in the questionnaire, which were explored in the focus group. The second column highlights key findings from the questionnaire, and the third column highlights key findings from the focus group, supported by quotes. Due to the focus group containing only females, questionnaire findings that pertained to males alone were excluded from this table. The findings from this table (as well as those that have been excluded) are merged and discussed in depth in the following chapter.

Table 7

Integration of Quantitative Statistical Data and Qualitative Focus Group Data

Topics	Questionnaire findings	Focus group findings and excerpts
Multipotentiality	19 out of 23 believed themselves to be multipotentialed	All three believed they had the potential to succeed in diverse areas/fields. “I do wish that from a young age I had kind of gone, ‘oh I’m definitely a maths person or I’m definitely a humanities person’” - Related to having a narrow focus versus diversifying. “I can’t do one thing for a long time because I get bored.” - Related to choosing to diversify.

Manifestation of multipotentiality	Strong positive correlation between multipotentiality score and number of subject areas studied amongst females	"…last year, I…excelled across the board, I got [excellence] endorsed in every subject." - All participants had received multiple awards and/or endorsements in multiple areas.
Stress	PSS scores were relatively high for females and relatively low for males	"It's not so much that I'm stressed because I'm good at multiple things…I feel the stress more in what other people think of my achievement." "I mean I know I shouldn't be embarrassed about not getting something, but I am." - Related to feeling academically challenged after easily excelling at school for a long time.
Self-oriented perfectionism	Relatively high self-oriented perfectionism scores on PSS for overall sample	"At the same time I'm kind of sad that I'll never be the best at that thing, because I have so many interests."
Socially prescribed perfectionism	Relatively high socially prescribed perfectionism scores on PSS for overall sample	"[I'm] always being told…you're really smart, you can do this and this and this." "It does give me more stress that there are [high] expectations of me in every field."
Anxiety	SAS scores were relatively high for females (and moderate for males)	"I have to…stay on top of things. Otherwise I feel a bit anxious."
Career decision-making	Females generally scored higher than males in terms of career indecision	"I really didn't want to focus on just one thing because what if you put all your energy and time into that and you get to it and it's not what you expected or you aren't able to find a career path that works out for you." - Related to having trouble deciding. "I feel like it's always been…like…you're leading up to your career…You're leading up to having a good job and getting lots of money. Like that's what it's all about." - Related to feeling pressure to make a good decision.

CHAPTER 5: DISCUSSION

This study aimed to investigate the level and manifestation of multipotentiality in a cohort of 23 adolescents identified by their school as gifted and talented. It also aimed to investigate the nature of any possible relationships between multipotentiality and stress, anxiety, perfectionism, and career decision-making. These aims were addressed via a two-phase mixed methods design. The first (quantitative) phase involved the administration of an online questionnaire which asked participants to report on their own levels of multipotentiality, stress, anxiety, perfectionism, and career indecision. The second (qualitative) phase involved a focus group of three students taken from this cohort, where the topics from the questionnaire were explored and discussed in greater depth. This chapter provides an interpretation of the quantitative and qualitative results, linking them to the research literature. Limitations of the study are also discussed, as well as implications of the findings and recommendations for future research directions.

Level of Self-Reported Multipotentiality

The first research question that this study aimed to answer was: What is the level of self-reported multipotentiality amongst gifted adolescents, as demonstrated in a New Zealand sample? In brief, the answer to this is that it is high. Most of the students in the sample (19 out of 23) reported themselves to be multipotentialed to some degree. This aligns with research which demonstrates that the majority of gifted individuals consider themselves to be multipotentialed (Greene, 2006; Sajjadi, Reis & Hébert, 2008; Rejskind, & Shore, 2001). Responses were similar for males and females, indicating that the level of self-reported multipotentiality among gifted and talented adolescents does not differ by gender. This is also in alignment with the literature on multipotentiality, where any mention of gender differences is not found.

Furthermore, the participants in the current study responded to both multipotentiality items in a similar way, with 19 participants answering both items either identically or within one number

difference, and the remaining four participants answering within a two number difference on the Likert scale. This means that the students' possession of a wide variety of talents, interests, and abilities accompanied their belief that they have the potential to succeed to a high level in a number of different fields and career options. This supports the construct of multipotentiality being defined as possessing both diverse abilities and the potential to succeed to a high level in a number of different fields (Colangelo, 2002; Kerr, 1990).

Manifestation of Multipotentiality

The second research question was: In what ways does multipotentiality manifest in gifted adolescents? The participants in this study, especially the girls, appeared to manifest their multipotentiality across not only a variety of domains, but across a variety of domains which were not necessarily related. For example, the individuals in question were interested in pursuing and demonstrated high levels of success across the arts, humanities, commerce, and science.

In the questionnaire, multipotentiality was examined in relation to the number and type of subjects studied. This revealed a strong positive correlation in females between multipotentiality and number of subject areas studied, as defined by The New Zealand Curriculum (Ministry of Education, 2007). For instance, females with higher self-ratings of multipotentiality were more likely to study a wider range of subject areas. However, this correlation was not found in males. A possible explanation for these results can be found in research by Mendez and Crawford (2002), who found that, compared to gifted boys, by early adolescence, gifted girls perceived a wider range of career options to be open to them. In that study, girls also demonstrated greater gender-role flexibility in their career aspirations, compared to boys. In the current sample, it is possible that the females with the highest levels of multipotentiality believed it was more important to keep their options open, compared to their male counterparts.

This belief was reflected by the three female participants in the focus group, who spoke of the importance of achieving to a high level in multiple areas. Jenny described being multipotentialed as "useful" and Sophie and Marta described it as "a good thing". They all perceived themselves to be multipotentialed due to receiving multiple awards or significant recognition across at least three disciplinary areas each, which were the areas in which they believed they could pursue successful careers. Interestingly, all three girls reported that they believed they had the potential to succeed in at least one subject area/field that they were no longer actively studying or pursuing. This indicates that, at least for gifted females, their self-perceived potential to succeed in multiple areas may result in having to drop one or more subjects in which they have success and/or interest, due to accommodating subjects in which they also demonstrate passion or high ability. Despite acknowledging the positive aspects of being multipotentialed, all the participants also expressed that it was a double-edged sword, saying that there are times when they wish they had narrowed down their skill set and interests in order to be better at a smaller number of things and, in Sophie's words, not be "pulled in lots of directions".

Links Between Multipotentiality and Stress, Anxiety, Perfectionism, and Career Indecision

The third and final research question was: What is the nature of the relationships between multipotentiality and anxiety, career decision-making, perfectionism, and stress amongst gifted adolescents? What moderates these relationships? This is the most complex of the three questions to answer and is therefore addressed in stages below, grouped in subsections according to each of the latter four constructs measured.

Stress and anxiety. Although stress and anxiety were treated as separate constructs in the study, similarities in the results from both phases warrant their joint discussion. Notably, both stress and anxiety were relatively high in females compared to males. There were also negative

correlations between both constructs and multipotentiality in male participants, which is discussed in further detail below.

The PSS revealed that females had significantly higher stress levels than males in this sample. As the PSS is not a diagnostic tool, there are no cut-off scores provided to indicate low, moderate, and high stress levels. However, during the scale's construction, the mean score across norm population groups was approximately 13 out of 40, with a standard deviation of approximately 6 (Cohen & Williamson, 1988). The current sample's mean scores of 14.13 (*SD* = 6.31) for males and 26.87 (*SD* = 5.55) for females indicates that males scored within the average range and that females scored significantly above average. That is to say, females had relatively high to very high amounts of perceived stress.

Similarly, the SAS revealed that as a group, females had significantly higher anxiety levels than males. Unlike the PSS, the SAS gives ranges to indicate the degree of anxiety in respondents. Five boys scored within the normal range and two within the severe range. In contrast, the girls' scores spread from the minimal/moderate to extreme anxiety range.

