Gifted Adolescent Girls in Selective Secondary School Programs: Influences on Career Development

by

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Thesis
Submitted to Flinders University
for the degree of

Doctor of Philosophy

College of Education, Psychology, and Social Work
11 February 2020

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ABSTRACT

Despite superior school achievement outcomes and high career aspirations of adolescent girls, there remains a documented lack of eminent females in most career fields (Rudasill & Callahan, 2010). The focus of this research is on understanding the potential roots of gender discrepancies in career outcomes. It examines the early career planning stages of academically gifted girls attending selective secondary school programs—a group who may be most likely to hold high career aspirations and achieve future career-related eminence. Most of what we know about career development in gifted girls comes from retrospective accounts from eminent women, or from international research. There is little Australian research specifically focused on early career development for gifted adolescent girls.

This research employed a qualitative, cross-sectional design in which 18 gifted girls at three different grade levels (8, 10, and 12) across three sites were each engaged in two, semi-structured interviews about the factors influencing their career-related values, decision-making processes, and goals. Factors that enabled, inhibited, or created tensions in their career planning were explored. Interview questions and data analysis were informed by a blended theoretical framework drawing on Gottfredson's (2002a) theory of circumscription, compromise, and self-creation and Savickas' (2002) theory of career construction.

Participants identified a combination of important career-related experiences, relationships, and personal traits that served to both broaden and narrow their career decisions and goals. Key internal influences on career development included participants' developing sense of their own identities, deepening awareness of their own strengths and interests, and a commitment to make a difference in others' lives. In terms of external influences, participants highlighted the

career-related impact of family support, mentoring relationships, school programs and personnel, community-based opportunities, and perceptions of a changing career landscape. The relationships between these internal and contextual influences are represented in an original explanatory model. Findings of this research particularly have implications for designing career-related supports for gifted adolescent girls. Nine principles for their career support are given.

Declaration

I certify that this thesis:

1. does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and
2. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Rebecca Davis Napier

Date: 26 August 2019

Acknowledgements

I am grateful for the professional and personal growth opportunities this project has brought. This thesis is dedicated to both my family and to others:

. . . with love and thanks to both my daughter and son for cheering me on to the finish line

. . . with love and thanks to my mom for her love and support

. . . in loving memory of my dad, the best dad a girl ever had

. . . in loving memory of my little brother who was so proud of his big “sis”

. . . with gratefulness to my doctoral friends and fellow colleagues who so closely shared this journey with me

. . . with gratefulness to my primary supervisor, Dr. Jane Jarvis, who encouraged me to follow my primary research area of passion and consistently refined my academic skills

. . . with gratefulness to my co-supervisor, Professor Emeritus John Halsey, who taught me both how to think and how to live – your drawing of the boat made all the difference and you never gave up

. . . with gratefulness to my co-supervisor, Associate Professor Julie Clarke, whose positivity and balance was a great asset to our team

. . . with gratefulness to my editor, Judith Lydeamore, for her efficient and thorough work

. . . with gratefulness to the Flinders University Centre for Innovation, Learning, and Teaching as well as the Flinders University Information and Digital Services for their ongoing technology support in this project

. . . with gratefulness to all my participants who graciously shared their life stories with me

. . . in honour of the many gifted females from all ages and stages of life who inspired this entire project

. . . with thankfulness to God for a sense of calling in this work.

CHAPTER 1: INTRODUCTION

Career development is a complex and multifaceted process influenced by a range of interacting factors at different points across a lifespan. This thesis reports on a qualitative, cross-sectional study of the career-related experiences of adolescent girls in South Australian selective secondary school programs for gifted students. It involved 18 gifted adolescent girls at three different school sites.

This study defines career in a way that aligns with the changing nature of work:

> Career no longer refers to particular pathways through work or to an occupational title. Career is the sequence and variety of work roles (paid and unpaid), which one undertakes throughout a lifetime. More broadly, 'career' includes life roles, leisure activities, learning and work. (Ministerial Council for Education, 2010, p. 78)

In keeping with its complex nature, career development is defined as "the total constellation of psychological, sociological, educational, physical, economic, and chance factors that combine to shape the career of an individual over the life span" (Sears, 1982, p. 89). Career-related self-concepts and understandings can begin at a very early age, such as during preschool and elementary school grades (Armstrong & Crombie, 2000; Gottfredson, 1981, 2002a, 2005; Patton & Creed, 2007a). This project is focused on exploring the career trajectory experiences of gifted adolescent girls in some of their most formative, career-related decision-making years.

The purpose of this chapter is to lay the basis and essential elements of this project. It first addresses ways precursors to eminence may develop in adolescence as some study participants may be on pathways to career eminence. Both theoretical and operational definitions of giftedness used in this project are presented in order to thoroughly ground the research within the field of giftedness research. Important literature on the career-related needs of gifted adolescent girls is reviewed. The role of feminism in this study is outlined in order to address any issues relating to

subjectivity. An autobiographical reflection is then presented, followed by details on the research questions and research sites. Lastly, a brief overview is presented on the overall thesis structure.

Eminence and Adolescence

This research does not examine the lives of eminent adult individuals or child prodigies. Nevertheless, eminence does play somewhat of a relevant role as participants were included from selective entry secondary school contexts. As these participants could potentially be on pathways to eminence, some consideration of eminence and the way its potential precursors develop for gifted adolescent females is useful.

This study addresses career development with a focus on gifted adolescent girls. Research by Jung (e.g., 2012, 2013; 2014, 2017; 2011b; 2019) provides some recent information on the career-related decision-making processes of gifted adolescents within the Australian context. Jung and colleagues' body of research has contributed to understanding influential factors in gifted adolescents' career-related decision-making processes. It has examined the ways factors such as cultural, economic, and family backgrounds impact these individuals' career trajectories (Jung & McCormick, 2011b; Jung & Young, 2019). Jung's body of research has produced empirically verified career decision-making process models of gifted students, with a focus on the significance of both interest and enjoyment (Jung, 2018, 2019). Nevertheless, when examining existing research on the career outcomes of gifted adults, it is clear more Australian research on the career development of gifted adolescent girls is needed. For the purposes of this study, adolescence spans seven years between ages 12 to 18 years. However, it is difficult to attribute set adolescent ages due to earlier puberty onset and increasing delayed adult responsibilities (Dixon & Moon, 2006).

Literature indicates gifted females may not have taken full advantage of women's broadening opportunities this past century by reaching eminent career levels in large numbers

(Kerr, 1994; Reis, 2001; Robinson, Reis, Neihart, & Moon, 2002; Rudasill & Callahan, 2010). Eminent individuals can be defined as "those who make a significant contribution to improving or enhancing the human condition" (Subotnik, Olszewski-Kubilius, & Worrell, 2011, p. 13). Eminence in a career field is often linked with the highest levels of individual leadership, creativity, and innovation. It is a socially constructed concept usually reflecting mainstream cultural values. Some occupations may be considered more eminent in certain cultures. Researchers (e.g., Gottfredson, 2002a) and organisations such as the Department of Education, Employment and Workplace Relations (DEEWR, 2003) rank specific occupations according to varying levels of skill and prestige. For instance, Gottfredson (2002a) refers to a surgeon being in a more prestigious occupation than a construction worker.

In virtually every field of human endeavour there are fewer eminent women than men, even in fields traditionally dominated by women (e.g., Mendez & Crawford, 2002; Rudasill & Callahan, 2010). The reasons for eminence in both career and other contexts are complex. Women compared to men are more likely to have multiple careers by transitioning between workplaces, retraining sites, and caregiving roles (Austen & Redmond, 2008; Majeed, Forder, Mishra, Kendig, & Byles, 2015; Reis, 1998; Reis & Sullivan, 2009; Rimm, Rimm-Kaufman, & Rimm, 1999; Savickas, 2005). Furthermore, research indicates eminent females often follow less predictable career trajectories than males (e.g., Kronborg, 2009; Noble, Subotnik, & Arnold, 1999; Reis & Sullivan, 2009; Rimm et al., 1999). Research indicates that gifted girls and gifted boys tend to have equally high career aspirations in the middle school grades (Kerr & Sodano, 2003; Rakow, 2005), and that girls tend to have high academic achievement levels throughout their schooling (Hodgetts & Lecouteur, 2010). However, debate exists in the research about whether or not adolescent girls tend to lower their career aspirations as they progress through secondary schooling years,

particularly if they aim for highly prestigious or non-traditional careers for women (e.g., Armstrong & Crombie, 2000; Cassie & Chen, 2012; Fiebig & Beauregard, 2010; Lee & Rojewski, 2009; Patton & Creed, 2001; Perrone, Webb, Wright, Jackson, & Ksiazak, 2006). Research asserts a weaker correlation between adolescent career aspirations and adult career outcomes for females in comparison to males (e.g., Cochran, Wang, Stevenson, Johnson, & Crews, 2011; Schoon & Polek, 2011). On average, adolescent girls have been found to have high career-related self-efficacy levels in traditionally female dominated fields such as in the social sciences, education, and health care fields (Bandura, Barbaranellie, Baprara, & Pastorelli, 2001). While males tend to reach their adolescent career aspirations, females are less likely to do so.

It has been argued that significant work needs to be done for gifted females' abilities to be actualised in career contexts (Dai, 2018). While it can be debated that sex role stereotyping has impeded female career eminence, it is only part of the picture (Kronborg, 2010). In particular, women continue to achieve at lower levels in creative fields such as visual arts and literature than in most other fields of work (Kerr & Gahm, 2018). Women also continue to reach significantly lower levels in their careers than do men in fields such as science, engineering, mathematics, and technology (e.g., Feyerherm & Vick, 2005; Konrad, Ritchie, Lieb, & Corrigall, 2000; Rudasill & Callahan, 2010), although their involvement is slowly increasing in these fields (Feyerherm & Vick, 2005; Schoon, Martin, & Ross, 2007; Whitmarsh & Wentworth, 2012). Some females with strengths in science, technology, engineering, and mathematics (STEM) areas may see their gender as a poor fit for these fields (Ceci, Williams, & Barnett, 2009; Lloyd, Gore, Holmes, Smith, & Fray, 2018; van Tuijl & van der Molen, 2016). 'Glass ceilings' can also contribute to gender differences in career eminence. For instance, in a study by Feyerhem and Vick (2005) gender barriers were found to have caused many high achieving female technology managers to consider

work elsewhere. The timing of promotions in many fields coinciding with key marriage and childrearing years for women also helps explain these outcomes (Kerr & Gahm, 2018). Some examples given of non-traditional jobs for females provided by the US Department of Labour Women's Bureau (2008) are architects, computer programmers, clergy, construction workers, firefighters, and aircraft pilots. Understanding the roots of unequal gender-based career outcomes is important.

Theoretical and Operational Definitions of Giftedness

Although definitions of giftedness vary, there are some commonly agreed upon traits of intellectually gifted individuals. These individuals are likely to learn at a fast pace (Callahan, 2017). Some generally accepted characteristic indicators of giftedness that may begin in early childhood are early language acquisition, intensity, high level reasoning skills, high processing speeds, deep comprehension, curiosity, advanced memory, early physical development, humour, creativity, a strong sense of justice, an ability to focus on one task for an extended period of time, and differences in social interactions and interests (Callahan, 2017; Vialle & Rogers, 2009). As measures of general intellectual reasoning, IQ tests have been traditionally used to formally identify gifted children and adolescents. High IQ as the predominant definition for giftedness was strengthened by the influential 1972 Marland Report in the United States that implied gifted individuals make up the top 3%–5% of people as measured by IQ scores (Borland, 2009; Renzulli, 1982). High IQ still remains a key element in most definitions. Vock, Koller, and Nagy (2013) stated that while there is generally not an agreed upon definition of intellectual giftedness in the research, an IQ of 130 reflecting scoring at or above the 98th percentile on a general intelligence test is considered to be the global benchmark. However, it has long been argued that high IQ alone

cannot explain the accomplishments of eminent people such as Einstein or Rembrandt, as it reflects a relatively narrow range of abilities (Renzulli, 1982; Subotnik et al., 2011).

There is much we know and much left to learn about our social constructions of giftedness (Dai, 2018). However, much groundwork has been laid in terms of prevalent traits of individuals considered intellectually gifted. Common conceptions of giftedness may impact student selection processes for selective entry gifted education programs, as well as perceptions some gifted individuals may have of themselves. Although most definitions of intellectual giftedness align most closely to high IQ, it is acknowledged that this is only part of the picture. For instance, IQ does not necessarily measure the abilities of creatively gifted individuals.

Both nature and nurture are involved in gifted behaviours being exhibited. Like career development itself, giftedness essentially includes a combination of the person, the context, and development (Dai, 2018). The development of both gifted traits and careers involves internal and external factors. Scholars this century have tended to support nurture as being the most important influence in individuals developing gifted traits (Dai, 2018).

The term ‘gifted’ was first coined in the early 1920’s, and many research-based conceptions of giftedness have developed since then. Leta Hollingworth, an early educator and researcher in giftedness, is credited with the origins of the term “gifted children” as well as being the mother of research on gifted females (Hollingworth, 1926; Silverman, 1989). High IQ was a primary measure of giftedness in her research participants and students. Using her own research showing males and females having equal intellectual potential, she was a leading advocate for women’s rights last century (Silverman, 1989). Of note, the term gifted was coined before US women were granted voting rights, and this history may have influenced current gendered understandings in the field (Borland, 2003).

Many different research-based conceptions of giftedness now exist. IQ scores alone do not sufficiently answer questions about individual abilities (Sternberg & Davidson, 2005). Conceptions of giftedness range from calling for no formal identification of giftedness but additional educational provisions given as needed (e.g., Borland, 2005); to high IQ-based conceptions of giftedness (e.g., Gagné, 2003; Terman, 1925; Terman & Oden, 1959); to emphasising high domain specific abilities (e.g., Gardner, 1993; Subotnik et al., 2011); to conceptions which emphasise intellectual abilities such as creative, analytic, or practical intelligence (Sternberg & Grigorenko, 2002). Other researchers propose a conception of giftedness that combines high IQ with understandings of the unique affective experiences of these individuals (e.g., Daniels & Piechowski, 2009; Roeper, 1996; Silverman, 1993). What stands out in examining a wide range of definitions is that research increasingly supports a broader definition than high IQ alone.

After reviewing the literature, what is apparent is that giftedness is a complex, multifaceted, socially constructed phenomenon that manifests in diverse ways. Subotnik, Olszewski-Kubilius, and Worrell's conception of giftedness (2011) provides a broad, multidimensional conception of giftedness reflecting intricate human development in changing contexts. It outlines giftedness as initially inborn potential leading to domain specific achievement in later life stages. The significant role non-intellectual skills such as motivation and resilience play in developing giftedness are also acknowledged.

A theoretical definition of giftedness is necessary for this study as it provides a foundation for understanding study participants. Subotnik, Olszewski-Kubilius, and Worrell (2011) provided the following theoretical definition of giftedness:

> Giftedness is the manifestation of performance or production that is clearly at the upper end of the distribution in a talent domain even relative to that of other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental, in that in the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted. Psychosocial variables play an essential role in the manifestation of giftedness at every developmental stage. Both cognitive and psychosocial variables are malleable and need to be deliberately cultivated. (Subotnik et al., 2011, p. 7)

These authors talk about domains such as the arts or athletics interchangeably with career fields. It is important to acknowledge Subotnik, Olszewski-Kubilius, and Worrell's conception (2011) is westernized, and does not explicitly address Indigenous or Eastern views of giftedness which may focus more on intrapersonal intelligence, interpersonal intelligence, or other conceptions of giftedness (Chandler, 2010; Sternberg, 2007). It could be argued that these concepts could be included as talent domains. A criticism of this conception (Subotnik et al., 2011) has been that eminence should be considered an intended goal rather than an expected outcome (Jung, 2012).

Overlapping themes such as eminence, social and emotional development, and links between psychosocial traits and achievement behaviours are found in both giftedness and career development literature. Researchers such as Renzulli (2012) as well as Sternberg and colleagues (Sternberg & Grigorenko, 2002; Sternberg, Jarvin, & Grigorenko, 2010) describe giftedness as high IQ with additional psychosocial traits evidenced by potential in childhood, developing talents in adolescence, and eminence in adulthood. The public sector gifted education policy used by participating schools in this current study included, at the time of data collection, Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2003). This model (Gagné, 2003) focuses on the ways natural abilities are systematically developed into outstanding talents in a wide range of occupational fields (Gagné, 2004).

While Subotnik, Olszewski-Kubilius, and Worrell's conception of giftedness (2011) is also a definition that can be used as a basis for a talent development model, it relates more to career development trajectories than Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2003). Subotnik, Olszewski-Kubilius, and Worrell's (2011) conception of giftedness links well with participating schools' identification practices, such as evidence of domain specific achievements, high academic achievement, and psychosocial traits such as resilience and strong social skills. However, participating schools primarily design their programs to address academic giftedness rather than domain specific giftedness. Subotnik, Olszewski-Kubilius, and Worrell (2011) use the terms academic and intellectual giftedness interchangeably, and contrast this type of giftedness to creative or athletic giftedness.

The selective entry gifted education programs included in this study are called IGNITE programs. These programs are based in three government secondary schools, and have selective entry for Grades 8-10. They compact Grades 8-10 into two years of school. Information on IGNITE identification practices help define the nature of the participant sample. IGNITE students are a high-achieving, intellectually gifted student group.

The advertised IGNITE selection process from the Department of Education and Child Development (DECD, 2011, 2013a, 2013b) appears likely to attract a relatively homogeneous group of gifted students, and therefore may exclude some gifted students. Due to IGNITE school selection criteria, participants were more likely to be "schoolhouse" gifted reflecting high academic achievement rather than "creative-productive" gifted reflecting high creative performance (Renzulli, 1978, 1982, 2012). Students highly gifted in a single domain such as science, or gifted underachievers, or gifted students with learning difficulties may not have been included in these programs or this research. Nevertheless, the three schools contained the most

rigorously identified grouping of gifted students in the South Australian schooling context. In a systematic review of literature on the career development of gifted and talented students, Miller and Cummings (2009) found the majority of research done on this population includes participants considered to be intellectually or academically gifted.

Notwithstanding the foregoing discussion, questions could still be raised about the congruence between Subotnik, Olszewski-Kubilius, and Worrell's conception of giftedness (2011) and IGNITE student selection processes. It is difficult to predict who will eventually achieve career eminence in adult years when comparing different gifted adolescents. For instance, when comparing a highly accomplished gifted adolescent musician with high career aspirations to a gifted adolescent with additional health difficulties and low career aspirations, some predictions of likely career success could be made. However, these predictions may not eventually prove to be accurate. Reflective narratives of adult eminent females indicate significant, life changing career directions can occur within a short space of time (Kronborg, 2010; Rimm et al., 1999; Towman, 2008).

Career-related Needs of Gifted Adolescent Girls

Workplace contexts often provide gifted individuals with opportunities to use their high abilities to benefit society (Jung, 2012; Subotnik et al., 2011). Sampson and Chanson (2008) argue that being gifted compared to typically developing can create polarised career development experiences, with either more ease or more difficulty being experienced. For instance, they argue that advanced language abilities of some gifted students can make career-related learning easier. In contrast, they claim gifted students may need to deal with additional parental pressures in their career decision-making processes. Gifted adolescents in comparison to typically developing adolescents link career challenge with career enjoyment more frequently when making career-

related decisions; therefore, it is important for stakeholders such as families and schools to support their drive to seek future career-related challenges (Jung, 2019; Wood, Smith, & Duys, 2018). Unique career-related, developmental characteristics of gifted individuals, such as advanced cognitive reasoning, intense interests, and high personal expectations for future career success can lead to additional support needs (e.g., Greene, 2003, 2006; Hollingworth, 1916a, 1942; Jung, 2014; Terman & Oden, 1947; Vialle & Hedrick, 2012). Assistance with career counselling is frequently requested by gifted individuals and their families (Ishak & Bakar, 2010; Yoo & Moon, 2006).

Considering the significant career-related potential and often high career aspirations of many gifted adolescent girls, why are there comparatively so few eminent women (Mendez & Crawford, 2002)? Some reasons for a lack of eminent females are known including gender-specific socialisation, career patterns, and roles (Austen & Redmond, 2008; Cochran et al., 2011; Schoon et al., 2007; Schoon & Polek, 2011), yet many questions remain. When examining gender-based school performance, there are differing outcomes between males and females. Female students as a group tend to have high school retention rates and record slightly higher results than male students in the last years of secondary school in many subject areas (Hodgetts & Lecouteur, 2010; Hyde & Mertz, 2009). Nevertheless, inequalities persist in post-schooling opportunities and workplace success (Hodgetts & Lecouteur, 2010). It cannot be assumed that gifted girls who perform highly in educational settings will also perform highly in career settings in later years (Jung, 2013; Muratori & Smith, 2015). Lifetime differences in female career performance clearly show a need for additional research into career pattern influences (e.g., Park, Lubinski, & Benbow, 2007; Rimm et al., 1999).

Secondary schooling decisions impact career development (Bronfenbrenner, 2004; Ozcan, 2017). Significantly fewer females than males pursue mathematics-based careers despite their in-

school achievement levels being alike in this subject (e.g., Betz, 2005; Feyerherm & Vick, 2005; Konrad et al., 2000; Watt et al., 2012). It has been suggested parents may have lower university attendance expectations for daughters in comparison to sons with strengths in STEM (Lloyd et al., 2018). Also, gifted girls' experiences with advanced mathematics learning in specialised school settings may discourage them from pursuing STEM careers (Lee & Siriraman, 2012). Low secondary school female enrolment in mathematics and computer science also filters out potentially prestigious occupations (Kerr & McKay, 2014). Secondary school subject choices made by gifted adolescent girls can have lasting career-related impacts.

Other gender-based issues help explain lower levels of female career attainment. For instance, gender-specific values and the history of women's workplace roles contribute to these persistent trends (Gilligan, 1982; Silverman & Miller, 2007). In particular, gender-specific values shape women's conceptions of success, which in turn influence their career-related goals. Females tend to value life balance and relationships along with traditional measures of career success (Gilligan, 1982). While Gilligan's research is dated, it is still considered foundational in understanding the values of women. Research suggests that honouring personal values regardless of outcomes tends to give gifted females a sense of satisfaction across their lifespans (Kerr & Gahm, 2018). Males, in comparison, tend to highly value recognised career-related positions and specific achievements (Gilligan, 1982).

What do theories of career development reveal about the experiences of gifted adolescent girls? Little focus has been given to the career development experiences of gifted females in career theories. Throughout history, eminent individuals have generally been white, male, urban, and upper class (Silverman & Miller, 2007); therefore, career theories and research studies have focused on these individuals (e.g., Andersen & Vandehey, 2012; 2009). However, some career

development theories (e.g., Gottfredson, 1981, 2005; Hakim, 2002; Lent, 2005; Mainiero & Sullivan, 2005) have examined ethnicity, gender, or socioeconomic status. Minor references to the needs of gifted females are made in theories by Eccles (1994) and Gottfredson (2002a), and these two theories are commonly cited in the literature relating to high achieving or high potential females. Of these two theories, Gottfredson's (2002a) theory of circumscription, compromise, and self-creation is most frequently cited in the research concerning gifted adolescent females. This age and stage theory examines the internal and external influences on career development in the childhood and early adolescent years. Given the potentially significant career-related contributions of gifted females, understanding ways female eminence develops and can best be supported is critical.

Research Sites

All three mainstream government schools containing specialised selective entry gifted high school programs participated in this study. The state's current educational landscape includes inconsistent gifted identification and programming practices (Jarvis & Henderson, 2012); therefore, these three sites were particularly appropriate due to their multi-faceted and consistent identification approaches, resulting in a comparable sample across the three sites. The identification processes utilise standardised testing, evidence of achievement in community and extra-curricular settings, school reports, and family interviews. The three IGNITE programs share similar aims of meeting the academic, social, and emotional needs of academically gifted students. They are guided by the same set of policy documents from the Department of Education and Child Development (DECD, 2012). The three IGNITE programs are strategically located in the north, central, and southern parts of the city.

Program selection involves an admission test followed by interviews. The admission test (Australian Council for Educational Research test) as a first step identification tool examines abstract reasoning, mathematical reasoning, reading comprehension, and writing (DECD, 2011, 2013a, 2013b). Each school preselects test score achievement benchmarks for entry into their student interview process. Students who achieve the necessary results are invited to one-on-one interviews with the IGNITE coordinator. Based on the outcome of these interviews, an offer of admission may be made. Both coordinators highlighted strong student social and emotional traits such as resilience and the willingness to meet new people as being part of their selection processes.

These well-established programs began in the late 1980's and early 1990's. IGNITE programs provide a blend of structured and flexible enrolment options. They include a selective cohort of Grade 8 students who condense Grades 8–10 into two school years. Upon completion of Grade 10, IGNITE students are often clustered together within mainstream classes in their final two secondary school years. Other less common IGNITE enrolment options are offered to some students. For instance, some complete five years of curriculum in three years or partially enrol in university subjects while still taking high school classes.

A wide range of IGNITE programs and pedagogies are designed to meet gifted students' needs. Single subject acceleration, grade level acceleration, and leadership opportunities are offered (DECD, 2011, 2013a, 2013b). Programs such as science competitions, specialised camps, access to additional technology, chess clubs, and debating are included. Some of these programs are offered to all students at the school, while some are reserved specifically for IGNITE students. All IGNITE teachers receive additional training in gifted education. Differentiation, acceleration, extension, and enrichment opportunities are offered within classes.

Some local autonomy is exercised in IGNITE admission processes and program design. For example, IGNITE coordinators choose from a broad range of curriculum, extension, acceleration, and grade level compacting options. In order to provide confidentiality to the three participating schools, the pseudonyms of Shackleton Secondary School (SSS), Thornton Secondary School (TSS), and Adams Secondary School (ASS) have been used for this project. However, it is acknowledged that due to there being only three IGNITE schools there are some challenges in keeping these schools anonymous (Saunders, Kitzinger, & Kitzinger, 2015).

Summary

This study aimed to address gaps in career-related research by examining a sample of gifted adolescent girls in a specialised school context. The body of literature on gifted adolescent girls is generally outdated as its most significant works were in the late 1980's and early 1990's. The majority of the career-related research relating to gifted adolescent girls has been undertaken in the United States. However, a recent body of Australian work by Jung and colleagues (e.g., 2012, 2013; 2014, 2017; 2011b; 2019) has begun to emerge on the career development of gifted individuals. Studies examining the career development of highly able females are much more common in STEM fields (e.g., Lemos, Abad, Almedia, & Colom, 2013; Lloyd et al., 2018) than in other fields such as the creative arts (Miller & Cummings, 2009). As Ozcan (2017, p. 6) so aptly writes, "Literature in this field reveals a paucity of research on career decision-making and career outcomes of gifted individuals, with virtually every available article decrying a lack of research and calling for more attention in this area." A lack of current, Australian research on the career-related experiences of gifted adolescent girls is the gap this project's research questions and design address.

Research Questions

The primary research question for this project was:

How do gifted adolescent girls in South Australian selective secondary school programs describe the factors influencing their career-related values, decision-making process, and goals?

The sub-question was as follows:

How do gifted adolescent girls describe any enablers, tensions, or inhibitors to the development of their career-related values, decision-making processes, and goals?

Career-related values in this study refer to outcomes participants seek to pursue through a career, such as achievement, comfort, or life balance (e.g., Rimm et al., 1999; Rounds, Dawis, & Lofquist, 1987). Career-related decision-making processes refer to individuals' choices and goals related to pursuing a career path (Peterson, Sampson, Lenz, & Reardon, 2002). In a secondary school context, this may include a range of career-related decisions such as work experience placements, school subject choices, or examining university options. Career-related goals in this study refer to individuals' aspirations for specific occupations such as entrepreneur, artist, or teacher.

The Role of Feminism in this Study

As a researcher, I bring my own research subjectivities that may have influenced the research design and interpretation. In addition to being a researcher, I am also a mother of two gifted adolescents – a boy and a girl. I am also a practitioner as I am employed as a gifted education coordinator in the private schooling sector. I bring my own feminist perspectives to this research project.

My personal stance of cultural feminism (Gilligan, 1982) influenced the way I interviewed participants and analysed the data. Gilligan's (1982) research into the unique values, decision-making processes, and goals of females formed the basis for cultural feminism. Cultural feminism is defined by Kerr (1994, p. xvi) as "women [having] a different culture and [striving] for different goals than men". Based on her research examining women's moral choices, crisis management approaches, and rights views, she argues their reproduction abilities create gender specific values and motivations. In contrasting the experience of males and females, Gilligan states that "the failure to see the different reality of women's lives and to hear the differences in their voices stems in part from the assumption that there is a single mode of social experience and interpretation" (Gilligan, 1982, p. 174). She claims males are oriented towards justice, whereas females are oriented towards compassion and care. Gilligan's (1982) research findings suggested women tend to define themselves by their relationships, while men tend to define themselves by their achievements. Deeper understandings of these drives helped frame some of my interview questions, analysis, and findings. In particular, these understandings contributed to exploring the career-related impact of participants' relationships, various life roles, and subjective conceptions of success.

Autobiographical Reflection

Many factors led to this project. Research on the lack of eminent gifted women as well as a personal social justice passion for gifted individuals certainly sparked the flame. Experiences as a mother of two gifted adolescents and a teacher of gifted students also contributed. Walking alongside my highly able female friends as their careers developed amidst their multiple life roles played a part. Listening to the career-related tensions experienced by gifted females from a wide range of ages and backgrounds also ignited this project. Sometimes a person or experience likely

to have a small impact on a person's life can actually profoundly shape its direction. For me, I can trace the original spark of this research to a few moments spent in a running group in rural Canada discussing the career outcomes of gifted individuals with a Rhodes Scholar and giftedness researcher who 'happened' to be in our group. On a person level, this research project has enriched many of my own multiple life roles. As part of this project, I have been required to further develop and crystallise my own beliefs and understandings on feminism. These ideas have significantly impacted how I view workplace opportunities for women. This study has been undertaken in the formative career-related years of my gifted adolescent daughter.

Structure of this Thesis

This thesis comprises seven chapters.

Chapter Two: This chapter reviews research on the influential developmental factors on gifted adolescent girls' career trajectories.

Chapter Three: This chapter first reviews the history of career development theories. It then presents the blended theoretical framework used in this study which includes the works of Gottfredson (2002a) and Savickas (2002).

Chapter Four: This chapter addresses the ideological underpinnings and research methods used in this project.

Chapter Five: This chapter presents the overall findings of this study.

Chapter Six: This chapter discusses the ways the current study's findings relate to existing literature. It also presents and discusses a visual model of the career development of gifted adolescent girls, based on the findings.

Chapter Seven: This chapter presents the study conclusions, with principles for career support for gifted adolescent girls themselves, their families, their schools, their communities, and their broader contexts being provided. Recommendations for future research are also made.

CHAPTER 2: LITERATURE REVIEW

The purpose of this chapter is to examine existing literature related to the career development experiences of gifted adolescent girls. It describes factors that are likely to influence the career-related values, decision-making processes, and goals of gifted adolescent girls enrolled in selective secondary school programs. Firstly, it discusses the nature of career development and reviews a number of key research studies on career development, adolescence, gender, and giftedness. After that, the current changing nature of employment is described. Then, the ways social contexts influence career development are discussed. Lastly, the chapter reviews research on both internal and external factors influencing the career development of adolescent girls, gifted adolescents, and gifted adolescent girls.

This literature review primarily examines the last ten years of relevant research using carefully selected search terms such as gifted, career, adolescence, gender, selective school, and wellbeing. For a complete list of literature search terms, see Appendix A. The main journals that were searched are as follows: *Australasian Journal for Gifted Education; Journal for the Education of the Gifted; Gifted Child Quarterly; Gifted Child Today; High Ability Studies; Journal of Advanced Academics; Roeper Review; Gifted and Talented International; Career Development Quarterly; Journal of Career Assessment; Journal of Vocational Behaviour; Journal of Career Development;* and the *Australian Journal of Career Development.*

Career Development

The nature of individuals' career development is closely tied to their personal traits and the ways they develop in changing social contexts over time (Gottfredson, 2002a; Heinz, 2002; Holland, 1997; Lupart, Cannon, & Telfer, 2004; Parsons, 1909; Savickas, 2002; Schoon et al.,

2007). It has long been recognised that matching individual interests and strengths with specific occupations is an important part of career development (Holland, 1997; Lupart et al., 2004; Parsons, 1909). In particular, several career development theorists highlight the central role that becoming more aware of personal interests plays during adolescent years (Gottfredson, 2002a; Savickas, 2002). As Savickas (2002) pointed out, despite our changing modern society, individual career development is still essentially a bringing together of a range of differing paid and unpaid roles into one main life story. Gifted adolescent girls are in pivotal years where they are beginning to develop their own career-related life narratives. The term 'bounded agency' refers to the range of choices available to individuals within social constructs of gender, intelligence, and prestige (Heinz, 2002; Schoon et al., 2007). Gottfredson (2011) makes strong points related to bounded agency by illustrating that identity categories such as gender and intelligence are integral to the types of career-related opportunities individuals pursue.

Key Research Studies

The unique career considerations of gifted individuals are rarely addressed in research studies or school settings despite a long history of researchers and educators being aware of their additional support needs (Greene, 2003, 2006; Gross, 2004; Hollingworth, 1916a, 1942; Jung, 2014; Terman & Oden, 1947; Vialle & Hedrick, 2012). Research asserts that a complex range of influences such as ethnicity, socioeconomic status, and local community factors help shape adolescent girls' career aspirations (Dillon, 2017; Jung, 2017; Kerr & Gahm, 2018; Lechner, Tomasik, & Silbereisen, 2016; Napier, July, 2012). A small body of research on the career development of gifted adolescent girls emerged in the late 1990's in the United States largely spearheaded by Barbara Kerr (e.g., 1994; 1997; 2018; 2014; 2003) and Sally Reis (e.g., 1998, 2001, 2002, 2005; 2009). This research established that gifted females have specialised career

development needs, and explored common characteristics and experiences of eminent women. Issues such as multipotentiality, talent development, internal and external career-related barriers, and educational settings likely to support career development were investigated in their work. Multipotentiality refers to the idea that gifted adolescents tend to have more diverse and numerous abilities than their non-gifted peers, making it difficult to choose between potential career options (Rysiew, Shore, & Leeb, 1999). Kerr was pivotal in designing career counselling models and support programs catering to gifted females.

Reflective narratives of eminent women tend to be the most recent focus in the research (Arnold, Noble, & Subotnik, 1996; Kerr, 1994; Kronborg, 2010; Reis & Sullivan, 2009; Rimm et al., 1999; Towman, 2008), and these studies contribute to understandings about common traits and experiences of highly able women. Participants in these studies often discussed a sense of being different, their passions, exposure to field-specific mentors, or a sense of fit in certain work-related environments. These reflective narratives of eminent women report the people, locations, and experiences that significantly impacted them. A study by Towman (2008) exploring the influential career-related factors of five female US-based university presidents found that strong support from their families of origin, passion, luck, confidence, and field-specific mentors were vital to their career success. Towman (2008) also highlighted important career-related turning point moments experienced by participants. These studies may help predict which highly able females are likely to become eminent, as well as the career-related experiences and assistance that can support their career trajectories. While interest in gendered experiences of gifted individuals continues to grow in this field (Jolly & Kettler, 2008), the body of research on their career-related needs remains small.