These findings support research which consistently indicates that adolescent females have higher stress and anxiety levels than adolescent males (Bender, Reinholdt-Dunne, Esbjorn, & Pons, 2012; Moksnes, Moljord, Espnes, & Byrne, 2010; Muris, Schmidt, Merckelbach, & Schouten, 2001). Although there is limited research on gender differences related to stress and anxiety specifically in gifted adolescents, the findings support research which shows that gifted females experience higher levels of stress than gifted males (Fouladchanga, Kohgardb, & Salah, 2010).

Links with multipotentiality. Correlational analyses revealed that boys with higher multipotentiality scores were significantly more likely to have lower stress and anxiety levels, compared to boys with lower multipotentiality scores. Although they do not specifically discuss stress and anxiety, Reis and Hébert (2008) give a possible explanation for this correlation when they state that, despite the shifts in perspective regarding gender roles in society, men's work and career

success determine their masculinity, and that many gifted boys grow up thinking that they must be successful in a variety of domains. Relating this to the current study, boys who perceive themselves to be more successful in multiple areas may possibly experience a lower level of stress an anxiety due to feeling more confident and successful overall.

Although no statistical correlations between stress and anxiety with multipotentiality were found in girls, it should be noted that girls as a group scored highly on all three measures. Thus, the high scores that the girls had for these measures may explain why no correlations were found amongst individuals. During the focus group, Marta explained that she does not feel stressed due to simply being multipotentialed, but that her stress stems from "what other people think of [her] achievement". Sophie and Marta also discussed feeling stressed and embarrassed when they do not understand a concept in class, which is something that they report only started happening this year. They both said that their ability to grasp concepts quickly and easily meant that not being able to do so was a significantly stressful experience. These findings support research by Roberts and Lovett (1994), who found that gifted adolescents who failed at solving difficult tasks showed greater physiological stress, irrational beliefs, and negative affect compared to non-gifted students. This is especially concerning for gifted adolescent females, who tend to attribute success to luck or effort, but attribute failure to lack of ability (Reis, 1998).

In conclusion, multipotentiality does appear to be linked to stress and anxiety in the current study, although the effects are moderated by gender. Although the quantitative phase of the study did not indicate correlations between multipotentiality and stress/anxiety in girls, the qualitative phase provided evidence that there may indeed be some sort of relationship in the opposite direction to what was indicated by the boys in the quantitative phase, with the girls in the focus group expressing that being successful in multiple areas led to feelings of stress and embarrassment in certain contexts.

Perfectionism. Self-oriented perfectionism and socially prescribed perfectionism were measured via the CAPS in the questionnaire. High levels of self-oriented perfectionism indicate that the individual believes being perfect is important, which results in setting themselves excessively high standards. In contrast, high levels of socially prescribed perfectionism indicate that the individual believes others to have high standards for them and that in order to be accepted, they must fulfil these standards (Stoeber, Otto, & Dalbert, 2009). Although there are no cut-off scores for the CAPS to indicate healthy or unhealthy perfectionism, both genders scored relatively highly on both self-oriented and socially prescribed perfectionism measures. These results support the research literature which has consistently shown that gifted adolescents have perfectionistic tendencies (Davis & Rimm, 2004; Schuler, 2000; Silverman, 2007; Olszewski-Kubilius, 2008).

Studies have also shown that gifted females report higher levels of perfectionism than males (Alsop, 2003; Baker, 1996). In the current study, the girls scored significantly higher than boys on the self-oriented perfectionism dimension, whereas both genders scored equally highly on the socially prescribed perfectionism dimension. This indicates that the girls had significantly higher personal standards and a stronger drive to perform perfectly, compared to the boys. In the focus group, Sophie and Marta showed evidence of exceptionally high self-oriented perfectionism when they discussed their distress experienced when not being able to understand a concept in class straight away. Having rarely struggled with conceptual understanding in the past, Sophie's unmet expectations to continue excelling with ease at school led to her feeling embarrassed and even saying, "…if I don't do something right the first time it's like 'well what's the point?'"

The tendency to think it is not worthwhile to attempt something if one is struggling is not uncommon amongst gifted students. Silverman and Golon (2008) describe how perfectionism can sometimes lead to paralysis and underachievement in gifted individuals if they feel they do not meet their high standards. However, they describe that the opposite can also happen, when perfectionistic behaviour drives oneself to extraordinary achievement. Related to this is Parker's (2000) view that

healthy and unhealthy perfectionism should be perceived as separate constructs instead of the latter being viewed as a heightened version of the former. This is also sometimes referred to as "disabling" and "enabling" perfectionism (Ministry of Education, 2012; Piirto, 1994). For Sophie (and Marta to a lesser extent), her high self-oriented perfectionism could be seen to be unhealthy or disabling. In a similar vein, Jenny used the word "suffer" to describe her past struggles with self-oriented perfectionism, but reported that she now tries to remain practical and to simply try her best at what she does, which could be argued to be a healthier, more enabling attitude. Interestingly, Chan (2007, 2009) found that gifted girls were more likely to have a healthy form of perfectionism, whereas boys were more likely to have a maladaptive or unhealthy form of perfectionism. However, gender differences could not be explored in the all-female focus group.

Links with multipotentiality. Results from the questionnaire indicated tendencies towards a strong negative correlation between multipotentiality and self-oriented perfectionism in males, and a moderate positive correlation between multipotentiality and socially prescribed perfectionism in females. Although neither of these correlations reached the $p < .05$ significance level, these trends were nonetheless observed. This points to the possibility that higher multipotentiality is linked to lower self-oriented perfectionism in gifted males, but that it is linked to higher socially prescribed perfectionism in gifted females. A study by Jung (2013) found an unexpected negative correlation between multipotentiality and perfectionism in a group of gifted adolescents. The author suggested that highly multipotentialed gifted adolescents may find it less manageable to strive for perfectionism in multiple areas, compared to gifted adolescents who have a narrower focus. This means that highly multipotentialed students may choose not to strive for perfectionism. It is possible that this was the case for the boys in the current study, although the gender disparity warrants a need for the girls' results to be discussed in depth below.

In the focus group, Marta spoke about how high expectations and pressure from her parents and teachers (socially prescribed perfectionism) feels greater than her own (self-oriented)

perfectionism, and that she feels stressed due to others' expectations for her to succeed "in every field". Marta's case provides insight into the ways in which high multipotentiality may be linked to high socially prescribed perfectionism, and also to stress. This reflects an issue of concern regarding parent and teacher expectations of gifted students, as they may be experiencing unrealistically high expectations from others, but may still try to meet these expectations, due to a belief that they should be able to do so. On the other hand, Sophie reported feeling more pressure from her own expectations to achieve to a very high level, in order to maintain her previous high standard across the board. However, she also spoke about high expectations and pressure from her parents and teachers to excel and receive top awards in multiple areas at school subjects, indicating that both types of perfectionism were high and related in some way to her high multipotentiality. Jenny's case is slightly different, as she reported that her parents expect her to perform perfectly in certain areas, but not in others. However, she also said that many people (including her parents) make strong suggestions for her to pursue particular activities due to their beliefs that she would excel at them. Although her case differs from those of Marta and Sophie in that other people do not expect her to excel in every area, Jenny presented evidence that other people hold high expectations of her to succeed in specific areas, regardless of her own expectations in these areas.

Research indicates that perfectionistic gifted females in particular may tend to set unreasonable goals as they try to reach increasingly higher levels of success and perfection in multiple areas, whether this be due to their own or others' expectations (Reis & Hébert, 2008). This may become an issue for highly multipotentialed individuals who feel that it is realistic to expect continued success in many areas. Closely linking this topic to the following section is research that this type of unrealistic perfectionism can cause individuals to believe they can and should make the 'perfect' career choice (Assouline & Colangelo, 2006). Although perfectionism can generate a high level of motivation, unrealistic standards can lead to perceived failure and loss of interest in activities where failure is deemed to be likely. For multipotentialed gifted adolescents such as those

who participated in the current study, high perfectionism may result in significant confusion when deciding on a career path.