Sometimes these career-related points of decision can be called ‘epiphanies’. Epiphanies can be defined as “interactional moments and experiences which leave marks on people’s lives” (Denzin, 1989, p. 15). Sir Ken Robinson (2009) spoke in his book about the ways that finding passions, particularly in childhood years, can change the course of a life. He told “epiphany stories” about highly able individuals involving “some level of revelation, a way of dividing the world into before and after. These epiphanies utterly changed their lives, giving them direction and purpose and sweeping them up in a way that nothing else had” (Robinson, 2009, p. 26). Although the term epiphany was not used in the quantitative research study by Rimm et al. (1999) examining the lives of 1,000 highly successful women in the United States, many participants pointed to interactions with specific individuals or experiences as points in time that significantly shaped their career pathways. For instance, meeting a master teacher in a specific field or the first experiences on a university campus are some situations that can result in epiphanies.

Qualitative research within Australia on gifted, eminent females has most recently been led by Kronborg (2009, 2010). Her work has examined the lives of eminent Australian women from a wide range of talent domains such as drama, law, athletics, and politics. She used feminist perspectives to contribute to the existing Model of Adult Female Talent Development (Arnold et al., 1996; Noble et al., 1999). This model highlights the differences between males and females in talent development due to their own psychological needs, and gender-specific issues within work and home environments (Reis & Sullivan, 2009). Based on her findings, she suggested that acknowledging gifted behaviours and traits, as well as a sense of difference, be added to this model. More specifically, her research examining the lives of ten eminent Australian women and factors contributing to their talent development (2010) had findings similar to Towman’s (2008). Most of the women in Kronborg’s (2010) study were firstborn children from advantaged socioeconomic

backgrounds with one or both parents acting as strong allies. Participants' individual characteristics reflected strongly independent, risk taking qualities. They were motivated by passionate engagement in a talent domain, and cited deep involvement immersed in interesting, field-specific challenges as contributing to their talents being developed (Csikszentmihalyi, Rathunde, & Whalen, 1997). Lasting career-related turning point moments were also highlighted in these reflective narratives. These turning points were often linked with experiences, role models, or mentors from their domain interests. Mentors and role models also played important parts in their talent development. They credited some of their success to chance. While reflective narratives of eminent women do shed some light on the experiences of gifted adolescent girls who eventually become eminent, they are coloured by the passage of time and adult perspectives.

Within Australia, a recent growing body of research on the career development of gifted adolescents has been led by Jae Yup Jung and colleagues (e.g., 2012, 2013; 2014, 2017; 2011b; 2019). His research covers topics ranging from adult career outcomes of child prodigies (2015) to cultural influences (2011; 2011b), to underachievement among some gifted students (2015; 2011a). Some of his earlier work was focused on the factors leading to career-related indecision for gifted adolescents (2013), while his more recent work highlights the career-related experiences of economically disadvantaged gifted adolescents (2019). Jung has used both qualitative and quantitative methods in his research, and is often focused on formulating and testing theoretical career decision-making models for gifted adolescents. One of his strongest contributions to the field is his empirically verified career decision-making models of gifted students (2019). His work adds insights into the career-related priorities and influential factors in the career development of gifted adolescents. These models illustrate important guiding principles such as the ways intellectual stimulation and interest in a career are strongly linked together for this population.

Internal influential factors are also highlighted, such as the desire to fulfil individual potential. External influential factors such as the role of family cultural background are emphasised, differentiating between individualistic and collective cultures.

Some gender-based career development patterns have been indicated in the research (Austen & Redmond, 2008; Savickas, 2005). For instance, mini-cycles of workplace years interspersed with caregiving roles tend to be common patterns among women (Savickas, 2005). Research asserts Australian females in comparison to males tend to have different career aspirations, higher levels of career development confusion, unique employment patterns, and lower salary levels (Austen & Redmond, 2008). Of particular note, males tend to have more linear career pathways than females.

These studies lay the groundwork for important understandings in the field. However, many questions remain about why gifted women are not reaching eminent levels in their careers. For instance, how do gender-based career trajectory trends begin to emerge for gifted adolescent girls? Are there common career-related barriers or experiences in adolescent years that impact their later career-related decisions or success? Much of the existing research was done with older adolescents rather than younger adolescents. No cross-sectional studies were found comparing gifted adolescent girls at different ages in terms of influences on their career trajectories. Most of the body of work has been US-based. Some of the research has included both gifted adolescent boys and girls, but little research has compared these populations. Only a handful of studies included gifted adolescent girls only, and very few studies have been based in Australia. Little research exists on gifted adolescent girls' career development in selective secondary school programs. This study addresses some of these gaps in the literature. The aim of this qualitative research was to gain new in-depth understandings of how gifted adolescent girls develop their

career-related values, decision-making processes, and goals. It has potential implications for designing effective career supports to assist gifted girls in pursuing their individual career goals.

The Changing Nature of Employment

The changing nature of employment makes career development an increasingly multidimensional process for adolescents. Young people today are stepping into a much more complex, ambiguous world of work than did their parents or teachers (Andersen & Vandehey, 2012; Atanasoff & Venable, 2017; Dengler & Matthes, 2018; Dillon, 2017; Frey & Osborne, 2017; Kenny, Blustein, Liang, Klein, & Etchie, 2019; Kwok, 2018; Lechner et al., 2016; Sachs, Benzell, & LaGarda, 2015; Savickas, 2005; Savickas et al., 2009; Wood et al., 2018). For instance, there are currently high levels of career-related transience, contractual agreements, and newly emerging technologies (Andersen & Vandehey, 2012; Dillon, 2017; Savickas, 2005; Savickas et al., 2009). New kinds of jobs are consistently being created each year, while old jobs are becoming obsolete (Dengler & Matthes, 2018; Frey & Osborne, 2017). Modern technology, social media, environmental issues, social issues, and the complexity of the global marketplace profoundly impact the way we live and work today (Andersen & Vandehey, 2012; Dillon, 2017; Savickas, 2005; Savickas et al., 2009). These rapidly changing environments create potential career-related challenges for adolescents (Dillon, 2017; Kwok, 2018; Lechner et al., 2016; Wood et al., 2018).

Technology in particular has had a disruptive effect on the world of work and career planning. On a global scale, advances in communication technology open doors to daily global market participation in many occupations. Advances in transportation technologies allow individuals to engage in paid work between several cities. It has been estimated within the next two decades that between 10% to 47% of jobs will be replaced due to advances in technology (Dengler & Matthes, 2018; Frey & Osborne, 2017). Sachs et al. (2015) outline tensions when

robots replace human workplace roles. The term technostress in career development literature refers to the negative impact emerging technologies now have on modern workers' mental and physical health (Atanasoff & Venable, 2017). These changing contexts indicate the importance of up to date research on career development for adolescents.

Sociological Influences on Career Development

There are growing bodies of educational research blending the strengths, complexities, and traditions of psychology and sociology (Skelton & Francis, 2009). Career development theories such as those by Super (1990), Savickas (2002), and Gottfredson (2002a) highlight the roles social contexts play in career development. As far back as 1903, Simmel was warning of the dangers of any individual claiming "to preserve the autonomy and individuality of his existence in the face of overwhelming social forces, of historical heritage, of external culture and of the technique of life" (Simmel, 1903, p. 82). Exploring the complex sociological settings of gifted adolescent girls helps enrich knowledge about their career-related influences.

Models of human development such as Bronfenbrenner's (2004) bioecological model can help inform understandings of gifted adolescent girls' career-related choices within social contexts (Ozcan, 2017). That theory lays out the ways interacting spheres of social systems such as school, peers, family, the media, and community life influence individual development over time (Bronfenbrenner, 2004). It is important to acknowledge that these external influences are complex and interrelated (Bronfenbrenner, 2004). They also change frequently (Bronfenbrenner, 2004). External contexts are not simply acted upon passively by individuals, as people have a direct impact on their own social contexts. Bronfenbrenner proposes that the more time individuals spend in certain social settings, the greater the impacts will be of these settings on individuals' development. For instance, family settings are likely to have strong career-related influences due

to the large amount of time traditionally spent together. School settings are also likely to significantly impact individual development, but according to this theory they are likely to have a lesser impact than family due to time differences spent in each setting. However, it should be noted Bronfenbrenner's time and development correlation principle does not necessarily accurately reflect all lived experiences. For instance, sometimes a small amount of contact with a particular social setting or individual can have a profound impact on one's development (Kronborg, 2009; Rimm et al., 1999).

Factors Influencing Adolescent Girls' Career Development

There is no single explanation for gender imbalances in career outcomes. Females, in general, may experience a range of external barriers, internal barriers, career patterns, and values (Kronborg, 2010; Reis, 2001, 2002, 2005; Rimm et al., 1999; Rinn & Bishop, 2015). By way of review, career-related values refer to individuals' preferred outcomes when pursuing a career, such as achievement, comfort, or life balance (e.g., Rimm et al., 1999; Rounds et al., 1987). In order to understand the career-related influences on gifted adolescent girls' values, decision-making processes, and goals, it is essential to understand experiences that are likely to be common to many adolescent girls. For instance, their common career-related experiences may range from experiencing issues accessing mentors to dealing with external societal achievement expectations.

This section addresses research on both the internal and external influential factors on adolescent girls' career-related values, goals, and decision-making processes. Firstly, it discusses literature on the role of personal traits in career trajectories. Next, differing sociological influences on career development are presented. Then it examines research on the influence of gender-related issues on adolescent girls' career development. Lastly, research literature relating to the parts mentors and role models can play in career development is discussed.

Personal traits. According to the literature, adolescent boys and girls may have different interest areas, and this can influence the types of career pathways they pursue (Bandura et al., 2001; Holland, 1997; Lupart et al., 2004; Parsons, 1909; Patton & Creed, 2007b). For instance, Lupart et al. (2004) surveyed 1419 Canadian students in Grades 7 and 10 from diverse socioeconomic backgrounds and locations using questions based on the Eccles Model of Achievement Related Choices. They found when comparing male and female participants that females expressed significantly less interest in science, but similar interests in mathematics, English, and the arts. Although my current study did not compare the career-related interests of adolescent boys and girls, and preferences might have changed since 2004, it did explore the career-related interests of adolescent girls. By way of another example, Patton and Creed's (2007a) Australian survey study elicited career-related information from 169 female and 164 male students representing all secondary school years. The study examined issues such as career goals, career-self efficacy, and school achievement. Findings suggested that both male and female students with high self-esteem and school achievement tended to have high career goals. However, significant differences were found between males and females in terms of careers they were considering. For instance, females were more artistically or socially oriented in their career aspirations. These studies add to our understandings about how career aspirations compare between boys and gifted girls.

Social contexts. Examining significantly influential social factors brings to light external factors adolescent girls may experience in their career development. Career-related social reproduction may be an issue for some adolescent girls to navigate. Social reproduction means certain common social groups are likely to have similar generational career patterns in some fields (Durkheim, 1893; Gottfredson, 2002a; Willis, 1977). While this concept was first embedded in

Marxist theory and understandings of class structure, it has broadened to include understanding of social reproduction such as individuals sharing the same gender and culture (Laslett & Brenner, 1989). Comte saw the division of labour as “the most essential condition of social life” (Comte 1853, cited in Durkheim, 1893, p.100). He spoke of these divisions being keystones to inter-generational social solidarity. Challenging these socially constructed career patterns ignited the career guidance movement (Parsons, 1909). Concerns about the gendered division of labour have been prominent in feminist studies (Laslett & Brenner, 1989), and in career development literature (e.g., Cassie & Chen, 2012; Gadassi & Gati, 2009; Whitmarsh & Wentworth, 2012). The career development theory of Gottfredson (2002a) stands out among career development theories as particularly exploring social reproduction principles related to gender, intelligence, and prestige in childhood and adolescent years.

Some social influences clearly reinforce work-related social reproduction patterns, while others are much more subtle and complex. Depending on their ethnic, cultural, or socioeconomic backgrounds, adolescent girls may experience these influences as either overt or more indirect as they plan their career trajectories. Access to career-related knowledge and mentorship are two influences that clearly underpin social reproduction among groups (Kerr & Gahm, 2018; Neihart & Yeo, 2018). Some career-related knowledge may be more accessible to individuals of a certain gender, race, or socioeconomic status. Knowledge that challenges traditional boundaries and labour divisions may be withheld from minority groups within particular career settings (Dolby, Dimitriadis, Willis, & Aronowitz, 2004; Willis, 1977; Zambrana et al., 2015). Individuals from ethnic minorities can have lower career-related opportunities due to stereotyping of people from their own cultural background in some fields (Zambrana et al., 2015). Networking opportunities

needed to gain certain career knowledge may also be hard to access for minority or disadvantaged groups (Feyerherm & Vick, 2005; Lu, 2013; Zambrana et al., 2015).

Even the most subtle occupational stereotyping can reinforce social reproduction. For example, minority individuals can experience stereotype threat when entering career areas traditionally dominated by other groups. Robertson and Kulik (2007, p. 24) defined stereotype threat as "the fear of being judged according to a negative stereotype." For instance, there may be an innate additional fear among females taking an entrance test into a STEM postsecondary course in comparison to males due to it being a non-traditional field for females. Stereotype threat influences academic interests, performance, and eventually career goals (Cadaret, Hartung, Subich, & Weigold, 2017; Deemer, Thoman, Chase, & Smith, 2014; Woodcock, Hernandez, & Schultz, 2016). This is particularly the case in STEM fields. For instance, a study including 439 university undergraduate female students enrolled in physics and chemistry classes found that stereotype threat played a significant role in the physics students being less likely to consider a career in their field (Deemer et al., 2014).

Gender-related issues. Adolescent girls may face a wide range of gender-related issues in their career trajectories (Cochran et al., 2011). Research has established a strong relationship between adolescents' career aspirations and later career outcomes (e.g., Cochran et al., 2011; Schoon et al., 2007; Schoon & Polek, 2011). That is, high career aspirations in adolescence are more likely to result in high career achievement levels; likewise, low adolescent career aspirations are more likely to result in low career achievement levels. However, research asserts this relationship is weaker for females as they are less likely than males to achieve their adolescent

career aspirations, particularly if they aim for prestigious or traditionally male dominated careers (Cochran et al., 2011; Schoon et al., 2007; Schoon & Polek, 2011).

Other studies have reinforced gender-based differences in career development. For example, Schoon and Polek's (2011) longitudinal quantitative research involving more than 11,000 participants in the United Kingdom tracked individuals' career aspirations at age 16 and career attainment in their mid-30s. This study found gender to be significant in that while female participants had more ambitious career aspirations and higher education participation, gender inequalities in occupational outcomes remained. Male participants more frequently achieved their career goals. These researchers suggested that males may be more likely than females to have realistic career aspirations. Similarly, a study by Cochran et al. (2011) examined longitudinal data gathered by the United States Department of Labour showing connections between participants' adolescent career aspirations and adult career achievement in their early forties. It found both male and female adolescents aimed for similarly prestigious career goals, but that females achieved less career success later in life after controlling for discrimination, varying career patterns, and gender value differences. Questions remain about reasons for this mismatch between girls' adolescent career aspirations and their adult career-related outcomes.

An intricate interplay of relationships and values can influence career aspirations of females (e.g., Eccles, 1994; Gottfredson, 2005; Lirio et al., 2007; Mendez & Crawford, 2002; Reis, 2002). Gendered occupational stereotypes can impact adolescent girls' perceptions of acceptable pathways. The prominent career-related values of women in their culture can also help shape the values of adolescent girls. Research has indicated females with culturally traditional work-family ideologies are more likely to have lower career aspirations regardless of their own abilities (Davis & Pearce, 2007; Lirio et al., 2007). Researchers point out that girls are often raised in families,

schools, and communities that have different career expectations of boys than of girls (Arnold et al., 1996; Kerr, 1994; Kronborg, 2010; Reis, 1998; Rimm et al., 1999). These expectations may have an impact on the choices girls make, whether or not they are keenly aware of it.

Females tend to begin to develop their career aspirations at younger ages than males, and become increasingly focused on future work/life balance allowing for caregiving and family responsibilities (e.g., Armstrong & Crombie, 2000; Kelly & Cobb, 1991; Patton & Creed, 2007a). This can be a contributing factor for differing career-related outcomes for females. Highly valuing home life responsibilities may mean that many females place a stronger emphasis on workplace flexibility and fewer work hours (Ferriman, Lubinski, & Benbow, 2009). In addition, the research suggests that females may primarily aspire to a narrow range of socially oriented occupations, and this range tends to become even smaller as they age (e.g., Furlong & Biggart, 1999; Holland, 1997; Meinster & Rose, 2001; Patton & Creed, 2007a). For instance, a four year quantitative study by Meinster and Rose (2001) followed 92 female US high school students and employed instruments including vocational preference inventories, role value inventories, and a background questionnaire. All participants were found to develop stronger interests in traditionally female-dominated occupations over time. A focus on planning for future family lives seems to have an impact on adolescent girls' career goals.

Gender-based external and internal expectations can influence the career aspirations of adolescent girls. Males tend to think of success in concrete terms, whereas females often tend to think of it in terms of life balance (e.g., Ely, Insead, & Kolb, 2011; Ferriman et al., 2009; Gilligan, 1982). For example, men tend to view their career success in terms of salary and position, however females tend to more highly value effectively balancing several concurrent life roles such as multiple caregiving responsibilities (Gersick & Kram, 2002; Heslin, 2005; Konrad et al., 2000;

Reis, 2005). Gender-based conceptions of success are likely to influence adolescents' career-related values, decision-making processes, and goals.

Adolescent girls form their career-related values, decision-making processes, and goals in societal contexts where numerous external barriers exist for females. Many women in the workplace face glass ceilings, lower pay, and discrimination (Kronborg, 2010; Rink, Ryan, & Stoker, 2012; Rudasill & Callahan, 2010). Females may be set up for failure through "glass cliff" positions defined as "the tendency for women to be overrepresented in precarious leadership positions that involve a high risk of failure because of organisational circumstances" (Rink et al., 2012, p.1306). Progress is being made to address these and other external workplace barriers, but often they subtly continue. These societal barriers may impact the types of career-related decisions made by adolescent girls

Mentors and role models. Role models and mentors play an important role in career development, and lacking female role models and mentors can deter females from pursuing certain careers (Davis & Pearce, 2007; Eby, Allen, Evans, Ng, & DuBois, 2008; Gilligan, 1982; Gottfredson, 1981, 2005; Kerr, 1994; Lirio et al., 2007; McMahon, Limerick, & Gillies, 2002; Reis, 1998; Sahin, 2014; Shier, Gouthro, & de Goias, 2018). Some gatekeeper knowledge from career role models and mentors needed by females may not be offered in some fields (Shier et al., 2018). In career settings such as STEM fields, male social career reproduction still exists (Lloyd et al., 2018). As a result, adolescent girls entering STEM or other fields considered non-traditional for females are likely to have higher needs than their peers for career-related mentors and role models. Also, depending on their planned career trajectories, some adolescent girls from disadvantaged or minority groups may also have higher needs for these relationships compared to their peers due to social career reproduction. A review of literature by Eby et al. (2008) found

many favourable outcomes for adolescents from academic and workplace mentorship relationships such as better career-related progression, motivation, and health-related outcomes.

Research into career-related mentorships for adolescent girls has often focused on minority groups, STEM career fields, naturally occurring relationships, or formal programs (e.g., Broadley, 2015; Liang, Spencer, Brogan, & Corral, 2008; Packard & Nguyen, 2003; Shier et al., 2018). Research by Liang et al. (2008), including 10 focus groups of students in middle school, high school, and college, examined elements of their naturally occurring career-related mentorship relationships. They found that time spent together in shared activities, trust and integrity, and identifying with the role models were valued aspects of these positive relationships. These researchers also found that developmental stages played a part as each of the age groups valued closeness and self-empowerment with mentors differently. For instance, in terms of self-empowerment, older students preferred being seen more as equals with their mentors and were more accepting of mentors' flaws than younger students.

Mentoring was not the focus of my research, but both formal and informal mentoring relationships are likely to have some influence in shaping adolescents' career-related values and decision-making processes. A study by Shier et al. (2018) illustrates the positive impact of a multifaceted, formal career-related mentorship program on adolescent girls. This qualitative study included 15 adolescent girls (ages 16–17) from an ethno-racial minority group in Canada. It investigated the effectiveness of their involvement in a community-based mentorship program which matched them with female mentors in areas of career-related interests. This was a competitive entry program that provided nine months of work-related skills instruction both in person and online. Participants indicated these programs had a positive impact on their perceived social capital, enabling them to make stronger education and career-related connections.

Factors Influencing Gifted Adolescents' Career Development

When examining the experiences of gifted adolescents, there are often common career-related experiences and traits (Chen & Wong, 2013; Fiebig, 2008; Greene, 2006; Henderson & Jarvis, 2016; Hollingworth, 1926; Jung, 2018; Maxwell, 2007; Miller & Cummings, 2009; Muratori & Smith, 2015; Neihart, 2006; Ozcan, 2017; Renzulli, 2012; Seward & Gaesser, 2018; Terman, 1925; Thompson, 2016; Wood, 2010; Yoo & Moon, 2006). Although each gifted individual is unique, some common gifted characteristics such as those listed in Chapter One are indicators of intellectual giftedness (Callahan, 2017). These traits often interplay with career development, and may result in career development considerations specific to gifted adolescents.

Some career-related experiences are likely to be common for both gifted adolescent boys and girls. This section addresses research into both the internal and external influential factors on gifted adolescents' career trajectories. Firstly, it discusses the role of common gifted personal traits in career trajectories. Then it examines the influence of specific career preferences on adolescent girls' career development. Next, wellbeing considerations for gifted adolescents are examined, followed by contexts influential in gifted adolescents' career trajectories. The influence of external barriers and expectations are explored, and the impact mentors, mentoring, and role models can have on gifted adolescents' career trajectories are discussed. Finally, school-related influences this population may experience are acknowledged.

Personal traits. The ways social and emotional traits lead to observable gifted behaviours is gaining research interest (e.g., Perrone-McGovern, Simon-Dack, Beduna, Williams, & Esche, 2015; Robertson, 2013; Subotnik et al., 2011). Gifted children's social and emotional traits are likely to play an important role in career development. Common gifted traits and multiple career options may mean some gifted adolescents need career support that is different from their typically

developing peers (Chen & Wong, 2013; Fiebig, 2008; Greene, 2006; Henderson & Jarvis, 2016; Jung, 2018; Miller & Cummings, 2009; Muratori & Smith, 2015; Ozcan, 2017; Renzulli, 2012; Robinson et al., 2002; Seward & Gaesser, 2018; Thompson, 2016; Wood, 2010). They may tend to have certain traits that make them either more vulnerable or stronger in comparison to their peers. For example, some argue that common gifted traits such as intensity and advanced humour can mean gifted children are more resilient and willing to take risks (Robinson et al., 2002), and this could impact on their career development. Seward and Gaesser (2018) argue that common gifted traits may mean career development is a more anxious and intense process for gifted adolescents in comparison to their peers. Nevertheless, giftedness research is becoming less focused on gifted children's vulnerabilities or resilience, and more centred on the external environments that can promote high levels of wellbeing (Robinson et al., 2002).

Greene (2006) cites social and emotional traits such as sensitivity, intensity, and perfectionism as common gifted traits that may play the most important roles in career development. For instance, intensity can lead gifted individuals to be driven by passion to mastery within a career-related field (Greene, 2006; Muratori & Smith, 2015). This may have career-related implications such as the need for a master mentor, or additional life balance strategies to allow for in-depth investment in talent development. By way of another example, heightened sensitivities can result in some gifted individuals having a heighted awareness of society's needs and moral concerns at an early age (Greene, 2006; Muratori & Smith, 2015; Ozcan, 2017; Wood, 2010). These sensitivities could lead them to pursue career fields related to social justice causes (Muratori & Smith, 2015; Wood, 2010). For example, a study including 11 gifted and talented adolescent students in Turkey found that a sense of social responsibility was a key driving force for career-related decisions (Ozcan, 2017).

Perfectionism can have a complex influence on career development for gifted adolescents (Chen & Wong, 2013; Kerr & Multon, 2015; Maxwell, 2007; Neihart & Yeo, 2018; Rice & Ray, 2018; Silverman, 1993; Speirs Neumeister, Williams, & Cross, 2007). Rice and Rey (2018, p. 645) defined perfectionism as "fundamentally about a strong, persistent, pervasive embracing of very high standards and performance expectations." Perfectionist tendencies have been attributed to a level of added career-related confusion and motivation for gifted individuals (Rice & Ray, 2018; Silverman, 1993). Prevalence rates of perfectionism among gifted individuals continue to be debated (Speirs Neumeister et al., 2007); however, many scholars in the field accept gifted individuals as having higher rates of perfectionism than typically developing individuals (Chen & Wong, 2013; Maxwell, 2007). Some research even suggests that perfectionist rates are increasing among this population (Portesova & Urbanek, 2013). In addition, it has been argued that cultural expectations can make perfectionism in gifted individuals more complex (Rice & Ray, 2018). For instance, individuals in some Asian cultures, such as Chinese culture, consider a key aspect of personal growth to be self-criticism (Rice & Ray, 2018). As a result, individuals with high levels of perfectionism from certain cultural backgrounds may be encouraged to continue to build this. In some circumstances, perfectionism linked with high internal personal standards has been suggested as a risk factor for mental health issues (Kerr & Multon, 2015), which may impact career development.

Whether or not perfectionism is an enabling factor in achievement is certainly in debate (Greenspon, 2000; Neihart & Yeo, 2018; Perrone-McGovern et al., 2015; Rimm, 2007). Generally, researchers agree that it is a two sided coin: while perfectionism can be useful for pursuing individual excellence, it can also be harmful in pursuing goals if taken to an extreme level (Perrone-McGovern et al., 2015). Some would even argue that there is no such thing as healthy

perfectionism (e.g., Greenspon, 2000). Regardless of its merit, perfectionism is an issue for many gifted individuals and can create tensions in their career development (Neihart & Yeo, 2018).

Leadership is a personal trait that is common among gifted individuals (Borland, 2009; Callahan, 2017; Ganzach & Fried, 2012; Hebert, 2019; Mendez & Crawford, 2002; Renzulli, 1982). It was one of the common gifted traits listed in the Marland Report (Marland, 1972), which has had a strong influence in the development of contemporary definitions of giftedness (Borland, 2009; Renzulli, 1982). Leadership roles may help gifted individuals flourish (Ganzach & Fried, 2012), but they can also create additional external pressure to fulfil leadership roles in a range of settings. Gifted adolescents often balance high levels of academic achievement and in-school leadership positions (Mendez & Crawford, 2002). This social trait can provide opportunities for future career-related advancement, and research indicates that gifted individuals can develop this trait in a wide range of ways (Hebert, 2019).

Multipotentiality is a personal circumstance that may have career-related implications for gifted adolescents (Achter & Lubinski, 2005; Achter, Lubinski, Benbow, & Eftekhari-Sanjani, 1999; Dillon, 2017; Rinn & Bishop, 2015; Rysiew et al., 1999; Sampson & Chanson, 2008). It was assumed multipotentiality caused intense career-related confusion, lower levels of wellbeing, delayed career decision-making, and potentially failure to thrive in the adult work world (Rysiew et al., 1999). While this is not an issue only within the gifted population, it may be more prevalent. Dillon summarised the ways this challenge can present itself for gifted adolescents:

> The dissonance between endless possibilities for one's future and large-scale unsettling portents swirling together can squeeze out the spaces for reflection and achieving a steadiness of mind. It certainly cannot be assumed that self-understanding is better accessed by a gifted mind. Therefore, the vital requirement of knowing yourself—what sustains you, what depletes you, what elevates your spirit and your thoughts—remains a prescient challenge. (2017, p. 70)

Despite long accepted views that multipotentiality can be a career-related challenge for gifted individuals, recent qualitative studies have challenged these assumptions (Achter & Lubinski, 2005; Rinn & Bishop, 2015). The debate in the field remains (Sampson & Chanson, 2008). It has been criticised as being a concept without sufficient supporting empirical research (Achter, Benbow, & Lubinski, 1997). Jung (2019) also empirically tested his model of career decision-making for gifted adolescents and found limited influence from multipotentiality.

Career preferences. Gifted individuals often have personal traits that may attract them to certain fields (Bronk, Finch, & Talib, 2010; Eccles, 1994; Greene, 2006; Jung, 2017; Kerr & Sodano, 2003; Miller & Cummings, 2009; Ozcan, 2017; Reis, 2005; Sparfeldt, 2007; Vock et al., 2013). For instance, longitudinal research by Vock, Koller, and Nagy (2013) surveyed more than 4,000 German secondary students, and then surveyed them again in their second year of university. The researchers compared the career aspirations of gifted students, high academic achieving students, and their academically average peers and found differences in career goals. Of note, using Holland's (1997) RIASEC model of vocational interests they reported gifted students to have greater interests in practical and investigative careers and less interest in socially oriented careers in comparison to other participants. By way of another example, a quantitative study by Sparfeldt (2007) compared the vocational interests of 106 intellectually gifted German adolescents with 98 adolescents of average ability. Using Holland's (1997) model, this study also found gifted adolescents had higher interests in investigative careers and were less interested in socially oriented careers.

There is debate within the literature about whether or not gifted individuals tend to pursue prestigious roles (Eccles, 1994; Ganzach & Fried, 2012; Greene, 2006; Miller & Cummings, 2009). For example, in a systematic review of literature on gifted and talented students' career

aspirations and influences, Miller and Cummings (2009) found that gifted students were more likely to be interested in highly prestigious careers linked with high salaries and high levels of education. However, literature also emphasises that gifted adolescents are more willing than their typically developing peers to pursue a career-related calling or careers in not-for-profit roles (Eccles, 1994; Greene, 2006; Ozcan, 2017). They tend to be motivated by a strong sense of social responsibility, intrinsic rewards, and aim to make the world a better place (Ganzach & Fried, 2012; Ozcan, 2017; Reis, 2005). Research by Bronk, Finch, and Talib (2007) in the US comparing high ability youth in selective entry secondary school programs and typically developing youth indicated that gifted youth more often pursued not-for-profit causes rather than leisure in their free time. These authors found that, over time, gifted youth increasingly focused on social justice causes, whereas typically developing youth attended to more self-oriented causes.

Research findings suggest that gifted adolescents have a strong drive to pursue careers in areas of both interest and challenge (Jung, 2017; Kerr & Sodano, 2003). For instance, a quantitative Australian study by Jung (2017) of over 600 intellectually gifted Australian adolescents found common preferences for intellectually stimulating as well as enjoyable career aspirations. This points to specific needs in career development support. Providing high level, interest-based opportunities for gifted adolescents could be an important approach to meeting their needs in gifted education settings.

Wellbeing considerations. The World Health Organisation (2016) emphasised positive wellbeing in its definition of health by stating “health is a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity”. Specialised wellbeing strategies may be needed for gifted individuals due to common traits they share such as intensity and asynchronous development (Ganzach & Fried, 2012; Wood et al., 2018). For instance, gifted

adolescents who experience intense emotions may need to learn specific self-regulation strategies. The links between career and life satisfaction may be particularly strong for those gifted individuals who see their occupations as a fundamental focus in their lives (Wood et al., 2018). Research by Ganzach and Fried (2012) examined the US National Longitudinal Survey of Youth (1974-2004) which included more than 12,000 males and females. They found that highly intelligent participants valued extremely complex careers, intrinsic rewards, and satisfaction more highly than salary levels in comparison to their peers. The highly intelligent participants indicated that careers promoting leadership or talent development resulted in high levels of wellbeing. Gender was not a factor explored in that study. Looking at ways to support holistic career-related wellbeing for gifted adolescents would seem to be important.

Social contexts. Issues related to social reproduction may be faced by gifted adolescents (Gottfredson, 2002a; Jung & Young, 2017, 2019). For instance, if gifted adolescents have higher abilities or aspirations than individuals in their close social circles they could face additional challenges in forging their career pathways. Jung and Young's research (2017, 2019) into the career-related decision-making processes of gifted adolescents from low socioeconomic backgrounds indicated that this group may have different experiences to those in other income brackets. These studies involved mixed methods research, with 26 economically disadvantaged gifted Australian adolescents participating in qualitative interviews and 917 completing surveys. Findings suggested stronger influences of family opinions and more positive attitudes to multipotentiality than has been evident in other research on intellectually gifted adolescents. Jung and Young (2017, 2019) asserted that the economically disadvantaged gifted adolescents in this

sample seemed less interested in fulfilling their career-related potential and more interested in job security than other gifted adolescents.

External expectations and barriers. In addition to their own internal career-related expectations and preferences, gifted individuals can experience excessive or unrealistic pressure from other significant adults for high academic or future career-related achievements (e.g., Garn, Matthews, & Jolly, 2010; Greene, 2003; Kerr & Sodano, 2003; Mudrak, 2011; Neihart & Yeo, 2018). Often, significant adults expect gifted individuals to hold future leadership positions. The tensions of bridging external and internal ideals of success can be confusing and draining on gifted adolescents (Dillon, 2017). However, little research has explored these career-related external pressures, and the roles they play in the career development of gifted adolescents.

A wide range of external pressures can come into play when gifted adolescents make career-related decisions (Greene, 2003; Jolly & Matthews, 2012; Jung, 2013; Kerr & Sodano, 2003; Neihart & Yeo, 2018; Ozcan, 2017; Seward & Gaesser, 2018; Yoo & Moon, 2006). A US study by Yoo and Moon (2003) on the career counselling needs of 120 gifted children (ages four to 18) gives some insight into their career-related issues. Parents of children bringing them to a specialised fee-based counselling service for gifted children filled out surveys on the reasons for their visits. These findings showed the high expectations of others as key on-going concerns, and indicated that career planning was an important issue for parents of children older than 12. Similar pressures have been echoed by participants in related studies (e.g., Greene, 2003; Jolly & Matthews, 2012; Kerr & Sodano, 2003). Location can also play an important role in terms of external pressures. For instance, a US study by Seward and Gaesser (2018) included 19 rural gifted students enrolled in the last two years of their secondary school, and found participants

experienced significant pressure deciding whether or not to locate to urban areas to develop their career-related abilities.

Cultural factors can heighten external achievement pressures for gifted adolescents (Jolly & Matthews, 2012; Jung, 2013; Neihart & Yeo, 2018; Ozcan, 2017). For example, Ozcan (2017) argues, based on her qualitative research with 11 gifted and talented students in a selective entry school program in Turkey, that occupational decisions in that particular social context were primarily based on what the culture saw as most prestigious. Combining self-expectations and cultural messages from others can make career decisions particularly complex for gifted adolescents in comparison to their peers.

Adolescence in westernised societies is a key time for career-related decisions and interventions. Nevertheless, research indicates that forming career aspirations begins at much earlier ages for gifted children than it does for their typically developing peers (e.g., Ginzberg, Ginsburg, Axelrad, & Herma, 1951; Gottfredson, 2002a; Greene, 2003, 2006; Hartung, Porfeli, & Vondracek, 2005; Helwig, 2008; Hollingworth, 1926; Kerr & Gahm, 2018; Neihart & Yeo, 2018; Terman, 1925). Researchers have purported that early cognitive and emotional maturation can mean gifted adolescents require earlier career support (Hollingworth, 1926; Neihart & Yeo, 2018; Terman, 1925). Secondary schools in Australia usually begin formal career-related supports and provisions in students' final years, which may be much later than when many gifted adolescents crystallise their main career aspirations. Given the timing of in-school career guidance provisions, a lack of career guidance in younger years could be considered an external career-related barrier.