Career Indecision. The participants' level of career indecision was measured via five items in the questionnaire. Overall, the males scored around the "neutral" mark for each question, whereas the females scored significantly higher, indicating moderately high levels of career indecision. This was especially true for the statements "It is easy for me to make decisions" (reverse scored) and "I feel like there are so many career options available, which makes it difficult to decide which to choose". These results indicate that females in general found it more difficult to make decisions not only in general, but especially in regards to which career(s) to pursue after high school. In the focus group, Jenny was the only student who had narrowed down her choices to a general degree pathway, whereas Sophie and Marta were experiencing significant difficulties in choosing what to study at university. All three girls agreed that their career choice is extremely important, as they believed their work life would have a significant impact on their lives.

Links with multipotentiality. Correlational analyses of the phase one data showed no indications of correlations between multipotentiality and career indecision amongst males. However, the analyses revealed trends amongst the female participants; namely that those with higher multipotentiality found it harder to make a career decision, and that the large number of career options available contributed to the difficulties in making this decision. It may be that females are less likely to see their giftedness (and perhaps multipotentiality) as helpful compared to boys, a conclusion which was also suggested by Leung et al. (1994). However, qualitative data was not able to be obtained for the boys in the current study, so this conclusion is tentative.

During the focus group, all three girls expressed that being multipotentialed can be a very positive thing, although they sometimes wished they had narrowed their focus earlier in order to simplify the career decision-making process. Despite this, they all agreed that narrowing one's focus too early could result in missed opportunities, boredom, and potentially having to start again

from scratch in a different career. The girls' thoughts reflect research which has shown that multipotentialed gifted adolescents may find choosing a career path very difficult and perhaps even paralysing due to the thought of giving up other opportunities (Colangelo, 2002; Greene, 2006; Maxwell, 2007; Peterson, 2002; Reis & Hébert, 2008; Robinson, 2008). Tannenbaum (2000) points to the importance of having career aspirations in fields that are socially valued, and that this can contribute to gifted individuals' perceptions of how useful or desirable it is to be multipotentialed. This is interesting in regards to the focus group participants' comments about perceiving jobs in science and commerce to be more valuable than jobs in the arts or humanities, despite having an equal or greater interest in the latter subject areas. This points to the significant role played by perceived societal expectations on career choice. Societal influences (as conveyed in the media) combined with pressure from parents, teachers, and oneself to make the best decision and to not waste one's talents may mean that the career decision-making process for multipotentialed gifted girls in particular is complex and arduous.

Limitations

One of the main limitations of the current study was the relatively small sample size in both phases. The total number of participants whose results were analysed in the questionnaire was approximately one-third of the number of students in the GATE programme at the chosen school. However, due to the voluntary nature of participation, sample size could not be predicted. The fact that the participants were selected from one school also means that any generalisations to the wider gifted population should be made with caution. As the Ministry of Education (2012) does not provide a national definition of giftedness, it is the responsibility of each school to create their own definition and to select students according to their criteria. Ultimately, this means that a student who is identified as gifted and talented at one school may not be considered as such at another school. However, care was taken to select a school for the current study which had a large roll (and a

proportionally large cohort of GATE students) and which used a wide range of methods to select its GATE students.

Due to the majority of the questionnaire analyses revealing gender effects which often showed opposing results between males and females, having a separate focus group consisting of male participants would have been highly valuable in gaining insight into the possible reasons behind the gender discrepancies. However, this could not be changed due to the voluntary nature of the study. Nevertheless, valuable insights were gained from both phases of the study, especially in regards to the female perspectives sought in the focus group.

Another limitation concerns the reliance on self-report data to inform the analyses. One of the main disadvantages of self-reports is the potential for misleading or dishonest responses. For instance, responses may vary due to participants' desires for self-enhancement and consistency (Robins & John, 1997). Face-to-face self-reports (such as focus groups) can also be affected by self-consciousness, modelling, and efforts to develop rapport (Paulhus & Vazire, 2007). Although efforts were made to counter these effects such as by ensuring participants that their anonymity would be preserved, the disadvantages of self-reports are as inevitable as those of any other method of data collection.

Another limitation surrounded the lack of available comparison data, mainly in the form of a non-gifted student sample group. It was a conscious decision not to include a non-gifted sample in the study in order to avoid overcomplicating the research. However, this means that the data from the gifted student sample cannot be seen within the wider context of the student population. For instance, it would be beneficial to gather comparison data on the level of multipotentiality, stress, anxiety, perfectionism, and career indecision amongst non gifted adolescents, in order to more clearly determine which characteristics are unique to gifted students.

Along similar lines is the issue of the PSS and CAPS not providing cut-off scores to indicate low, moderate, or severe stress or perfectionism, respectively. Without these guidelines, it is

difficult to determine precise levels of stress and perfectionism within the sample group. Despite this, the use of these scales nonetheless provided valuable insight into the experiences of gifted students, especially in relation to gender differences and correlations with multipotentiality.

Implications and Future Research Directions

This exploratory study revealed several important findings that will help to inform not only future research directions, but also the way in which educators meet the educational and pastoral needs of gifted and talented adolescents. One of the fundamental findings is that multipotentiality appears to be widespread among gifted and talented adolescents in New Zealand, and that being multipotentialed has significant advantages and disadvantages. The latest guidelines for how to meet the needs of gifted and talented students in New Zealand schools does not address multipotentiality (Ministry of Education, 2012), so educators may be unaware of its relevance to the challenges experienced by gifted students. Importantly, this means that students may also be unaware that what they experience due to being multipotentialed is common amongst their gifted peers. Research by Delisle and Galbraith (2002) shows that gifted students often feel not only overwhelmed by the number of things they can do in life, but that they also often feel different and alienated. Colangelo (2002) recommends peer discussions and group work with other multipotentialed students so that they do not feel alone with their concerns. Bringing the topic of multipotentiality into open discussions in school GATE programmes may be vital in helping students to share their common experiences, giving them a safe space to discuss both the beneficial and the stressful sides to multipotentiality.

Another fundamental, overarching finding is that males and females differed significantly in many respects. For instance, educators and counsellors should pay particular attention to stress and anxiety in females, and the ways in which this may be exacerbated by the effects of being multipotentialed. In particular, educators may choose to focus on helping gifted adolescent girls to

experience ‘failure’ in a successful way. That is, students should be helped to experience any shortcomings as opportunities to learn rather than as true failures. Otherwise, the consequences may be procrastination, withdrawal, and avoidance behaviours (Grobman, 2006). More research should be done to investigate the negative correlation between multipotentiality with stress and anxiety in boys, as the reasons behind this link were not able to be investigated in this study, and no similar results were found in the giftedness literature.

Educators and counsellors should also be aware of the high level of both self-oriented and socially prescribed perfectionism that is commonly seen in gifted students, and should take care to address unhealthy or disabling perfectionistic tendencies. According to Nugent (2000), teachers can help unhealthy perfectionists by emphasising that mistakes are essential for learning, helping students to plan and reach realistic goals, and focusing on the learning process itself rather than perfecting performance. These methods may be especially important for primary school teachers of gifted students, so that problems do not develop in adolescence.

Furthermore, due to the traditional “silo” nature of the secondary school system, where subjects and age groups are separated and students are often taught by several different teachers during the course of a school day (Gilbert, 2005), teachers may not realise the collective pressure that they might be unintentionally loading onto their gifted, multitalented students. For example, a student may be top of their class in four subjects, and their teachers might all be strongly encouraging the student to pursue their subject at tertiary level, without realising that other teachers are doing the same. To account for this, school systems should support communication between teachers about shared students so that they are aware of how they are faring in other subjects and how other teachers might be trying to make the most of gifted students’ abilities. It is important for teachers to take responsibility for how their students’ learning links up at the present moment and also throughout their time at school (Hipkins, 2010). Future research should also investigate the

differing trends shown between multipotentiality and perfectionism in boys and girls, to see whether these trends are more defined in a larger sample.