A study by Perrone, Tschopp, Snyder, Boo, and Hyatt (2010) provides some insights into how prepared gifted adolescents feel for their future career pathways. This 20 year longitudinal study of 1,724 academically gifted participants compared their adolescent expectations of their

careers with their adult experiences. Findings showed that these participants sought jobs that were challenging, interesting, and offered opportunities for advancement. However, participants believed they had not been effectively equipped with accurate knowledge about tasks involved in their careers and believed their workplace relationships to be worse than they had expected. They exhibited high levels of career-related self-efficacy, and frequently accurately predicted their planned career outcomes.

Mentors, mentoring, and role models. Research has highlighted mentorship in areas of strength and interest as being an important element in the talent development of gifted adolescents (Casey & Shore, 2000; Csikszentmihalyi et al., 1997; Freeman, 2001; Gagné, 2003; Grassinger, Proath, & Ziegler, 2010; Little, Kearney, & Britner, 2010; Maxwell, 2007; Paul & Seward, 2016; Rysiew et al., 1999; Subotnik, Edminston, Cook, & Ross, 2010; Subotnik et al., 2011; Thompson, 2016). Greene (2006) pointed out that adult mentors can provide gifted adolescents with hands on, in depth, advanced learning experiences to support their planned career trajectories. Depending on the timing of peak performance in certain fields such as music, adolescent years may be the ideal time for field specific mentors to enrich gifted adolescents' talent development (Subotnik et al., 2011).

Gifted adolescents may have field-specific strengths advanced enough to require in-depth exploration and teaching not available to them in formal school settings (Freeman, 2001; Little et al., 2010). Freeman (2001) found in her review of research that mentorships can help reveal creative potential, motivate underachievers, encourage life-long talent development, and cater to the needs of students who have been accelerated in school settings. A study by Little et al. (2010) focused on a university-based summer mentorship program for 72 gifted adolescents facilitated by faculty and postgraduate students. The talented teenagers were selected for this program due to

their high academic results, motivation, and talent, and were involved in activities to increase self-awareness of their personal strengths and to build research skills. The program was also focused on building relationships with likeminded peers and experts from a range of fields. As a result of this mentorship program, participants were found to have a significant increase in perceptions of their career-related competence.

Gifted adolescents can also benefit from mentoring younger peers (Besnoy & McDaniel, 2016; Gonsoulin, Ward, & Figg, 2006; Manning, 2005). A study by Besnoy and McDaniel (2016) examined a mentorship program which included six gifted students, five female and one male, aged 15-16 and 11 students in Grades 3-4. The older students were formally trained to mentor the younger students in developing their personal strengths and relationships. This study found that the gifted students who acted as mentors credited these experiences with an increase in their own leadership skills and understandings of their own strengths. They gained a sense of satisfaction and believed they had made a difference in the lives of their mentees.

School-related influences. Complex factors come into play when examining gifted adolescents' educational and career-related needs (Gentry, Hu, Peters, & Rizza, 2008; Kerr & Gahm, 2018; Neihart & Yeo, 2018; Seward & Gaesser, 2018). School engagement and outcomes are important for gifted students as they have an impact on career pathways available to them after graduation. A recent review of research (Neihart & Yeo, 2018) highlighted that the two main school-related challenges of gifted students were being enrolled in schools that did not appropriately meet their needs, and difficulty finding like-ability peers. Gifted students often need opportunities for extension, enrichment, differentiation, and acceleration in areas of academic strengths. Depending on their areas of giftedness, such as STEM or the creative fields, gifted adolescents may need different types of school-based career development supports (Kerr & Gahm,

2018). An example of unique school-based support was examined in qualitative research by Gentry, Peters, and Mann (2007) which included 16 highly able participants enrolled in specialised career and technical education settings focused on a wide range of career fields. This study found that participants were highly engaged in school, and valued opportunities to work independently, at their own pace in interest areas, and supervised by field-specific mentors. Having necessary academic and career-related school supports can help keep gifted secondary students focused on learning necessary career-related skills (Seward & Gaesser, 2018).

Being enrolled in schools that do not appropriately meet the needs of secondary gifted students can have social and educational impacts on their career development (Coleman, Micko, & Cross, 2015; Jarvis & Henderson, 2012; Seward & Gaesser, 2018; Vialle & Hedrick, 2012). Inconsistent practices relating to policy, staffing, curriculum, pedagogy, and assessment for gifted students are evident in many schools (Coleman et al., 2015; Jarvis & Henderson, 2012). Schools may also lack specialist staff, such as counsellors appropriately trained in the needs of gifted individuals (Vialle & Hedrick, 2012). Without appropriate in-school support, secondary gifted students may be at risk of anxiety, frustration, disengaging from school, and not effectively developing their career-related abilities (Seward & Gaesser, 2018).

This current study is focused on exploring the career development of gifted adolescent girls in selective programs. Within Australia, there has been considerable recent debate both within the media and in government educational policy reviews about the impact of selective schools for gifted students (Ho & Bonnor, 2018; North & Griffiths, 2019). Nevertheless, much of this concern has been about social justice issues related to students from disadvantaged backgrounds accessing these programs, and the impact specialised schools have on lowering the enrolment of high ability students in other local schools. However, few questions have been raised in these debates about

the benefits these settings provide for gifted students themselves. While this research involves participants in a selective program rather than in fully selective schools, similar issues may apply.

Although the research body highlighting the benefits these specialised settings have for gifted students is broad, much of its recent focus has been on the education and career-related impact of specialised STEM schools (e.g., Bruce-Davis et al., 2014; Jen & Moon, 2015; Stein, Ostrander, & Lee, 2016; Stoeger, Greindl, Kuhlmann, & Balestrini, 2017; Subotnik, Almarode, & Lee, 2016). Evidence suggests that enrolment in these specialised secondary schools leads to significantly higher retention rates in post-secondary STEM education and career pathways (Subotnik, Tai, Rickoff, & Almarode, 2009). Subotnik et al. (2016) argue that many lessons learned from these specialised STEM schools can be applied to other specialised gifted education settings focused on talent development in other domains.

Evidence indicates that parents and their children tend to be happy with enrolment in specialised gifted education school settings such as the ones included in this study (Berlin, 2009; Perrone, Wright, Ksiazak, Crane, & Vannatter, 2010; Vu, 2011). For instance, a longitudinal study including 33 men and 55 women who had been enrolled in programs for highly able children found that 88% of these participants would make the same school enrolment choices for their future children (Perrone, Wright, et al., 2010). Being labelled as gifted can sometimes create social tensions that interfere with normal social interactions due to the negative social stigma of giftedness not being part of the norm (Coleman et al., 2015; Schmitt & Goebel, 2015). Nevertheless, research indicates that being labelled as gifted and being enrolled in specialised school programs can promote a sense of student pride (Berlin, 2009; Vu, 2011). This could be a contributing factor to both parents and their children being happy with these types of programs.

Specialised school settings for gifted adolescents are designed in various and different ways around the world (Batterjee, 2016; Cross, Cross, & Finch, 2010; DECD, 2011, 2013a, 2013b; Gronostaj, Werner, Bochow, & Vock, 2016; Schmitt & Goebel, 2015; Subotnik et al., 2016; Wardman, 2014). Entrance into these programs tends to be linked with a range of assessment criteria such as IQ testing, portfolios of achievements, and family interviews (Batterjee, 2016; DECD, 2011, 2013a, 2013b; Schmitt & Goebel, 2015). Pedagogy for these specialised schools and programs can vary from partial day enrolment, to all day programs, to school within a school, to early university programs, to residential programs (Cross et al., 2010; Subotnik et al., 2016). Extension, enrichment, differentiation, and acceleration are some approaches these programs may use. Full year acceleration is also common in these programs, and this has been reported to have a positive effect on students (Gronostaj et al., 2016; Wardman, 2014). The curriculum used in specialised secondary school settings also varies greatly. Schools often provide in-depth and advanced exploration of curriculum and special interest areas, and time with field-specific mentors.

Teachers have an important impact on the career development of gifted adolescents (Chen & Wong, 2013; Greene, 2006; Hertzog, 2003; Kerr & Sodano, 2003; Kim, 2013; Maxwell, 2007; Miller & Cummings, 2009; Muratori & Smith, 2015; Perrone, Wright, et al., 2010; Sampson & Chanson, 2008; Schmitt & Goebel, 2015). Evidence indicates that being grouped with teachers who have had additional training and experience in gifted education accounts for many of the specialised school benefits for gifted students (Batterjee, 2016; Coleman et al., 2015; Schmitt & Goebel, 2015; Vogl & Preckel, 2014; Vu, 2011). For instance, teachers with additional training in gifted education may use more effective strategies to assess gifted students, and better target their learning needs (North & Griffiths, 2019). This is likely to lead to higher levels of educational

engagement and attainment. However, teachers in these settings do not always receive this training (North & Griffiths, 2019). Teacher attitudes towards gifted students have been found to impact students' educational outcomes (Cross et al., 2010; Reis, 1998; Thompson, 2016; Tischler, 2006; Vogl & Preckel, 2014). These educational outcomes in turn likely impact gifted students' available career options.

The student-teacher relationships within specialised school settings and programs play a particularly important role (Russell, 2018; Vogl & Preckel, 2014). A quantitative study comparing fifth and sixth grade gifted students in a specialised setting with students in a mainstream setting found the gifted students reported better student-teacher relationships (Vogl & Preckel, 2014). Research has also found that gifted students may value the mentorship bond with their teachers more than the delivery of learning content, and therefore these relationships may have a strong shaping influence on their life choices (Russell, 2018).

Evidence suggests certain teacher traits are important to gifted adolescents, and that teachers' personalities and passions may have more of an impact on gifted students' lives than does their curriculum knowledge (Hertzog, 2003; Schmitt & Goebel, 2015; Tischler, 2006; Watters, 2010). A mixed methods Australian research study by Watters (2010) surveyed 200 first year high performing university students and then interviewed 20 of these students. This study examined the teacher traits most likely to support students' career development, and found connecting with student interests, being passionate, having depth of subject knowledge, and having high expectations of students were highly valued by this population.

Research indicates that gifted students perceive teachers within selective gifted school programs to be more skilled and inspiring than mainstream teachers (Hertzog, 2003; Schmitt & Goebel, 2015; Vogl & Preckel, 2014). In a US study, 50 university students were interviewed

about how being enrolled in gifted programs had affected their lives, and they expressed the belief that they had received a better education as a result of these programs (Hertzog, 2003). Similar to Watters' (2010) findings, one of the biggest differences they cited between gifted and mainstream settings was teacher characteristics, such as higher levels of passion and respect. They also cited their enrolment in these programs as having a direct impact on them being able to effectively follow their career pathways. Teachers in specialised gifted programs often have a strong, career-related influence on their gifted students.

Evidence suggests that being with like-ability peers is an important need for gifted students (Chen & Wong, 2013; Eddles-Hirsch, Vialle, McCormick, & Rogers, 2012; Greene, 2006; Marsh & Hau, 2003; Perrone, Wright, et al., 2010). Gottfredson (2002a) asserted that adolescents tend to make career-related decisions based on perceptions of their intelligence in relation to their peers, so social comparison with peers in specialised school may have an impact on career-related decisions. Enrolment with similar ability peers in specialised school settings may have an impact on students' perceptions of their own intelligence.

There is debate within the literature about whether being labelled as gifted and being enrolled with like ability peers in specialised settings is likely to produce favourable academic, social, and identity development outcomes (Craven, Marsh, & Print, 2000; Ludtke, Koeller, Marsh, & Trautwein, 2005; Marsh & Hau, 2003; Marsh, Trautwein, Ludtke, Baumert, & Koller, 2007; Neihart & Yeo, 2018; Paul & Seward, 2016; Robertson, 2013; Subotnik et al., 2011; Vialle, Heaven, & Ciarrochi, 2007). For instance, research has indicated that gifted students may experience self-concept difficulties in moving from mainstream environments where they can be perceived as being a 'big fish in a little pond', to specialised gifted school settings where they may be perceived as being a little fish in a big pond (Marsh & Hau, 2003; Marsh et al., 2007). For

example, a cross-cultural study of 15 years old students from 26 countries enrolled in academically selective schools surveyed their academic self-concepts and achievement outcomes (Marsh & Hau, 2003). Findings indicated that social comparison processes led to lower rather than higher academic self-concepts. However, US-based research by Robertson (2013) painted a different picture. Robertson's (2013) study surveyed students enrolled in half day selective schools, as well as students in advanced classes within mainstream schools, about their social, emotional, and academic wellbeing. Both groups had strong self-concepts, but the academic self-concepts of students in advanced classes in mainstream schools were lower in relation to those in selective school settings. Students in selective schools were more satisfied with their schools than students in mainstream settings. Questions remain about the educational and career-related impacts that being grouped with like ability peers has on gifted students.

Factors Influencing Gifted Adolescent Girls' Career Development

While some career-related experiences are likely to be common to both gifted adolescent boys and girls, some considerations may be more specific to gifted adolescent girls (Fiebig & Beauregard, 2010; Hollinger & Flemming, 1992; Kerr, 1994; Mendez & Crawford, 2002; Willard-Holt, 2008). This section addresses both the internal and external influential factors on gifted adolescent girls' career trajectories. Firstly, it discusses the role of internal expectations and barriers, followed by the influence of specific career preferences. Then it examines wellbeing considerations specific to gifted adolescent girls. Following that, the influence of external expectations is explored. Finally, the impact mentors and role models can have on gifted adolescent girls' career trajectories is discussed.

Internal Expectations and Barriers. Gifted adolescent girls tend to have high internal expectations for their own academic achievement and career development in comparison to their

typically developing peers (Fiebig & Beauregard, 2010; Greene, 2006; Kerr, 1994; Perrone et al., 2006). However, as mentioned in Chapter One, debate exists over whether or not these high career aspirations remain throughout secondary schooling (e.g., Armstrong & Crombie, 2000; Cassie & Chen, 2012; Fiebig & Beauregard, 2010; Lee & Rojewski, 2009; Patton & Creed, 2001; Perrone et al., 2006). Some research has asserted that the end of secondary schooling coincides with a lowering of career aspirations for gifted adolescent girls, particularly those aiming for prestigious or non-traditional careers (Cassie & Chen, 2012; Patton & Creed, 2001). In contrast to these findings, however, more recent research has asserted that gifted girls today are likely to maintain high career aspirations throughout secondary school (Fiebig & Beauregard, 2010; Perrone et al., 2006).

Career self-efficacy is a key principle in several prominent career development theories (e.g., Eccles, 1994; Lent, Brown, & Hackett, 1994), and plays an influential role in career development. Self-efficacy can be defined as "people's beliefs in their ability to perform specific behaviours or courses of action" (Lent, Lopez, Sheu, & Lopez, 2011, p. 184-185). In particular, career self-efficacy is "an umbrella term for self-efficacy beliefs with respect to possible career-related domains of behaviour" (Betz & Hackett, 2006, p. 6). Research emphasises that lacking self-efficacy in fields such as mathematics and science is more often a career-related barrier than actually lacking mathematics and science abilities (Bandura et al., 2001; Patton & Creed, 2007a; Watt et al., 2012). Lower levels of career-related self-efficacy for females in fields such as STEM can be partially credited to gendered socialisation practices and females choosing fewer mathematics classes in their final years of secondary school (Watt et al., 2012). Studies also suggest that gifted individuals tend to lower their perceptions of their own giftedness over time (Subotnik & Arnold, 1994; York, 2008), and this could also have an impact on career-related

decision-making processes and goals. Confidence, a closely related concept to self-efficacy, also impacts career trajectories. Thompson (2016, p. 179), a professional coach of gifted children and adolescents, asserts, “There is no other human facet that more affects the outcome of a child’s life than their self-image. It’s the way they see themselves, their confidence in their own abilities.”

Academic underachievement can impact gifted adolescents and may result in more narrow career-related options after secondary schooling (e.g., Kerr, Vuyk, & Rea, 2012; Neihart, 2006; Rakow, 2005; Reis, 1998; Reis & McCoach, 2000). This can be defined as a significant gap between expected potential and actual performance (Reis & McCoach, 2000). It has been observed that academic underachievement occurs more frequently for gifted girls in comparison to gifted boys (e.g., Neihart, 2006; Rakow, 2005; Reis, 1998). Female tendencies towards lower STEM-related, self-efficacy can contribute to underachievement for gifted girls (Neihart, 2006). Kerr, Vuyk, and Rea (2012) suggested in their review of literature that gifted girls may also draw less attention to themselves, and as a result instances of underachievement may go unnoticed. Nevertheless, in terms of academic achievement within Australia, boys are now widely considered to be disadvantaged in comparison to girls (Teese, 2007). However, to make strong generalisations about school achievement patterns of gifted individuals in Australia, further research is required. Regardless, the tendency for some gifted adolescent girls to mask their own abilities is an important factor to consider when examining their career-related decision-making processes and goals. Given the focus of this project has been on intellectually gifted students within selective secondary school programs, academic underachievement may not be as relevant to this study population.

Career preferences. A few more recent studies have focused on the career decision-making processes of gifted adolescents (e.g., Jung, 2014, 2017; Kerr & McKay, 2014; Mendez & Crawford, 2002; Perrone, Tschopp, et al., 2010). Along with high internal expectations for future

career success, gifted adolescent girls may exhibit more flexibility than their peers relating to gendered norms in their career aspirations. Literature indicates that gifted adolescent girls' career aspirations are more likely to mirror gifted adolescent boys rather than their other female peers (Kerr & McKay, 2014; Mendez & Crawford, 2002; Terman, 1925). Kerr and McKay (2014) assert that interests, aspirations, and play activities are more similar between gifted adolescent boys and girls than between gifted and typically developing girls. Silverman (1993) suggested that gifted girls have higher and more unusual career aspirations than their peers, particularly in middle school years. Mendez and Crawford's (2002) US-based, quantitative study compared the career aspirations of more than 200 gifted boys and girls in Grades 6-8 enrolled in a specialised gifted program. They used a range of questionnaires on preferred occupations, personal attributes, work and family orientation, and attitudes towards women. Parents also participated in the study. The gifted girls compared to the gifted boys had more gender-role flexibility in their career aspirations, but lower interest in highly prestigious careers. However, gifted girls who saw themselves as being the hardest working were more likely to aspire to prestigious careers.