The different results between genders in terms of career indecision points to an issue that should be researched further in order to learn whether these disparities exist in other gifted (and non gifted) samples, and to uncover the reasons behind them. This study shows that gifted multipotentialed girls in particular may be more in need of career-related assistance than boys. As school guidance counsellors are already under pressure in their workloads (Education Review Office, 2013), it may not be possible for all students to see a counsellor to address their needs. Therefore, the most efficient and effective solution may be to address career decision-making in group situations. For instance, part of a school's GATE programme could be to tackle the issue of career decision-making in a series of group seminars or workshops. Research shows that structured workshops are not necessarily less effective than individual career counselling (Whiston, Brecheisen, & Stephens, 2003). Hurst and Riley (2014) suggest several strategies from the research literature for counsellors to assist gifted youth who are struggling with multipotentiality. One of these strategies is simply to educate students on what it means to be gifted and multipotentialed, in order to help them understand themselves (Colangelo, 2002, Peterson, 2006). Students should also be encouraged to view career exploration and career change as normal, and to not expect to decide on a 'perfect' career straight after secondary school (Greene, 2006). Instead of focussing on finding job matches for individuals, counsellors and educators should focus on helping individuals find meaning or direction that can be satisfying and fulfilling in the long term (Greene, 2003).

Future research should continue to explore these issues using a mixed methods approach, so that greater depth of understanding can be achieved. Exploring the effects of multipotentiality in a cross-sectional or longitudinal study would also be useful in determining how it impacts gifted individuals across the developmental years. This would shed light on whether the negative aspects of multipotentiality intensify as individuals come closer to the transition between secondary school

and further education or employment. More insight into how multipotentiality affects mental health and career indecision across the school years would be useful in understating how best to help gifted young people to achieve their potential and have fulfilling careers.

CONCLUSION

In conclusion, the level of self-reported multipotentiality present in this sample of gifted and talented adolescents was considerably high. For girls, this was reflected by studying a wide range of subject areas at school. The girls in the focus group also demonstrated multipotentiality by achieving awards and excelling in multiple disciplines at school and beyond. They believed it was important to be successful in a number of different disciplines in order to keep their options open, despite sometimes wishing that they had narrowed their focus in order to excel in a smaller number of areas and avoid confusion over career choices.

Stress and anxiety as shown by the PSS and the SAS were both high in girls and at average or normal levels in boys. Analyses revealed that gender moderated the relationships between these constructs and multipotentiality. Negative correlations were found for males, and no statistical correlations were found for females. Notably however, girls scored highly on all three constructs, and focus group discussions showed that there may indeed be a link in the opposite direction to what was shown by the boys.

Both girls and boys scored relatively highly on the CAPS, indicating perfectionistic tendencies, with girls scoring significantly higher than boys on the self-oriented perfectionism dimension. There were trends towards a negative correlation between multipotentiality and self-oriented perfectionism in boys, and a positive correlation between multipotentiality and socially prescribed perfectionism in girls. The focus group revealed that the girls experienced pressure from themselves and others to continue succeeding in multiple areas, due to having done so in the past.

Career indecision also was moderated by gender, with girls displaying significantly higher levels of indecision than boys. Highly multipotentialed girls also showed a tendency to be more indecisive about their career. The career decision-making process is thought to be made more complex by pressure from parents, teachers, and oneself to choose an ideal career, combined with the thought of having to give up disciplines of interest and enjoyment.

REFERENCES

Acocella, I. (2012). The focus groups in social research: Advantages and disadvantages. *Quality & Quantity: International Journal Of Methodology*, *46*(4), 1125-1136. doi:10.1007/s11135-011-9600-4

Alsop, G. (2003). Asychrony: Intuitively valid and theoretically reliable. *Roeper Review, 25*, 118–125.

Andreou, E., Alexopoulos, E. C., Lionis, C., Varvogli, L., Gnardellis, C., Chrousos, G. P., & Darviri, C. (2011). Perceived stress scale: reliability and validity study in Greece. *International Journal of Environmental Research and Public Health*, *8*(8), 3287-3298.

Assouline, S. G., & Colangelo, N. (2006). Social-emotional development of gifted adolescents. In F. A. Dixon, S. M. Moon, F. A. Dixon, S. M. Moon (Eds.) , *The handbook of secondary gifted education* (pp. 65-85). Waco, TX: Prufrock Press.

Baker, J. A. (1996). Everyday stressors of academically gifted adolescents. *Journal of Secondary Gifted Education, 7,* 356-368. doi:10.1177/1932202X9600700203

Ballam, N. (2011). Talented and Living on the Wrong Side of the Tracks. In W. Vialle (Ed.) *Giftedness from an Indigenous Perspective.* Papers from the 11th Asia Pacific Conference on Giftedness, Sydney, 29 July–1 August 2010. Available at www.aaegt.net.au/indigenous.htm

Bender, P. K., Reinholdt-Dunne, M. L., Esbjørn, B. H., & Pons, F. (2012). Emotion dysregulation and anxiety in children and adolescents: Gender differences. *Personality And Individual Differences*, *53*(3), 284-288. doi:10.1016/j.paid.2012.03.027

Betts, G. T., & Neihart, M. (2004). Profiles of the Gifted and Talented. In R. J. Sternberg, R. J. Sternberg (Eds.) , *Definitions and conceptions of giftedness* (pp. 97-106). Thousand Oaks, CA, US: Corwin Press.

Bevan-Brown, J. (2011). Indigenous conceptions of giftedness. *Giftedness from an Indigenous Perspective*, 10-23.

Borkovec, T. D., & Inz, J. (1990). The nature of worry in generalized anxiety disorder: A predominance of thought activity. *Behaviour Research and Therapy*, *28*(2), 153-158.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1191/1478088706qp063oa

Brown, S. W., Renzulli, J. S., Gubbins, E. J., Siegle, D., Zhang, W., & Chen, C. (2005). Assumptions underlying the identification of gifted and talented Students. *Gifted Child Quarterly*, *49*(1), 68-79. doi:10.1177/001698620504900107

Chan, D. W. (2007). Positive and negative perfectionism among Chinese gifted students in Hong Kong: Their relationships to general self-efficacy and subjective well-being. *Journal for the Education of the Gifted, 31*, 77-102. doi:10.4219/jeg-2007-512

Chan, D. W. (2009). Dimensionality and typology of perfectionism: The use of the Frost Multidimensional Perfectionism Scale with Chinese gifted students in Hong Kong. *Gifted Child Quarterly, 53,* 174-187. doi:10.1177/0016986209334963

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on Applied Social Psychology* (pp. 31–67). Newbury Park, CA: Sage.

Colangelo, N. (2002). Counseling gifted students. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (pp. 373–387). Boston, MA: Allyn & Bacon.

Crawford, J., Cayley, C., Lovibond, P. F., Wilson, P. H., & Hartley, C. (2011). Percentile norms and accompanying interval estimates from an Australian general adult population sample for self‐report mood scales (BAI, BDI, CRSD, CES-D, DASS, DASS-21, STAI-X, STAI-Y,

SRDS, and SRAS). *Australian Psychologist*, *46*(1), 3-14. doi:10.1111/j 1742-9544.2010. 00003.x

Creswell, J. W. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative approaches to research. 2nd ed.* Upper Saddle River, NJ: Merrill/ Pearson Education.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches., 3rd ed.* Thousand Oaks, CA: Sage Publications, Inc.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of Mixed Methods in Social and Behavioral Research*, *209*, 240.

Davis, G. A., & Rimm, S. B. (2004). *Education of the gifted and talented (5th ed.).* Needham Heights, MA: Allyn & Bacon.

Delisle, J. and Galbraith, J. (2002). When gifted kids don't have all the answers. How to meet t*heir social and emotional needs.* Minneapolis, MN: Free Spirit Publishing.

Dohrenwend, B. S. (1984). *Stressful life events & their contexts.* New York, NY: Prodist.

Education Review Office. (2013). *Guidance and counselling in schools: Survey findings.* Retrieved from http://www.ero.govt.nz/National-Reports/Guidance-and-Counselling-in-Schools-Survey-Findings-July-2013/

Emmett, J. D., & Minor, C. W. (1993). Career decision-making factors in gifted young adults. *The Career Development Quarterly*, *41*(4), 350-366. doi:10.1002/j.2161-0045.1993.tb00409.x

Fernandez-Ballesteros, R. (2004). Self-report questionnaires. *Comprehensive Handbook of Psychological Assessment*, *3*, 194-221.

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—Principles and practices. *Health Services Research*, *48*(6, Pt2), 2134-2156. doi: 10.1111/1475-6773.12117

Flett, G. L., Hewitt, P. L., Besser, A., Su, C., Vaillancourt, T., Boucher, D., & ... Gale, O. (2016). The Child–Adolescent Perfectionism Scale: Development, psychometric properties, and associations with stress, distress, and psychiatric symptoms. *Journal Of Psychoeducational Assessment*, *34*(7), 634-652. doi:10.1177/0734282916651381

Fouladchang, M., Kohgard, A., & Salah, V. (2010). A study of psychological health among students of gifted and nongifted high schools. *Procedia-Social and Behavioral Sciences*, *5*, 1220-1225.

Fredrickson, R., & Rothney, J. (1972). *Recognizing and assisting multipotential youth.* Columbus, Ohio: Charles E. Merrill Publishing Company.

Gilbert, J. (2005). *Catching the knowledge wave? The knowledge society and the future of education.* Wellington, New Zealand: NZCER Press.

Greene, M. J. (2003). Gifted adrift? Career counseling of the gifted and talented. *Roeper Review*, *25*(2), 66-72.

Greene, M. J. (2006). Helping build lives: Career and life development of gifted and talented students. *Professional School Counseling, 10*(1), 34–42.

Greenspoon, T. (2006). Getting beyond perfectionism. *Gifted Education Communicator*, *37*(1), 30-33.

Grobman, J. (2006). Underachievement in exceptionally gifted adolescents and young adults: A psychiatrist's view. *Journal of Secondary Gifted Education*, *17*(4), 199-210.

Gross, M. M. (2006). Exceptionally gifted children: Long-term outcomes of academic acceleration and nonacceleration. *Journal For The Education Of The Gifted*, *29*(4), 404-429.

Hennink, M., Hutter, I., & Bailey, A. (2010). *Qualitative research methods*. Thousand Oaks, CA: Sage.

Hipkins, R. (2010). Reshaping the secondary school curriculum: Building the plane while flying it: Findings from NZCER National Survey of Secondary Schools 2009. Wellington, New Zealand: New Zealand Council for Educational Research.

Hurst, N. A., & Riley, T. L. (2014). Fruits of the Fig Tree. *New Zealand Journal of Counselling*, *34*(1).

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field methods*, *18*(1), 3-20.

Jensen, A. R. (1998). *The g factor: The science of mental ability*. Westport, CT: Praeger Publishers/ Greenwood Publishing Group.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26.

Johnson, R. B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A.Tashakkori, and C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 297-319). Thousand Oaks, CA: Sage.

Jung, J. Y. (2012). Giftedness as a developmental construct that leads to eminence in adults. *Gifted Child Quarterly, 56*, 189–193.

Jung, J. Y. (2013). The cognitive processes associated with occupational/career indecision: A model for gifted adolescents. *Journal for the Education of the Gifted*, *36*(4), 433-460.

Kaufman, S. B., & Sternberg, R. J. (2008). Conceptions of giftedness. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 71-91). New York, NY: Springer.

Kerr, B. A. (1990). *Career planning for gifted and talented youth*. Retrieved from http:// files.eric.ed. gov/fulltext/ED321497.pdf

Kerr, B. A. (1991). *A handbook for counseling the gifted and talented.* Alexandria,VA: American Association for Counseling and Development.

Kerr, B. A. (1994). Smart girls two: A new psychology of girls, women, and giftedness., Rev. & enl. Dayton, OH: Ohio Psychology Press.

Krueger, R. A., & Casey, M. A. (2000) *Focus Groups: A practical guide for applied research, 3rd ed.* Thousand Oaks, CA: Sage.

Lazarus, R. S. (1974). Psychological stress and coping in adaptation and illness. *The International Journal of Psychiatry in Medicine*, *5*(4), 321-333.

Leung, S. A., Conoley, C. W., & Scheel, M. J. (1994). The career and educational aspirations of gifted high school students: A retrospective study. *Journal of Counseling & Development, 72*(3), 298–303.

Litosseliti, L. (2003). Using focus groups in research. London, UK: Bloomsbury.

Lucas, R. E., & Baird, B. M. (2006). Global self-assessment. In M. Eid & E. Diener (Eds.), *Handbook of multi-method measurement in psychology* (pp. 29- 42). Washington, DC: American Psychological Association.

Macfarlane, A., & Moltzen, R. (2005). Whiti Ki Runga! Gifted and Talented Maori Learners. *Kairaranga*, *6*(2), 7-9.

Mandelman, S. D., Tan, M., Aljughaiman, A. M., & Grigorenko, E. L. (2010). Intellectual giftedness: Economic, political, cultural, and psychological considerations. *Learning And Individual Differences*, *20*(4), 287-297. doi:10.1016/j.lindif.2010.04.014

Manning, S. (2006). Recognizing gifted students: A practical guide for teachers. *Kappa delta Pi record*, *42*(2), 64-68.

Massey University (2015). *Massey University Code of Ethical Conduct for Research, Teaching and Evaluations Involving Human Participants.* Retrieved from https://www.massey.ac.nz/massey/fms/Human%20Ethics/Documents/MUHEC%20Code%202015.pdf?497309B983F78ECC2490A4A377F5CBAD

Maxwell, M. (2007). Career counseling is personal counseling: A constructivist approach to nurturing the development of gifted female adolescents. *Career Development Quarterly, 55*, 206–224.

McAlpine, D. and Reid, N. (1996). *Teacher Observation Scales for Identifying Children with Special Abilities*. Wellington: New Zealand Council for Educational Research, and Palmerston North: Massey University ERDC Press.

Mendez, L. M. R., & Crawford, K. M. (2002). Gender-role stereotyping and career aspirations: A comparison of gifted early adolescent boys and girls. *Journal of secondary gifted education*, *13*(3), 96-107.

Milgram, R. M. (1989). Teaching gifted and talented children in regular classrooms: An impossible dream or a full-time solution for a full-time problem?. In R. M. Milgram, R. M. Milgram (Eds.), *Teaching gifted and talented learners in regular classrooms* (pp. 7-32). Springfield, IL: Charles C Thomas, Publisher.

Ministry of Education. (2007). *The New Zealand Curriculum.* Wellington, New Zealand: Learning Media.

Ministry of Education (2008). *Nurturing gifted and talented children - A parent-teacher partnership.* Wellington, New Zealand: Learning Media Limited.

Ministry of Education. (2012). *Gifted and talented students: Meeting their needs in New Zealand schools.* Wellington, New Zealand: Learning Media Limited.

Moksnes, U. K., Moljord, I. O., Espnes, G. A., & Byrne, D. G. (2010). The association between stress and emotional states in adolescents: The role of gender and self-esteem. *Personality A nd Individual Differences*, *49*(5), 430-435. doi:10.1016/j.paid.2010.04.012

Moon, S. M., & Reis, S. M. (2004). Acceleration and twice-exceptional students. *A nation deceived: How schools hold back America's brightest students*, *2*, 109-119.

Morelock, M. J. (1992). Giftedness: The view from within. *Understanding our Gifted*, *4*(3), 1.

Muris, P., Schmidt, H., Merckelbach, H., & Schouten, E. (2001). Anxiety sensitivity in adolescents: Factor structure and relationships to trait and symptoms of anxiety disorders and depression. *Behaviour Research And Therapy*, *39*(1), 89-100. doi:10.1016/S0005-7967(99)00179-5

Neihart, M. (2008). Identifying and providing services to twice exceptional children. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 115-137). New York, NY: Springer.

Neihart, M., Reis, S. M., Robinson, N., & Moon, S. (2002). *The social and emotional development of gifted children: What do we know?* Austin, TX: Prufrock Press.