Research indicates that beginning romantic interests or moving into stable romantic relationships can influence females to consider more traditionally female career aspirations even in adolescent years, and this can have an impact on their career trajectories (Johnstone, Lucke, & Lee, 2011; Lirio et al., 2007; Meinster & Rose, 2001; Perrone, Civiletto, Webb, & Fitch, 2004). Fox (2010) suggested that the way females combine relationships, family, and work has more of an impact on their levels of career success than any other factor. For example, a longitudinal study from the United States included interviews and survey responses from adults who had received high rankings in their secondary school results, and examined factors influencing career development (Perrone et al., 2004). Findings indicated that both participants' family and

workplace relationships during the study were either the most enabling or the most inhibiting factors in career development.

Social contexts. Navigating and negotiating social reproduction in career trajectories begins early for gifted girls as conceptions of gender, culture, socioeconomic status, and intelligence form (Gottfredson, 2002a). Research suggests correlations between specific variables (i.e. gender, location, and socioeconomic status), and career aspirations (e.g., Cochran et al., 2011; Johnstone et al., 2011; Napier, July, 2012; Towman, 2008). For instance, an unpublished analysis of the 2003 longitudinal survey of Australian youth (LSAY) (Napier, 2012, July) explored the association between gender, socioeconomic status (SES), and geographic location on career aspirations of Grade 10 youth academically achieving in the top decile of combined reading, mathematics, and science scores in the Programming for International Student Assessment (PISA). While academic achievement is only one indication of giftedness, these findings indicated that gender was associated with career aspirations in that females more frequently included managerial occupations, professional occupations, and low skilled occupations than did males. Low-SES was associated with lower occupational aspirations, especially for females. For instance, almost five times as many low-SES high academic achieving females in the LSAY study aspired to clerical, sales, and services occupations in comparison to their high-SES counterparts. A regional difference was also notable, with rural and urban females more frequently citing managerial and professional career aspirations than their regional counterparts. These findings point to socioeconomic status and location as important influences in high ability adolescent girls' career aspirations.

External expectations. Pressure to consider prestigious fields can be felt by some gifted adolescent girls regardless of their career self-efficacy levels (Chen & Wong, 2013; Fiebig &

Beauregard, 2010; Greene, 2006; Miller & Cummings, 2009; Nelson & Smith, 2001; Seward & Gaesser, 2018; Willard-Holt, 2008; Wood et al., 2018). This pressure could come from a range of sources such as parents or teachers (Chen & Wong, 2013; Greene, 2006; Seward & Gaesser, 2018; Wood et al., 2018). It has been suggested that gifted girls compared to gifted boys may weigh peer and family opinions more heavily in defining their potential educational or occupational directions (Nelson & Smith, 2001). Miller and Cummings (2009) indicated mothers in particular have a strong career-related influence on their daughters. According to findings from Fiebig's (2010) four year, mixed methods longitudinal study of German and American adolescent girls, gender role attitudes of mothers had a strong influence on participants' career aspirations. Mothers' attitudes impacted their daughters' career goals in terms of prestige as well as whether or not they were interested in jobs that were traditional, non-traditional, or neutral for females. Willard-Holt's (2008) US-based study of gifted female pre-service teachers resulted in a peer reviewed journal article entitled "You could be doing brain surgery: Gifted girls becoming teachers". The study shed light on external career-related expectations experienced by that population, finding that the majority of participants received negative or mixed messages from other significant people who believed teaching was not a sufficiently prestigious career for gifted females. External pressures play varying roles in the career-related decisions and goals of gifted adolescent girls.

Wellbeing considerations. In addition to high external expectations, internal expectations, and other barriers, gifted adolescent girls may have additional wellbeing considerations. While navigating the many unfolding work/life balance issues is common to all adolescent girls, it can be a more challenging issue for gifted adolescent girls in comparison to their peers as they plan their career pathways (Greene, 2006; Meinster & Rose, 2001; Mendez & Crawford, 2002; Neihart & Yeo, 2018; Reis, 1998; Robertson, 2013). These work/life balance challenges can begin in

adolescence, and are often linked to the demands in their private lives such as romantic relationships or other caregiving responsibilities (Meinster & Rose, 2001). Gifted adolescent girls may lack the practical life planning skills to live the full and balanced lives they would like (Reis, 1998).

Mentors and role models. While many adolescents would likely benefit from strong career-related mentorship relationships, some gifted adolescent girls may have a particularly strong need for individualised mentorship opportunities (Beck, 1989; Kerr & Gahm, 2018; Neihart & Yeo, 2018). This is especially the case if they are planning to enter fields considered non-traditional or neutral for females, or if they are on pathways of eminence in a particular field (Kerr & Gahm, 2018; Kerr & Kurpius, 2004; Kronborg, 2010; Neihart & Yeo, 2018; Rimm et al., 1999; Schlosser, 2001; Thompson, 2016; Towman, 2008). These aspirations likely need early nurturing due to issues such as long-term planning necessary to effectively develop significant talents or barriers to talent development (Kerr & Gahm, 2018; Neihart & Yeo, 2018). As mentioned earlier, reflective narrative studies of highly accomplished or eminent women often cite mentors and role models as having played key roles in their talent development (Kronborg, 2010; Rimm et al., 1999; Schlosser, 2001; Towman, 2008). Appropriate career-related mentorship relationships are likely to be enabling factors in gifted adolescent girls' career development.

A review of literature by Kerr and Graham (2018) highlighted the important influence that connecting with a master teacher or mentor can have for gifted adolescent girls with field-specific talents. They asserted that eminent individuals all had at least one mentor to help them develop their abilities. To build strong relationships with career-related mentors, gifted adolescent girls may need formal community or field-specific mentorship programs as well as instruction on personal skills such as the resilience and hard work needed for these complex relationships (Kerr

& Gahm, 2018; Neihart & Yeo, 2018). Mentorship was an important element in Kerr and Kurpius' (2004) longitudinal study with over 500 adolescent girls (ages 11-20) focused on providing additional guidance in mathematics and science career fields. These participants had high grades in math and science, and were considered to be at a high risk of not achieving their career goals. This study found that career-specific mentors in mathematics and science, along with other interventions such as career interest inventories, personality tests, and discussions of how at-risk behaviours impact career development, served to strengthen girls' career-related self-efficacy and knowledge. These interventions were also found to lower participants' at-risk behaviours. Concerns about limited networking opportunities needed to open doors in STEM fields have been also been voiced by high achieving females (Feyerherm & Vick, 2005; McMahon et al., 2002). Programs providing field-specific mentorship can provide enabling influences for highly able adolescent girls.

Research indicates that some aspects of career-related mentorship relationships may be more valued by female gifted students than male gifted students (Beck, 1989). In a study by Beck (1989), 188 male and female secondary gifted students involved in a school coordinated career mentorship programs found links with community mentors enabled them with information, networking skills, guidance, and decision-making skills. It also found that females in comparison to males much more highly valued the planning help given by mentors for effective future work/life balance. The gender of the mentors also had an impact as the gifted adolescent girls cited learning more risk taking and independent work skills if their mentor was female.

Summary

Both internal and external influences play important roles in the career development of adolescent girls, gifted adolescents, and gifted adolescent girls. This review of literature on factors

influencing the career development for these populations has highlighted both the similarities and differences across these overlapping groups. All typically experience a range of external and internal expectations and barriers. Some specific factors influence all three groups, such as the changing nature of employment and a need for mentors. All three groups are likely to have career-related wellbeing concerns.

Gender-based career-related external barriers issues such as social expectations of appropriate careers for females are likely to be experienced by adolescent girls, and this may especially be the case for girls entering non-traditional career fields for females (Arnold et al., 1996; Cochran et al., 2011; Johnstone et al., 2011; Kronborg, 2010; Lirio et al., 2007; Mendez & Crawford, 2002; Rudasill & Callahan, 2010; Schoon et al., 2007; Schoon & Polek, 2011). The career-related values of adolescent boys and girls are likely to be different. Adolescent boys tend to value career-related external measures of success compared with adolescent girls who are more likely to value balancing relationships with their careers.

Gifted adolescent boys and girls are likely to share some of the same career-related experiences and preferences. They may be more attracted to certain fields, and particularly inclined to investigative, practical, or not-for-profit careers (Bronk et al., 2010; Eccles, 1994; Greene, 2006; Jung, 2017; Kerr & Sodano, 2003; Miller & Cummings, 2009; Ozcan, 2017; Reis, 2005; Sparfeldt, 2007; Vock et al., 2013). This population is likely to be attracted to jobs providing both challenge and enjoyment (Jung, 2019). Gifted adolescents are also likely to experience both high internal and external expectations for their own future career-related success (e.g., Garn et al., 2010; Greene, 2003; Kerr & Sodano, 2003; Mudrak, 2011; Neihart & Yeo, 2018). They may exhibit early career maturation in comparison to their peers, and therefore their ability to access appropriate school-based career supports may be challenging depending on their school contexts

(Neihart & Yeo, 2018). Some specialised school settings can provide many different opportunities which can support both their academic and career pathways (e.g., Bruce-Davis et al., 2014; Jen & Moon, 2015; Stein et al., 2016; Stoeger et al., 2017; Subotnik et al., 2016). Common career-related social and emotional traits of gifted adolescents such as sensitivity, passion, and intensity may impact their career-related needs and trajectories (Chen & Wong, 2013; Fiebig, 2008; Greene, 2006; Henderson & Jarvis, 2016; Jung, 2018; Miller & Cummings, 2009; Muratori & Smith, 2015; Ozcan, 2017; Renzulli, 2012; Thompson, 2016; Wood, 2010). Mentors are particularly important for gifted adolescents in their career trajectories (Casey & Shore, 2000; Csikszentmihalyi et al., 1997; Freeman, 2001; Gagné, 2003; Grassinger et al., 2010; Little et al., 2010; Maxwell, 2007; Paul & Seward, 2016; Rysiew et al., 1999; Subotnik et al., 2010; Subotnik et al., 2011; Thompson, 2016).

Gifted adolescent girls are likely to have some unique career-related experiences that differ from their peers (Fiebig & Beauregard, 2010; Hollinger & Flemming, 1992; Hollingworth, 1942; Jung, 2014, 2017; Mendez & Crawford, 2002; Ozcan, 2017; Perrone, Wright, et al., 2010; Seward & Gaesser, 2018; Subotnik & Arnold, 1994; Vock et al., 2013; Watters, 2010; Willard-Holt, 2008). They may experience a mix of external expectations for their future career success (Chen & Wong, 2013; Fiebig & Beauregard, 2010; Greene, 2006; Miller & Cummings, 2009; Nelson & Smith, 2001; Seward & Gaesser, 2018; Willard-Holt, 2008; Wood et al., 2018). Gifted adolescent girls in particular may have heightened career-related wellbeing concerns due to a range of complex factors (Greene, 2006; Meinster & Rose, 2001; Mendez & Crawford, 2002; Neihart & Yeo, 2018; Reis, 1998; Robertson, 2013). They may adhere less to gendered norms in their primary career aspirations than their peers (Kerr & McKay, 2014; Mendez & Crawford, 2002; Terman, 1925). Securing appropriate role models and mentors seems especially important to gifted adolescent girls

in comparison to their peers, particularly if they are considering entering fields considered non-traditional for females (Kerr & Gahm, 2018; Kerr & Kurpius, 2004; Kronborg, 2010; Neihart & Yeo, 2018; Rimm et al., 1999; Schlosser, 2001; Towman, 2008).

This literature review has demonstrated that a contemporary, local study focusing on the career development experience of gifted adolescent girls was needed. While we do have some knowledge about this, still little is known. An in-depth understanding of potential career-related issues may help close the gap in understanding the differences between gifted adolescent girls' career aspirations and outcomes. Paving the way for future research, informing policy development, and adding new knowledge to existing career development theories were also aims of this research.

CHAPTER 3: THEORETICAL FRAMEWORK

The purpose of this chapter is to review the history of career development theories, and to provide a detailed overview of the blended theoretical framework used in this thesis. Examining career development theories provides insight into the ways career-related choices, changing contexts, and individuals interact over time. These theories bring light to psychological and sociological influences on career development. Four waves of career development theories linked with specific decades spanning from early last century to modern days are discussed in this chapter. Important ideologies developed in each of these four waves are highlighted. This historical review lays the groundwork for the design of the blended theoretical framework appropriate to this study.

Gottfredson's (2002a) theory of circumscription, compromise, and self-creation and Savickas' (2002) career construction theory were integral to the design of this research. Together these two age- and stage-based developmental theories provide a holistic picture of career development. They also provide a range of important career-related sociological and psychological concepts which are relevant for understanding factors influencing the career development trajectories of gifted adolescent girls.

Career Development Theories - A History

This section reviews the history of career development theories because "vocational behaviour encompasses a large domain of inquiry – too large to comprehend all at once, too vast a sphere of thought and action for one theory to conceive fully" (Savickas, 2002, p. 149). One valuable approach to summarising such a broad field of inquiry is to examine the contribution key theories make to our understandings. Various theories provide research-based perspectives on career development processes. Much of what is known about career development for gifted

adolescent girls can be illustrated through what is known about career development across the lifespan, but also through theories specifically addressing adolescent years.

Global societal changes and emerging ideologies are reflected in the progress of career development theories over time. The career guidance movement began in the early 1900's with a strong social justice emphasis on finding the right person for the right job (Savickas, 2009d). While the field of career development continues to focus on social justice, it is shifting more to an emphasis on individuals' self-actualisation. Markers of effective career-related self-actualisation now incorporate gaining workplace success along with high levels of wellbeing, flexibility, and technology skills (Savickas, 2005). Effectively intertwining a successful career along with a breadth of other life roles is also a current focus (Savickas, 2012a). Given changes in the global marketplace and the nature of modern work, advancing career development theories continues to be necessary.

The first wave: Early 1900's to 1940's. The first wave of career development theories emphasised reciprocal interactions between the context and the individual. The career development movement originally addressed individual differences, appropriate job matching, and social justice issues (Hartung, 2009). Parson is credited with launching the career guidance movement with his book *Choosing a Vocation* (1909). He first launched the trait-and-factor theory of career development emphasising the way personal traits match effectively with certain job role requirements (Beale, 1998). Parson also outlined a process of career development, job classifications, and career counsellor roles.

Foundational figures focusing on the career development of gifted females were Leta Hollingworth (1916a) and Harry Hollingworth (1916b). They used research-based arguments

claiming men and women as intellectually equal and able to occupy any occupational roles. Essentially, Leta Hollingworth's career had two main stages, with one focusing on the psychology of women and the other on the development of gifted children (Silverman, 1989). Silverman's (1989) summary of Hollingworth's life work claims the way she publicised aspects of Terman's (1916) foundational study relating to equal or superior intellect of gifted girls in comparison to gifted boys was an influential factor in the women's rights movement. Silverman points out that Hollingworth's research was focused on the limiting roles that social contexts such as socioeconomic status and access to education sometimes play in women realising their intellectual potential. Like Terman (1916; 1925), Hollingworth used the Stanford-Binet test as a basis for identifying and following high-IQ children during her longitudinal studies.

The second wave: 1950's – 1970's. The second wave of career development theories emphasised individual developmental changes over time. Ginzberg's (Ginzberg et al., 1951) theory of occupational choice was the first career theory to "view occupational choice from a developmental perspective" starting in early childhood (Beale, 1998, p. 296). Ginzberg's greatest contribution was recognising occupational decisions are closely linked with developmental stages.

Building on the work of Ginzberg et al. (1951) the first life-span career theory was developed by Super (1953, 1990). Super focused on the complexity and variety of life roles, and occupational role commitment. His theory, spanning almost forty years in development, clearly addressed sociological influences. Super's (1990) life-career rainbow model contributed to understandings that individuals balance career roles along with other important life roles such as parenting and leisure. Multipotentiality was first addressed in career development theories in Super's landmark 1953 publication. He stated that a basic assumption of career development is that individuals have multiple pathways for career-related success and satisfaction. However, he

noted that the concept of multipotentiality was first developed by the military in World War I as a measure of high intelligence (Super, 1953). Nevertheless, research and debate continues in the field regarding whether or not this is a valid indication of high intelligence (Sampson & Chanson, 2008). As discussed in Chapter Two, this is an issue some gifted adolescents may navigate in their career trajectories.

The third wave: 1980's – 2000. Workplace contexts and sociological tensions were emphasised in the third wave of career development theories. A deeper focus on workplace environments, engagement, and adjustment building on Parson's (1909) trait-and-factor work began to emerge. Key third wave theorists were Holland (1997) and Dawis and Lofquist (1984). Dawis and Lofquist's Minnesota theory of work adjustment (1984) examined workplace engagement processes over time. Holland's (1997) theory examined ways individual traits can be effectively matched with field-specific characteristics. However, the personality categories in Holland's work are a general guide that can "both construct and constitute" realities (Savickas, 2012b). In other words, Savickas (2012a) acknowledged that the language used for the basic categories of Holland's work can be a means for self-reflection, interpretation, and shaping of one's own career-related knowledge.

Holistic, social-cognitive third wave theories also emerged emphasising additional, previously unacknowledged complexities. Three leading theorists, namely Eccles (1994), Lent, Brown and Hackett (1994), and Gottfredson (1981, 2002a), led the way on developing psychosocial understandings in the field. Career-related self-efficacy also became an important thread throughout this era. Eccles (1994) and Gottfredson (1981, 2002a) were the first theorists to highlight the career development of gifted females.