Newman, T. M. (2008). Assessment of giftedness in school-age children using measures of intelligence or cognitive abilities. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 161-176). New York, NY: Springer.

Nugent, S. A. (2000). Perfectionism: Its manifestations and classroom-based interventions. *Journal of Secondary Gifted Education*, *11*(4), 215-221.

Olszewski-Kubilius. (2008). The role of family in talent development. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 13-31). New York, NY: Springer.

Onwuegbuzie, A. J., & Leech, N. L. (2004). *Enhancing the interpretation of significant findings: T he role of mixed methods research.* Paper presented at the annual meeting of the Eastern Educational Research Association, Clearwater, FL.

Parker, W. D. (2000). Healthy perfectionism in the gifted. *Journal of Secondary Gifted Education*, *11*(4), 173-182.

Paulhus, D. L., & Vazire, S. (2007). The self-report method. *Handbook of Research Methods in Personality Psychology*, *1*, 224-239.

Peterson, J. S. (2002). A longitudinal study of post-high-school development in gifted individuals at risk for poor educational outcomes. *The Journal of Secondary Gifted Education*, *14*, 6-18.

Peterson, J. S. (2006). Addressing counseling needs of gifted students. *Professional School* Counseling, 10(1), 43–51.

Peterson, J. S. (2009). Myth 17: Gifted and talented individuals do not have unique social and emotional needs. *Gifted Child Quarterly*, *53*(4), 280-282. doi:10.1177/0016986209346946

Peterson, J. S., & Moon, S. M. (2008). Counseling the gifted. In S. I. Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 223–246). New York, NY: Springer.

Pfeiffer, S. I., & Blei, S. (2008). Gifted identification beyond the IQ test: Rating scales and other assessment procedures. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 177-198). New York, NY: Springer.

Pfeiffer, S. I., & Stocking, V. B. (2000). Vulnerabilities of academically gifted students. *Special Services In The Schools*, *16*(1-2), 83-93. doi:10.1300/J008v16n01_06

Piirto, J. (1994). *Talented children and adults: Their development and education*. Columbus, OH: Merrill/Prentice-Hall.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society*, *63*(4), 655-660.

Reis, S. M. (1998). *Work left undone: Compromises and challenges of talented females.* Mansfield Center, CT: Creative Learning Press.

Reis, S. M., & Hébert, T. P. (2008). Gender and giftedness. In S. I. Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 271–292). New York, NY: Springer.

Reis, S. M., & McCoach, D. B. (2000). The underachievement of gifted students: What do we know and where do we go?. *Gifted Child Quarterly*, *44*(3), 152-170. doi:10.1177/001698620004400302

Riley, T. L., Bevan-Brown, J., Bickness, B., Carroll-Lind, J., & Kearney, A. (2004). *The Extent,* Nature, and Effectiveness of Planned Approaches in New Zealand Schools for Providing for *Gifted and Talented Students.* Wellington, New Zealand: Ministry of Education.

Riley, T., & Bicknell, B. (2013). Gifted and talented education in New Zealand Schools: A Decade Later. *APEX: The New Zealand Journal of Gifted Education*, 18(1), 1-16.

Rimm, S. (2008). Underachievement syndrome: A psychological defensive pattern. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 139-160). New York, NY: Springer.

Roberti, J. W., Harrington, L. N., & Storch, E. A. (2006). Further Psychometric Support for the 10-Item Version of the Perceived Stress Scale. *Journal Of College Counseling*, *9*(2), 135-147. doi:10.1002/j.2161-1882.2006.tb00100.x

Roberts, S.M., & Lovett, S. B. (1994). Examining the "F" in gifted; academically gifted adolescents' physiological and affective responses to scholastic failure. *Journal for the Education of the Gifted,17*, 241–259.

Robins, R. W., &John, O. P. (1997). The quest for self- insight: Theory and research on accuracy and bias in self-perception. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 649-679). San Diego, CA: Academic Press.

Robinson, N. M. (2008). The social world of gifted children and youth. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 33-51). New York, NY: Springer.

Robinson, A., & Clinkenbeard, P. R. (2008). History of giftedness: Perspectives from the past presage modern scholarship. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children:*

Psychoeducational theory, research, and best practices (pp. 13-31). New York, NY: Springer.

Roid, G. (2003). Stanford-Binet Intelligence Scales: Fifth Edition. Itasca, IL: Riverside Publishing.

Rysiew, K. J., & Shore, B. M., & Carson, A. D. (1994). Multipotentiality and overchoice syndrome: Clarifying common usage. *Gifted and Talented International, 9*(2), 4146.

Rysiew, K. J., Shore, B. M., & Leeb, R. T. (1999). Multipotentiality, giftedness, and career choice: A review. *Journal of Counseling & Development, 77*(4), 423–430.

Sajjadi, S. H., Rejskind, F. G., & Shore, B. M. (2001). Is multipotentiality a problem or not? A new look at the data. *High Ability Studies*, *12*(1), 27-43. doi:10.1080/13598130120058671

Sampson Jr, J. P., & Chason, A. K. (2008). Helping gifted and talented adolescents and young adults. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 327-346). New York, NY: Springer.

Schack, G. D., & Starko, A. J. (1990). Identification of gifted students: An analysis of criteria preferred by preservice teachers, classroom teachers, and teachers of the gifted. *Journal For The Education Of The Gifted*, *13*(4), 346-363. doi:10.1177/016235329001300405

Schuler, P. A. (2000). Perfectionism and gifted adolescents. *Journal of secondary gifted education*, *11*(4), 183-196.

Schruder, C. R., Curwen, T., & Sharpe, G. W. (2014). Perfectionistic students: Contributing factors, impact, and teacher strategies. *British Journal of Education, Society & Behavioural Science*, *4*(2), 139-155.

Shore, B. M., Cornell, D. G., Robinson, A., & Ward, V. S. (1991). Recommended practices in gifted education: A critical analysis. New York, NY: Teachers College Press.

Silverman, L. K. (1993). Career counseling. In L. K. Silverman (Ed.), *Counseling the gifted and talented* (pp. 215–238). Denver, CO: Love Publishing Co.

Silverman, L. K. (2007). Perfectionism: The crucible of giftedness. *Gifted Education International*, *23*(3), 233-245.

Silverman, L. K., & Golon, A. S. (2008). Clinical practice with gifted families. In S. I Pfeiffer (Ed.), *Handbook of giftedness in children: Psychoeducational theory, research, and best practices* (pp. 119-222). New York, NY: Springer.

Sosniak, L. A. (1985). Becoming an outstanding research neurologist. In B. S. Bloom (Ed.), *Developing talent in young people* (pp. 348–408). New York, NY: Ballantine.

Stewart, D. W., & Shamdasani, P. N. (2014). *Focus groups: Theory and practice.* Thousand Oaks, CA: Sage.

Stoeber, J., Otto, K., & Dalbert, C. (2009). Perfectionism and the Big Five: Conscientiousness predicts longitudinal increases in self-oriented perfectionism. *Personality and Individual Differences*, *47*(4), 363-368.

Survey Monkey. (2017). *Survey Monkey.* Retrieved from www.surveymonkey.com

Tannenbaum, A. J. (1958) History of interest in the gifted. In N.B. Henry (Ed.), *Education for the gifted. The fifty-seventh yearbook of the National Society for the Study of Education* (pp. 21-38). Chicago, IL: University of Chicago Press.

Tannenbaum, A. J. (2000). Giftedness: The ultimate instrument for good and evil. In K. A. Heller, F. J. Mönks, R. J. Sternberg, & R. F. Subotnik (Eds.), *International handbook of giftedness and talent* (2nd ed., pp. 447-465). New York, NY: Elsevier.

Tashakkori, A., & C. Teddlie. (2003). *Handbook on mixed methods in the behavioral and social sciences.* Thousand Oaks, CA: Sage.

van Eck, M. M., & Nicolson, N. A. (1994). Perceived stress and salivary cortisol in daily life. *Annals of Behavioral Medicine*, *16*(3), 221-227.