The fourth wave: 2000 – the present. The fourth wave of theories emphasised individual development in changing contexts over time. In general,

> The most recent milestone has been the contemporary proliferation and advancement of constructivist-social constructionist and narrative approaches to career that emphasize life themes, relationship, story, and meaning making. The constructivist-social constructionist tradition affords a comprehensive, holistic, contextualized perspective on career counselling and development for creating self in work and career. (Hartung, 2009, p. 100)

Theorists such as Savickas (2005) and Krumboltz (2009) addressed the career-related impact of the changing world.

The three themes of wellbeing, social justice, and the changing nature of a transient and technologically advanced workforce are currently prominent themes in career development literature. These themes were explored in relation to the career development of gifted adolescent girls in Chapter Two. Wellbeing in career development is gaining increasing research attention in cross-discipline collaborations in psychology, sociology, and education (Savickas, 2009d). Wellbeing and work/life balance have historically been strong themes in women's career development literature, but these themes are now being more specifically examined. Savickas' (2002) career construction theory, building on the work of Super's (1980) life-career rainbow, addressed the three key themes of social justice, wellbeing, and the changing nature of the world of work. It focused in on individuals' core life stories evolving over time.

These theories lay the groundwork for a need to explore the internal and external influences on career development for gifted adolescent girls within our changing world. They illustrate those theories that are most likely to be relevant to this population due to gender, ages, and the contexts of modern life. Many of these theories draw on the field of psychology, but some also are also embedded in sociology. The influential career-related factors that are highlighted in both

disciplines are important to explore when researching this population. They can help shape research design and analysis.

Gottfredon's (2002a) theory of circumscription, compromise, and self-creation as well as Savickas' (2002) career construction theory were blended to form the theoretical framework that guided this project. These two theories align with the foundational principles of social constructivist epistemology and interpretivist methodology (Lincoln, Lynham, & Guba, 2011) used in this study, and this will be further discussed in the following chapter. Gottfredon's (2002a) theory and Savickas' (2002) theory also bring together both sociological and psychological perspectives, which are important when addressing the topics explored in this project's research questions. Career development according to specific ages and stages are key elements these theories highlight, which facilitate questions being answered about how gifted adolescent girls' career-related experiences align with these developmental stages.

As both the previous chapter and this historical review indicate, there is a paucity of career development theories focused on gifted adolescents in general (Jung, 2017), and gifted adolescent girls more specifically. The literature that does exist is primarily focused on individual influential factors on gifted adolescents' career trajectories such as perfectionism and multipotentiality (Jung, 2017). Jung's (2019) models are the only theories that foreground gifted adolescent students. However, these models were only in their early development during the design of the theoretical framework for this research. These empirically verified career decision-making process models (Jung, 2019) would likely be useful in future research on gifted adolescent girls. Given Jung's (2019) focus on the influence of culture, his models would be particularly helpful in future studies comparing sub-sets of gifted adolescent girls from different cultural groups.

A number of other prominent career development theories were considered including those by Eccles (1994), Lent, Brown and Hackett (1994), and Krumboltz (2009), but were not used in designing the theoretical framework of this project for a range of reasons. While some career development theories exist on adult females (e.g., Eccles, 1994, Reis & Sullivan, 2009), these theories were not chosen for this project due as they focus on adult years and this research is concerned with development in adolescence. Lent, Brown and Hackett's theory (1994) was not selected as its emphasis on self-efficacy was so strong, and did not more fully explore other influential factors on career development. The career development theory by Krumboltz (2009) was not used due to its narrow focus on chance and happenstance. As for Jung above, while it could be argued that Dawis and Lofquist's (1984) Minnesota theory of work adjustment could be applied to this population (Jung, 2019), it was not selected for this study as it only included students engaged in full-time study rather than work. However, Dawis and Lofsuist's (1984) theory could be useful for researching gifted females in post-secondary schooling years. Due to the research questions being focused on development rather than the ways personal traits lead to specific career choices, trait-and-factor theories (e.g., Parson, 2009, Holland, 1997) were also not chosen to guide this project.

The main strengths of merging Gottfredon's (2002a) theory of circumscription, compromise, and self-creation and Savickas' (2002) career construction theory are that they have some overlapping themes, and together they address the full age range of participants. As will be discussed in depth in the next chapter, this study contained two rounds of interviews. Originally it was decided Gottfredson's (2002a) theory would provide the primary theoretical framework for this study. This age and stage theory primarily focuses on three to 13-year-olds, and examines ways identity categories such as gender and intelligence influence career-related decisions. Key

concepts from Gottfredson's (2002a) theory such as circumscription, compromise, gender, and intelligence guided the first interview questions and related analysis, and this will be discussed later in this chapter. However, following the initial rounds of interviews it became clear, given both the theory's age range focus and its lack of attention to modern working realities adolescents are planning to navigate, that it was insufficient. It also became clear that Gottfredson's (2002a) theory did not provide sufficient guidance in understanding the overarching picture of these participants' career development experiences, whereas Savickas' (2002) theory focused on discovering the subjective lifetime stories of each individual. Savickas' (2002) theory spans childhood through to retirement ages. It is primarily focused on the ways individuals increasingly form their own interrelated career and life stories within a changing world. Nevertheless, both theories give limited attention to the developmental factors influencing career trajectories during early adolescent years. The second interview questions and related analysis included key concepts from Savickas' (2002) theory such as beginning life narratives and dynamic processes. Essentially, the final analysis of all data brought the key ideas of both theories together in the findings.

Theory of Circumscription, Compromise, and Self-creation

Gottfredson's (2002a) career development theory is the most commonly cited theory in the literature related to the career development of gifted females. The theory of circumscription, compromise, and self-creation closely links identity categories with ways individuals make career-related decisions. "In particular, [it concludes that] career choice is a developmental process beginning in childhood; occupational aspirations reflect people's efforts to implement their self-concepts; and satisfaction with career choice depends on how well that choice fits the self-concept" (Gottfredson, 1996b, p. 181). Her work particularly focuses on the influence of socially constructed roles rather than individual characteristics (Gottfredson & Lapan, 1997). However,

she proposes that individuals' perceptions of their personal traits play a key role in career-related decisions during adolescent years.

The following sections address the key concepts and stages in the theory of circumscription compromise, and self-creation (Gottfredson, 2002a). Definitions of some of the main theoretical concepts are included in Table 1 below. The ways this theory illustrates individuals as aligning their own identity categories with specific occupations are discussed. Gottfredson's specific career-related developmental tasks, as linked with specific ages, are presented.

Gottfredson's original research was driven by her own career development experiences, and questions about career-related social inequalities (Gottfredson, 1996b). Her seminal 1981 publication entitled *Circumscription and compromise: A developmental theory of occupational aspirations* addressed the question of why children mirror the career-related inequalities of their elders before facing any personal experiences of career-related roadblocks. Her theory seeks to explain social reproduction of careers within homogenous social circles (1981, 2005). This theory is relevant to the current study as some aspects directly cover adolescent career-related decision-making, as well as influential factors from childhood that could still influence these adolescent choices.

Gottfredson's research melds the strengths of both vocational psychology and sociology (Gottfredson, 1996b).

> The founding evidence for different aspects of the 1981 theory varied in amount and quality, ranging from the much replicated and meta-analysed (patterns of vocational interests and aspirations, cognitive growth and diversity, heritability of behaviour, and social inequalities) to the sparsely reported (priorities in circumscription and compromise). (Gottfredson, 2005, p. 84)

The elements of circumscription and compromise have received the most attention in subsequent research (Gottfredson, 1996a, 2002a).

A number of aspects make this career development theory unique. Gottfredson focuses on childhood career development within age ranges, whereas all other prominent theories begin in adolescence or adulthood. In contrast to other theories focused on matching individual traits with specific careers, Gottfredson (2002a) proposes that career development is primarily a process of individuals finding an appropriate social niche (Gottfredson, 2002a). Gottfredson (1981, 1996b, 2002a) makes a unique contribution by highlighting that career pathways not taken are just as significant as those that are. Her career development theory stands alone in its inclusion of self-perceptions of intelligence playing a key role in career-related decisions (Gottfredson, 1981, 2002a). This point makes her theory especially relevant to gifted individuals due to the high IQ of intellectually gifted adolescents. While some theories include gender as an influence on career-related decisions, she places the construction of career-related sex roles at the heart of her theory. The theory of circumscription, compromise, and self-creation (Gottfredson, 2002a) is also especially relevant to this project because it helps shed light on the role of gender in the career development of gifted adolescent girls.

Table 1.

Definitions of Key Terms in the Theory of Circumscription, Compromise, and Self-creation

Key Terms	**Definition**
self-concept	Self-concept refers to one's view of oneself – of who one is both publicly and privately (Gottfredson, 2002a, p. 88).
occupational stereotype	The personalities of people in those occupations, the work they do, the lives they lead, the rewards and conditions of the work, and the appropriateness of that work for different types of people (Gottfredson, 2002a, p. 88).
social space	The range of alternatives within the cognitive map of occupations that the person considers acceptable . . . [and this] reflects the individual's view of where he or she fits best into society (Gottfredson, 2002a, p. 91).
circumscription	The process by which youngsters . . . progressively eliminate unacceptable alternatives in order to carve out a social space (their zone of acceptable alternatives) from the full menu that a culture offers (Gottfredson, 2002a, p. 92-93).
compromise	The process by which youngsters begin to relinquish their most preferred alternatives for less compatible ones that they perceive as more accessible . . . [and this] can occur either in anticipation of external barriers (anticipatory compromise) or after they are encountered (experiential compromise) (Gottfredson, 2002a, p. 93).

Cognitive map of occupations. Gottfredson (2002a) claims children form cognitive maps of occupational stereotypes based on their immediate social influences and experiences. She asserts individual career-related conceptions of sex roles, prestige levels, and intelligence levels are primarily navigated at specific ages and developmental stages. Gottfredson's research suggests individuals hold relatively uniform, universal occupational stereotypes that become crystallised by adolescence. For instance, being a surgeon is likely to be considered prestigious by most

adolescents. By way of other examples, adolescents are more likely to consider STEM careers or firefighting as more appropriate for males than careers in education.

Developmental stages. Gottfredson (1981) based her developmental stages on Van den Daele's (1968) description of cognitive development and childhood ego-ideals formation. Of particular note to this study, the theory acknowledges that individuals whose mental ages and chronological ages differ are likely to progress through these stages at different rates (Gottfredson, 2005). Four main age-related stages are referenced in the theory (Gottfredson, 2002a).

In Stage One (ages 3-5) individuals orient to size and power differences between people. They understand working in a job as a primary difference between children and adult worlds. During Stage Two (ages 6-8) individuals orient to sex roles, and these roles are closely linked with specific occupational stereotypes. They begin to decide which future work-related roles they are likely to want to pursue based on their own sex. According to this theory, individuals are likely to align themselves with gendered norms in their career choices. In the course of Stage Three (ages 9-13), individuals orient to social valuation by recognizing social class and role models. For instance, they may look to their career-related role models to help decide what levels of salary they will need to pursue their preferred future lifestyle. Weighing up social implications of choosing a high profile career such as lawyer or a less prestigious job such as in construction work may be taking place. This theory claims individuals at this stage weigh up their own general level of intelligence in relation to their school peers when making personal career decisions. They are likely to pursue similar jobs to peers they view as having similar levels of intelligence. Lastly, in Stage Four (ages 14 and above) adolescents become more oriented to their internal goals and self-concepts by developing career-related interests, abilities, personality traits, and values. Given the advanced cognitive abilities of gifted individuals, this may occur at earlier ages. Individuals may

be making decisions about narrowing school subject areas or focusing on extracurricular interests such as drama classes or not-for-profit volunteering to further explore their related career aspirations.

This theory indicates that adolescent career-related self-discovery is navigated only after Stages One, Two, and Three (1981, 2002a, 2005). Very little focus is given to Stage Four in Gottfredson's work. Given this study focuses on secondary students who are likely to be aged 13–18, Stage Four of her theory is the most relevant to this study. However, decision-making processes undertaken in Stages One, Two, and Three may also be relevant as these earlier processes are likely to have a strong impact on adolescent choices.

Gottfredson (1981) claimed a fifth stage, mirroring Van den Daele's model which included the integration of a world view of humanity. However, Gottfredson argued this fifth stage was only possible for a small fraction of adolescents. It could be argued that some high IQ individuals might reach this stage five during adolescence based on common gifted traits such as social justice and sensitivity (Callahan, 2017; Greene, 2006).

Circumscription, compromise, and self-creation. The two aspects of Gottfredson's theory that have received the greatest attention in the research literature are circumscription and compromise. The theory (Gottfredson, 2002a) postulates that children aim to create compatibility between their self-concepts and a cognitive map of socially valued occupations through a narrowing process of circumscription. In other words, they narrow their career options by examining their own abilities and society's perceived viewpoints of their own aspirations. Gottfredson claims individual career choices are more heavily weighted towards social acceptance rather than individual psychological development (Gottfredson, 2002a). Social acceptance can be

particularly challenging for gifted individuals, and may be easiest to achieve with their like ability peers (Schmitt & Goebel, 2015). Gottfredson (2002a) claims narrowing career choices is linked to deepening childhood perceptions of sex roles, prestige, and intelligence. She claims sex roles are at the core of career decisions, and are the least likely personal norms to be challenged in career-related decisions (e.g., Gottfredson, 2002a; Gottfredson & Lapan, 1997). However, as the literature has indicated, gifted adolescent girls tend to display more flexible career-related gendered norms than their peers so this may not be as much of a consideration for gifted girls (Kerr & McKay, 2014; Mendez & Crawford, 2002; Terman, 1925).

Gottfredson's theory outlined a contrast between anticipatory and experiential compromise. Anticipatory compromise is defined as compromises made when occupations are perceived as not accessible or realistic (Gottfredson, 2002a). For example, meteorology or performing arts careers could be perceived by some individuals as less accessible than careers in law or education. Experiential compromise occurs when individuals alter career aspirations in response to experiences they have when either working or seeking work. For example, if individuals experience discrimination during work placements within a field or have difficulty obtaining an entry level job, according to this theory it is likely that they will change their career direction. Few studies exist on anticipatory and experiential career-related compromises. It is possible that due to some gifted individuals having advanced problem solving skills (Callahan, 2017), they might approach anticipatory or experiential compromise differently from their typically developing peers. Gifted individuals may be able to better predict career-related barriers, or they may find more unusual or creative solutions when faced with real life career development challenges. For instance, a gifted individual having difficulties obtaining an entry level job may

choose instead to create their own occupation within their desired domain by opening their own small business.

Gottfredson and IQ. Gottfredson researched links between high IQ and success in everyday life and careers. She (2002b) argued, based on longitudinal research on gifted individuals by Subotnik and Arnold (1994), that life outcomes spanning from health to relationships to work settings tend to be better for gifted individuals compared to their peers. Other early longitudinal research supports these findings (Terman, 1925; Terman & Oden, 1959). However, Terman's study has been highly criticised due to too much emphasis being placed on IQ; a sample biased towards socioeconomically advantaged participants from the dominant cultural group; and undue focus on genetic rather than environmental influences on the development of gifted behaviours (Warne, 2019). For instance, his claim that intelligence is the single most powerful predictor of overall job performance in all careers was criticised by Gottfredson (2003). Nevertheless, as discussed in Chapter One, participants in this research may be on trajectories for future high levels of career attainment.

A number of career-related issues relevant to modern adolescents are not addressed in Gottfredson's (2002a) theory of circumscription, compromise, and self-creation. It is possible this was due to the main focus being on individuals aged 13 and under. Given the potentially advanced career development of study participants in this current study, it is important to also draw on a theory that illustrates what advanced career development might resemble. Middle to late adolescent issues such as how they develop their career-related values or begin to explore the world of work are not addressed in detail in Gottfredson's work. Including a theoretical basis for exploring these changes relevant to today's adolescents is important.

Career Construction Theory

Gifted adolescent girls are faced with making important career-related decisions within unpredictable career landscapes. Understanding individual narrative life themes within the context of the changing world is at the core of Savickas' (2002) career construction theory. His work reflects a blend of both sociology and psychology. Savickas defines career development in terms of overarching lifetime stages of development, goals, and tasks. The three main lifetime stages of development outlined in his theory (2002) are entitled Self as Actor, Self as Agent, and Self as Author. Savickas defines five main sequential lifetime goals as being Growth, Exploration, Establishment, Management, and Disengagement. Each one of these lifetime goals contains a range of accompanying sequential major developmental tasks in which individuals may have varying patterns and successes. In particular, due to their chronological ages, gifted adolescent girls are likely to be in the Self as Actor or Self as Agent lifetime stages, and focused on fulfilling the lifetime goals of Growth and Exploration.

Savickas' (2002) career construction theory pays much attention to career development issues in middle to late adolescent years, but with only minor references to childhood and early adolescent years. It highlights career development as being embedded in modern multicultural societies and global economies. The theory also highlights the career-related issues of social justice, wellbeing, and the nature of transient and technologically advanced work forces. In this way, Savickas' concept of career development highlights many issues likely facing adolescents in this current study. Savickas' career construction theory (2002) and other publications (2001; 2005; 2010, 2011a, 2012b) build on many core concepts of Super's (1953, 1984, 1990) life work and life-career rainbow theory of career development. Like Super, Savickas outlines the interrelationship between developing career pathways and other important life roles over time.

Some of these life roles such as romantic relationships and volunteer roles can already be evident during adolescence. Savickas' work provides a basis for exploring the ways gifted adolescent girls balance planning for other important future life roles along with their career pathways. For instance, it highlights that they may be planning the ways future family roles and hobbies will fit with their future career plans.

Subjective interpretations. Subjective interpretations of career-related self-actualisation rather than objective career definitions are emphasised in Savickas' (2002) career construction theory.