Wechsler, D. (2014). *Wechsler Intelligence Scale for Children-Fifth Edition.* San Antonio, TX: NCS Pearson.

Whiston, S. C., Brecheisen, B. K., & Stephens, J. (2003). Does treatment modality affect career counseling effectiveness?. *Journal of Vocational Behavior*, *62*(3), 390-410.

Zammit, G. K., Weiner, J., Damato, N., Sillup, G. P., & McMillan, C. A. (1999). Quality of life in people with insomnia. *Sleep: Journal Of Sleep Research & Sleep Medicine*, *22*(Suppl 2), S379-S385.

Zung, W. W. K. (1971). A rating instrument for anxiety disorders. *Psychosomatics, 12*(6), 371–379.

APPENDICES

Appendix A: Participant Information Sheet for Questionnaire

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

Institute of Education
Massey University Manawatū
Private Bag 11-222
Palmerston North 4442, New Zealand

Gifted adolescents and multipotentiality: Links to stress, anxiety, perfectionism, and career indecision

PARTICIPANT INFORMATION SHEET

An Invitation

My name is Naomi Hnat, and I am undertaking research as part of my Master of Educational Psychology at Massey University. I am inviting you to participate in my research project titled: "*Gifted adolescents and multipotentiality: Links to stress, anxiety, perfectionism, and career indecision*". Your agreement to take part in this study would be greatly appreciated.

What is the purpose of this research?

This is an exploratory research project that aims to investigate the relationships between multipotentiality, stress, anxiety, perfectionism, and career indecision among gifted and talented adolescents.

> **Multipotentiality is defined as the possession of a wide variety of talents and abilities combined with the potential to succeed to a high level in a number of different fields/careers.**

I want to learn more about the experiences of gifted and talented adolescents, and my research may be used to help educators to better understand the needs and concerns of gifted and talented adolescents in New Zealand.

How were you chosen for this invitation?

I am inviting you to participate in this study because you are a Year 13 member of the Gifted and Talented Education (GATE) Programme at [redacted]. This same invitation is being sent to all Year 13 GATE students at the school. The reason behind sending this invitation out to all the GATE students at the school is to try to gather as much data as possible for the research project. The reason for asking only Year 13 students to participate is because parts of the research involve studying the process of career decision making, which is more relevant to Years 13 students compared to other year levels.

What will happen if you choose to participate?

If you choose to participate in this study, you will simply need to click on the questionnaire link sent to your email address. This will take you to an online questionnaire that will take approximately 20-30 minutes to complete. At the end of the questionnaire, you will be asked whether you would like to participate in a focus group session. If you choose to participate in a focus group, this will involve a one-off 30-60 minute discussion with myself

and 4-5 other students from the GATE programme. More information about this will be given to you if you express your interest after completing the online questionnaire.

Most of the online survey questions are multi-choice and will ask you to rate your levels of stress and anxiety, as well as how much or little of a perfectionist you are. There will also be questions about whether you have made any career plans for next year, as well as what your school subjects and interests are.

Are there any risks of being involved?

There is a possibility that some of the online survey questions may trigger feelings of discomfort, anxiety, or stress, because they ask you to reflect on aspects of your own wellbeing and mental health. If you do experience any negative effects of completing the questionnaire, you may utilise one of mental health services that are suggested both at the end of this document and at the end of the online questionnaire.

Your questionnaire answers will remain anonymous at all times.

If you participate, how will your data be managed and stored?

Data will be used to contribute to research on the needs and concerns of gifted and talented adolescents in New Zealand. All data will be securely stored in password protected electronic files for five years after completion of the project, at which point it will be destroyed.

If you choose to participate, what are your rights?

You are under no obligation to accept this invitation to participate in this research project. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from this study either during the completion of the online questionnaire or up to one week after completing it;
- ask questions about the research project at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded. Access to the full report will be given upon request.

If you choose to participate, completion and return of the online questionnaire implies consent.

Who else is involved with this research?

The research team includes myself, Associate Professor Tracy Riley, and Associate Professor Alison Kearney from Massey University, who will be supervising me throughout this research project.

Who should you contact about further information about the research?

If you have any questions, please contact:

Naomi Hnat (Masters student): [redacted]

Associate Professor Tracy Riley (supervisor): +64 (06) 356 9099 ext. 84408
T.L.Riley@massey.ac.nz

Associate Professor Alison Kearney (supervisor): +64 (06) 356 9099 ext. 84416
A.C.Kearney@massey.ac.nz

If you experience feelings of stress or anxiety at any point, please do not hesitate to seek help from one or more of the following options:

- a school guidance counsellor
- a member of the school careers staff
- Youthline (support for young people facing crisis): https://www.youthline.co.nz; 0800 37 66 33
- Whatsup (counselling support for young people): http://www.whatsup.co.nz; 0800 942 8787

Ethics Committee Approval Statement:

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 16/42. If you have any concerns about the conduct of this research, please contact Dr Rochelle Stewart-Withers, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83657, email humanethicsouthb@massey.ac.nz

Appendix B: Online Questionnaire

Gifted Adolescents and Multipotentiality

Thank you for choosing to complete this questionnaire. Your participation is greatly appreciated.

By completing this questionnaire, you are acknowledging that you have read the Information Sheet and have had the details of the study explained to you. You also are accepting that you have had the opportunity to ask any questions, at that in doing so, these have been answered to your satisfaction. You also understand that you may ask further questions at any time.

Please click “next” to begin the questionnaire.

How old are you?

What is your gender?

What are your Year 13 school subjects?

What were your Year 12 school subjects?

What were your Year 11 school subjects?

Which year was your first year in the Gifted and Talented Education (GATE) programme at this high school?

In which area(s) have you been identified by the school as gifted and/or talented? (i.e. sports, music, verbal reasoning, etc) You can write "I don't know" if you are unsure.

Please answer the following questions as honestly as you can. Remember that there are no right or wrong answers and that your responses will remain anonymous.

Please indicate how true you believe these statements are.

1. I possess a wide variety of talents, interests, and abilities.

Very untrue of me / Untrue of me / Somewhat untrue of me / Neutral / Somewhat true of me / True of me / Very true of me

Explain why you believe this. If relevant, give examples of the types of talents, interests, and abili- ties you possess (i.e. sports, music, writing, maths, etc):

2. I have the potential to succeed to a high level in a number of different fields and career options.

Very untrue of me / Untrue of me / Somewhat untrue of me / Neutral / Somewhat true of me / True of me / Very true of me

Explain why you believe this. If relevant, give examples of jobs/areas of employment that you believe you could succeed in after school (i.e. teaching, finance, law, medicine, etc):

Appendix C: Online Questionnaire - PSS

The next 10 questions ask you about your feelings and thoughts during the last month. In each case, please indicate how often you felt or thought a certain way. Please note that the scale used for responding has only five options.

Next to each question are the options: Never / Almost never / Sometimes / Fairly often / Very often

In the last month, how often have you…

1. …been upset because of something that happened unexpectedly?

2. … felt that you were unable to control the important things in your life?

3. … felt nervous and "stressed"?

4. … felt confident about your ability to handle your personal problems?

5. … felt that things were going your way?

6. … found that you could not cope with all the things that you had to do?

7. … been able to control irritations in your life?

8. … felt that you were on top of things?

9. … been angered because of things that were outside of your control?

10. … felt difficulties were piling up so high that you could not overcome them?

Appendix D: Online Questionnaire - CAPS

The next 27 questions require you to choose how true each statement is of yourself.

Next to each question are the options: False - not at all true of me / Mostly false / Neither true not false / Mostly true / Very true of me

1. I try to be perfect in everything I do.

2. I want to be the best at everything I do.

3. My parents don't always expect me to be perfect in everything I do.

4. I feel that I have to do my best all the time.

5. There are people in my life who expect me to be perfect.

6. I always try for the top score on a test.

7. It really bothers me when I don't do my best all the time.

8. My family expects me to be perfect.

9. I don't always try to be the best.

10. People expect more from me than I am able to give.

11. I get mad at myself when I make a mistake.

12. Other people think I have failed if I do not do my very best all the time.

13. Other people always expect me to be perfect.

14. I get upset if there is even one mistake in my work.

15. People around me expect me to be great at everything.

16. When I do something, it has to be perfect.

17. My teachers expect my work to be perfect.

18. I do not have to be the best at everything I do.

19. I am always expected to do better than others.

20. Even when I pass, I feel that I have failed if I didn't get one of the highest marks in the class.

21. I feel that people ask too much of me.

22. I can’t stand to be less than perfect.

Appendix E: Online Questionare - Career Decision-Making Questions

23. It is easy for me to make decisions.

24. I find it difficult to make a career decision.

25. I am sure about what career I will follow after I finish high school.

26. I feel like there are so many career options available, which makes it difficult to decide which to choose.

27. I believe that my career choice will define who I am as a person.

Appendix F: Online Questionnaire - SAS

The next 20 questions ask you about how you have been feeling for the past two weeks. Please note that the scale used for responding has only four options.

Next to each statement: None or a little of the time / Some of the time / Good part of the time / Most or all of the time

1. I feel more nervous and anxious than usual.

2. I feel afraid for no reason at all.

3. I get upset easily or feel panicky.

4. I feel like I'm falling apart and going to pieces.

5. I feel that everything is all right and nothing bad will happen. 6. My arms and legs shake and tremble.

7. I am bothered by headaches, neck and back pains. 8. I feel weak and get tired easily.

9. I feel calm and and can sit still easily.

10. I can feel my heart beating fast.

11. I am bothered by dizzy spells.

12. I have fainting spells or feel faint.

13. I can breath in and out easily.

14. I get feelings of numbness and tingling in my fingers and toes.

15. I am bothered by stomachaches or indigestion.

16. I have to empty my bladder often.

17. My hands are usually dry and warm.

18. My face gets hot and blushes.

19. I fall asleep easily and get a good night's rest.

20. I have nightmares.

Thank you for taking the time to complete this questionnaire. Your participation is greatly appreciated.

If you would like to participate in the next stage of this study by means of a focus group session, please email me at naomi.hnat@gmail.com with the subject line “Focus group”. These focus groups will be led by myself and will involve discussions with a group of 4-5 other students from the GATE programme, based around the topics covered in this questionnaire. Each session is expected to last between 30-60 minutes, and would take place at school, outside of class hours. Should you wish to participate, you would only be required to attend one focus group session. Your responses to this questionnaire will remain anonymous and will not be linked in any way to your participation in the focus group.

If you do not wish to participate in a focus group session, you do not need to do anything further.

If any of these questions have resulted in feelings of stress or anxiety, please do not hesitate to seek help from one or more of the following options:

• A school guidance counsellor

• A member of the school careers staff

• Youthline (support for young people facing crisis): https://www.youthline.co.nz; 0800 37 66 33 • Whatsup (counselling support for young people): http://www.whatsup.co.nz; 0800 942 8787

Appendix G: Participant Information Sheet for Focus Group

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

Institute of Education
Massey University Manawatū
Private Bag 11-222
Palmerston North 4442, New Zealand

Gifted adolescents and multipotentiality: Links to stress, anxiety, perfectionism, and career indecision

PARTICIPANT INFORMATION SHEET - FOCUS GROUPS

Thank you for expressing your interest in participating in a focus group for this research project - it is greatly appreciated. Below is some information about what you can expect from the focus group session, should you choose to participate.

What is involved in participating in a focus group?

Groups of 4-5 Year 13 students from the GATE programme will gather to discuss some of the themes in the online questionnaire that you recently completed as part of the first part of this research project. The focus group sessions will be led by me, the Masters student researcher. You would not need to do any prior preparation before attending a focus group, and anybody who has completed the online questionnaire is welcome to participate.

If you would like to participate in a focus group, you would only need to attend one session. This would be held at school outside of class hours and would be expected to last between 30-60 minutes.

What is the purpose of the focus groups?

The data gathered in the focus groups will be used in my research to add further insight to the topics covered in the online questionnaire. Specifically, I will be asking the group a number of questions that centre around the topics of multipotentiality, stress, anxiety, perfectionism, and career indecision. The session will give you the opportunity to discuss these topics and share your thoughts and ideas in a small group setting. As an example, some likely topics of discussion may include:

- the factors involved in making a career decision;
- whether you aim for perfection when you are preparing for a test or exam;
- what your talents and interests are and how these relate to your career choices.

How will the focus groups be assigned?

As much as possible, I will endeavour to create a gender balance in each focus group. I will also endeavour to have a mix of academic/leadership/sports GATE students in each group. There will be a maximum of 4 focus groups (20 participants in total). If more than 20 students volunteer to participate, I will select 20 students based on achieving a balance of both gender and GATE programme.

Are there any risks of being involved?

There is a possibility that some of the focus group questions and discussions may trigger feelings of discomfort, anxiety, or stress, because they ask you to reflect on aspects of your own wellbeing and mental health. If you do experience any negative effects of participating in the focus group, you may utilise one of mental health services that are suggested at the end of this document.

You may also find that you do not wish to share certain personal thoughts with your peers in the focus group. In cases like this, you may freely choose not to contribute to any particular discussion.

Although I, as the researcher, will know your name if you participate in a focus group, no attempt will be made to link your identity to your online questionnaire data. Your identity as part of the focus group will only be known to the research team, and your real name will not be used in the write up of this research project. All measures will also be taken to protect the identity of the school in the write up of the research project, although this cannot be 100% guaranteed.

If you participate, how will your data be managed and stored?

Data will be used to contribute to research on the needs and concerns of gifted and talented adolescents in New Zealand. The focus group sessions will be audio recorded and accessed only by the research team, provided that all students consent to this at the start of the focus group. You may request a written overall summary of the discussion from your focus group session, which will not identify individuals.

All data will be securely stored in password protected electronic files for five years after completion of the project, at which point it will be destroyed.

If you participate, what are your rights?

You are under no obligation to participate in a focus group. If you decide that you wish to participate, you have the right to:

- decline to answer any particular question or partake in any particular discussion;
- withdraw from this study either during the focus group or up to one week after participating;
- to ask questions about the research project at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher.
- be given access to a summary of the project findings when it is concluded. Access to the full report will be given upon request.

Who else is involved with this research?

The research team includes myself, Associate Professor Tracy Riley, and Associate Professor Alison Kearney from Massey University, who will be supervising me throughout this research project.

Who should you contact about further information about the research?

If you have any questions, please contact:

Naomi Hnat (Masters student): [redacted]

Associate Professor Tracy Riley (supervisor): +64 (06) 356 9099 ext. 84408
T.L.Riley@massey.ac.nz

Associate Professor Alison Kearney (supervisor): +64 (06) 356 9099 ext. 84416
A.C.Kearney@massey.ac.nz

If you experience feelings of stress or anxiety at any point, please not hesitate to seek help from one or more of the following options:

- a school guidance counsellor
- a member of the school careers staff
- Youthline (support for young people facing crisis): https://www.youthline.co.nz; 0800 37 66 33
- Whatsup (counselling support for young people): http://www.whatsup.co.nz; 0800 942 8787

Ethics Committee Approval Statement:

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 16/42. If you have any concerns about the conduct of this research, please contact Dr Rochelle Stewart-Withers, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83657, email humanethicsouthb@massey.ac.nz

Appendix H: Ethics Approval Letter

Date: 16 March 2017

Dear Naomi Deacon

Re: Ethics Notification - **SOB 16/42 - Gifted adolescents and multipotentiality: links to stress, anxiety, perfectionism, and career indecision.**

Thank you for the above application that was considered by the Massey University Human Ethics Committee: **Human Ethics Southern B Committee** at their meeting held on **Thursday, 16 March,**

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Brian Finch
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Research Ethics Office, Research and Enterprise
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand **T** 06 350 5573; 06 350 5575 **F** 06 355 7973
E humanethics@massey.ac.nz **W** http://humanethics.massey.ac.nz