> From this perspective, a subjective career is a reflective project that transforms individuals from actors of their career to subjects in their own career story. It tells one's "own story," usually by emphasizing a sense of purpose that coherently explains the continuity and change in oneself across time. (Savickas, 2002, p. 152)

Understanding and explaining individual lifelong career development narratives is the main focus of the theory, which highlights that individuals decide which life roles count as they focus on their own career development. For instance, this could include combining formal work roles with other volunteer roles and hobbies. Savickas' work on developing lifetime career-related narratives also provides a focus for investigation in this project as these narratives are taking shape during adolescent years. To date, little research has highlighted the core narrative of gifted adolescent girls as a population.

Core elements. Savickas' theory (2002) provides insight into the interrelated nature of career development. It provides a basis for understanding the career development of gifted adolescent girls within the context of the changing world. The three traditional cornerstone concepts of career development theory are evident in this lifespan theory (Savickas, 2012a): *the what* (individual differences in personality types, life roles, and identity categories), *the how*

(vocational self-concepts, career patterns, and adaptability), and *the why* (narrative life themes) addressed in this theory integrate personal and social constructionism perspectives. Savickas provides explanatory contexts for how people build both careers and lives.

Savickas (2012b) recommends examining this theory (2002) along with four other later publications (2001, 2011a, 2011b, 2012b) to gain a full understanding of his theory (2002). Three main lifetime stages of Self as Actor, Self as Agent, and Self as Author are at the heart of Savickas' (2002) career construction theory. It is applicable from childhood to retirement, and to understanding the ways individuals integrate their careers and other life roles. This theory (Savickas, 2002) also contains transferrable principles that apply to a wide range of modern working contexts. These three stages of Self as Actor, Self as Agent, and Self as Author also provide developmental points of reference for the current study findings in that they are linked to general stages such as formal secondary schooling, post-schooling, and early working years. A diagram and further discussion of Savickas' core concepts are provided in the below sections. Elements most relevant and useful to this project are foregrounded in the following figure:

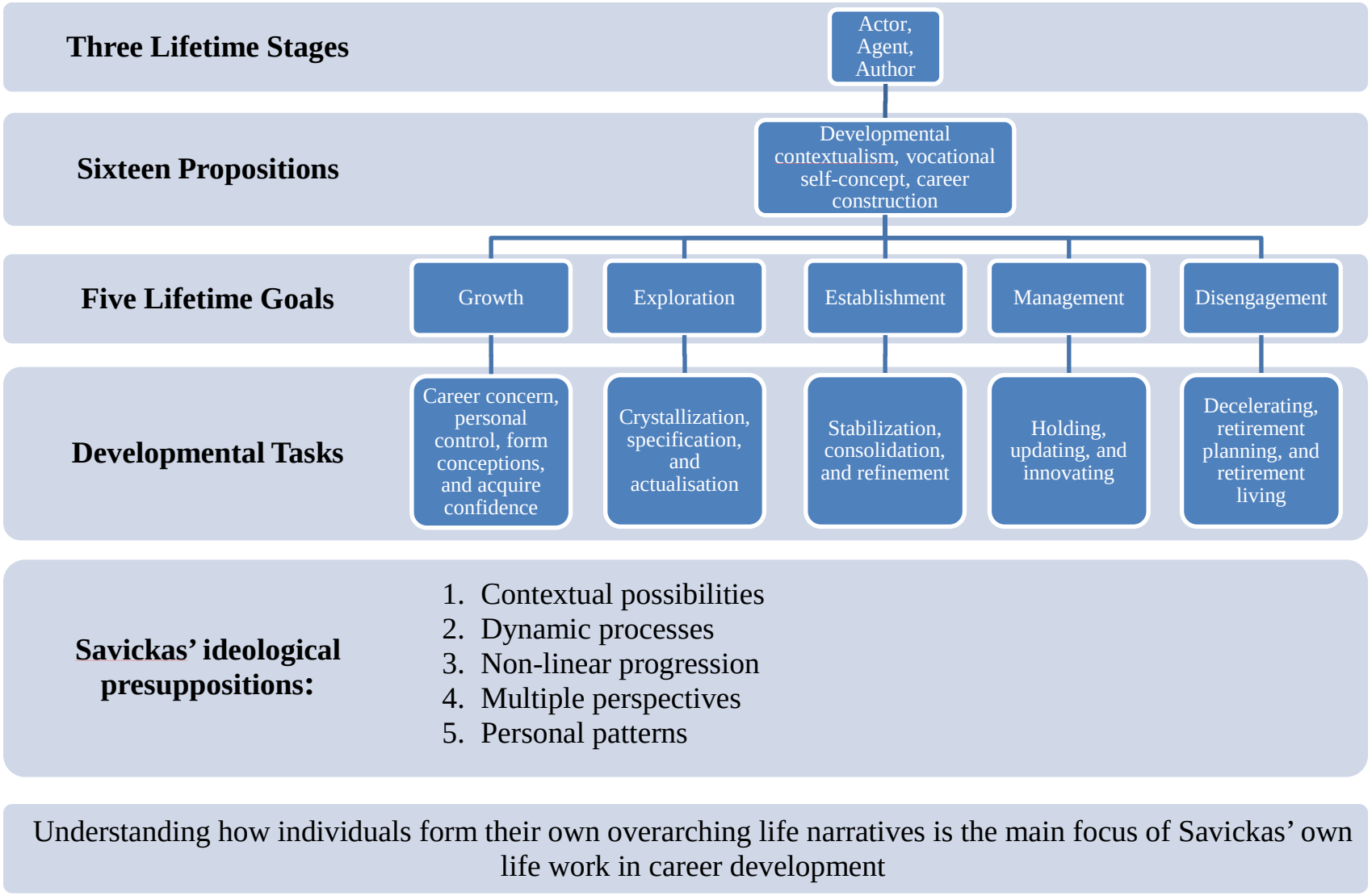

Figure 1. Overview of Savickas' Career Construction Theory

A number of career-related ideologies underpin Savickas' body of work. Savickas' five ideological presuppositions of contextual possibilities, dynamic processes, non-linear progression, multiple perspectives, and personal patterns set his body of work apart from other career development theorists (Savickas et al., 2009). These ideological presuppositions are focused on the changing nature of work, as well as individuals' patterns of career stability over time. One of the main ways these ideas are unique in the field is the way they highlight the role of change within modern working realities. By way of further explanation, this theory asserts that individuals develop consistent personal patterns of career choices which are embedded in constantly changing contexts and opportunities. He also puts forward sixteen career-related propositions that build on Super's (1953, 1984, 1990) life work and life-career rainbow theory of career development. Four of the main elements of Savickas' (2002) career construction theory are described in the following sections.

Three lifetime stages. Self as Actor, Self as Agent, and Self as Author are the three lifetime stages outlined in the theory of career construction (Savickas, 2012b). Firstly, the Self as Actor stage encompasses childhood and adolescent career development. *The what* – individuals' biological traits and identity categories such as race, gender, and socioeconomic status – primarily drives this career development stage. The main developmental tasks at this stage are increasing self-knowledge and an understanding of one's socially contextualised position. In this stage a number of growth points typically take place for individuals. Focusing on role models and exploring ways individual traits match with certain career-related environments dominate. Growing individual clarity about identity and abilities is evident. Individuals also orient themselves within a growing sense of their own career-related reputation in terms of how others view their own career choices and roles. In other words, expectations from parents and teachers

may be important. For instance, like in Gottfredson's theory (2002a), individuals decide the role gendered norms will take in their own career-related decisions. Savickas (2002) and Gottfredson (2002a) hold similar blended social and individual constructivism ideologies on issues navigated in these developmental years. This Self as Actor stage encompasses secondary schooling years, and therefore provides relevant insights into the career development of gifted adolescent girls.

Secondly, the Self as Agent stage encompasses late adolescence to early adulthood stages of career development.

> The major developmental tasks [in this stage] require that young people, in turn, view work as a salient role, crystallize preferences for vocational fields and levels, specify occupational preferences, enter a fitting job, and progress in that job until moving to the next job. (Savickas, 2012a, p. 156)

Varying levels of individual motivation and agency play a large role in realising these developmental tasks. *The how* – individuals' career-related adaptability, transitions, and traumas – impacts the successful navigation of the Self as Agent stage. The beginning fabrics of unique subjective career narratives start to be evident in this stage according to this theory. For instance, university or other post-secondary decisions may be at the foreground. By way of another example, decisions about the role of romantic relationships may have some impact on career-related decisions at this stage. This Self as Agent stage may be relevant to gifted adolescent girls within secondary school settings as their intellectual ages are likely to be more advanced than their chronological ages, which may mean the rate of their career development is advanced compared to their typically developing peers (Callahan, 2017; Greene, 2003, 2006; Hollingworth, 1926; Neihart & Yeo, 2018; Terman, 1925).

Thirdly, the Self as Author stage encompasses adulthood to retirement with individuals bringing together their own choices, behaviours, and agency into a unique life story (Savickas,

2012b). *The why* – driving lifetime themes speak to the heart of what matters most and is at stake in a person's life. Using their own identities and agencies, individuals transition from educational settings into the adult work to create congruent life stories. Typically, clarity in individual life stories increases over time. For instance, a social issue such as supporting at risk youth or designing affordable housing could be lifetime themes enacted in a range of combined career and volunteer roles. Given common gifted traits such as advanced cognitive abilities, sensitivity, and intensity (Greene, 2006; Muratori & Smith, 2015), these career-related life narratives could emerge earlier for gifted adolescent girls in comparison to their peers. Career-related opportunities and constraints are navigated through personal adaptability in this stage. For instance, within rural locations limited resources may be a constraint, but opportunities of participating in the global marketplace through a range of information technologies may be present. Of relevance to this study, Savickas (2001) believes career maturity alone is an obsolete concept, and that career adaptability is a more important indicator an individual's pace of career development. Career adaptability could be a useful concept when examining the working lives of gifted individuals who may have uneven development in differing areas of their lives.

Sixteen propositions. Sixteen career development propositions included in this theory build on the original ten propositions developed by Super (1953, 1984, 1990). Savickas' sixteen propositions (2002) address *the what*, *the why*, and *the how* of career development as outlined in the above paragraphs. For instance, Proposition One states:

> A society and its institutions structure an individual's life course through social roles. The life structure of an individual, shaped by social processes such as gendering, consists of core and peripheral roles. Balance among core roles, such as work and family, promotes stability, whereas imbalances promote strain. (Savickas, 2002, p. 154)

Propositions 1 – 3 address *the what* of developmental contextualism reflecting the career-related impact of changing social contexts over time. These are the propositions most relevant to this current project. Propositions 4 – 10 address *the how* of vocational self-concept which may be evidenced for example by successful matches between personal traits and job roles or varying degrees of workplace recognition. Although the links between these propositions and the career development of gifted adolescent girls are not as strong as with the first three propositions because the girls are not likely to be engaged full-time in workplace environments, some of the principles of developing vocational self-concepts are applicable. Propositions 11 – 16 address *the why* of career construction, and examine reasons for career outcomes such as career adaptability or additional training. These propositions are unlikely to be directly relevant to this current research study. Understandings gained from contemporary mainstream psychology about ways individuals develop within a contextualised worldview contributed to the development of these sixteen propositions (Savickas, 2002).

Five lifetime goals and additional developmental tasks. Savickas (2002) outlines five age-specific career goals in his developmental stage theory: Growth, Exploration, Establishment, Management, and Disengagement. The sequence of Savickas' (2002) career stages is fairly prescriptive, but varying cycling patterns mean that the age ranges are more of a general guide, and they can be used as a guide for examining stages of career development for gifted adolescent girls. Linked to each of these age-specific career goals are several major developmental tasks. He claims that these major developmental tasks are socially imposed concerns at these stages. In many ways these tasks are linked with the structure of formal schooling years. For instance, Growth

coincides with primary schooling years and early secondary years, and Exploration coincides with secondary schooling, post-secondary training, and early career years.

Goal One, Growth (Savickas, 2002), is defined as ages four to 13. The Growth stage involves forming an occupational self-concept linked with the Self as Actor lifetime stage. It includes the following four major tasks of career development:

1. Become *concerned* about one's future as a worker.
2. Increase personal *control* over one's vocational activities.
3. Form *conceptions* about how to make educational and vocational choices.
4. Acquire the *confidence* to make and implement these career choices. (Savickas, 2002, p. 168)

Savickas (2002) and Gottfredson (2002a) have similar ideas on the ways individual differences in identity categories such as gender and socioeconomic status impact career-related decisions in this stage.

Goal Two, Exploration (Savickas, 2002), is defined as ages fourteen to twenty-four. It is linked with the end of the Self as Actor and the beginning of the Self as Agent lifetime stage. Increasing congruence with society and individuals' internal world is a goal of this stage. In other words, individuals look for ways to match their interests and abilities with socially valued career-related roles. Ideally, it is a time of moving from career-related idealism to realism. It includes the three main developmental tasks of crystallisation, specification, and actualisation. Firstly, *crystallisation* involves increasing self-clarity and cognitive mapping needed to develop more narrow abilities and interests within career contexts. This Exploration stage may be a time when individuals try out a number of volunteer roles or hobbies related to a potential career field of

interest. Secondly, *specification* involves individuals moving from general career exploration to specific career aspirations in developing individual life themes. For instance, individuals may be pursuing university, post-schooling training, or entry level jobs within a field. Thirdly, *actualisation* refers to transitions from school to workplace environments. Various degrees of success can be involved in each of these developmental tasks.

Identity narratives sharpen in the Exploration stage as individuals become more focused on purposeful career-related projects such as additional study or volunteer roles that may open up new career options within their chosen field. For instance, a university student studying to be a teacher with general qualifications may start to explore options for additional specialisation within education, such as working with students who have additional needs. The Exploration stage requires navigating and prioritising a number of issues such as financial viability and time management to move successfully from school life to work life.

> The identity narrative expresses the uniqueness of an individual in her or his particular context by articulating goals, directing adaptive behaviour, and imposing meaning on activities. The individual uses this self-sustaining narrative to evaluate career opportunities and negotiate social constraints. (Savickas, 2012b, p. 14)

Individuals in this stage meld multiple complex and contrary experiences into more purposeful, congruent life themes such as a focus on developing a cure for cancer or on an acting career.

Goal Three, Establishment (Savickas, 2002), is generally defined as ages twenty-five to forty-five and is mainly linked with the Self as Actor lifetime stage. Refinements within existing roles or exploration into newly realised potential may take place in this stage. The Establishment stage involves *implementation* of occupational self-concept such as when individuals secure their first formal positions within a field. S*tabilization* of an occupational position also occurs in this stage, and this is evident through consistent involvement in a particular field such as psychology

or medicine. C*onsolidation* of occupational self-concept based on reality also takes place as individuals experience a sense of fit within their chosen field. However, the concept of consolidation may be less applicable to gifted individuals as they may be more inclined to pursue challenge (Jung, 2017; Kerr & Sodano, 2003), and may be more motivated towards innovation than a sense of fit. Maintenance rather than advancement into new directions usually becomes more important towards the end of this stage.

Goal Four, Management (Savickas, 2002), is linked with ages forty-five to sixty-four and involves three main developmental options rather than tasks. *Holding* current occupational positions evidenced through stable employment within a field, *updating* these positions through helping redesign some main job roles, or *innovating* beyond current positions by becoming entrepreneurs or opening their own small businesses in the field are the three main approaches individuals use in this stage. Given common gifted traits such as passion and creativity (Callahan, 2017), it may be more likely for some gifted individuals to tend more towards updating or innovating options rather than holding on to stable employment. Re-finding one's original career-related pathways rather than the refining of oneself tends to occur in the Management stage.

Goal Five, Disengagement (Savickas, 2002), is linked with sixty-five years old and older. It involves three main developmental tasks. *Decelerating* is a developmental task that may include shifting from full-time work to part-time work to volunteer roles. *Retirement planning* could involve a range of tasks such as deciding on a new balance between private life and volunteer roles. *Retirement living* involves the ceasing of paid employment. Completion of these three tasks often involves altogether new post-working lifestyles. Savickas provides very little information on this age bracket.

Five ideological presuppositions. Savickas' (2001; 2002; 2011a, 2011b, 2012b) work highlights both internal and external influences on career development. A life-design framework (Savickas et al., 2009) resulting from the collaborative combining of the theories of self-constructing (Guichard, 2005) and the career construction theory (Savickas, 2002) resulted in five ideological presuppositions. These five presuppositions (Savickas, 2002) are implicit ideas that are interwoven into all aspects of this theory (Savickas, 2002). They highlight both the internal and external influences on career development over time.

Each ideological presupposition applies more to certain ages and stages of career development than others. *Contextual possibilities* refers to career development as socially constructed, co-created, and interactive. Each individual develops within unique social contexts such as families, schools, universities, and workplaces. These contexts each come with their own enabling and inhibiting influences. Each individual also has an impact on his or her own social contexts, and therefore the career-related opportunities available to them within these settings. *Dynamic processes* refers to the ways multiple life roles often interact with career pathways within a transient, global marketplace. For instance, modern life may include a balance of work and personal life roles such as parent or romantic partner. Constant change brought about by modern workplace demands such as through contracts or necessary relocation may have an impact on the requirements of these other life roles. Likewise, demands of life roles such as parenting may have an impact on individuals' available career choices. *Non-linear progression* addresses unpredictability in modern day working lives through factors such as increased transience and contractual employment. Individuals may train and work in several different career fields in a lifetime, rather than progressing through increasingly prominent roles within the same field. *Multiple perspectives* refers to numerous co-existing subjective realities and identities at play in

individuals' career development pathways. For instance, individuals within workplaces may see themselves sometimes as entrepreneurs and innovators, while at other times they view themselves as simply conforming to organisational expectations. *Personal patterns* refers to the development of individual narrative lifetime themes showing what matters most in a life. For instance, a teacher may hold many different education roles over a lifetime within schools, universities, and community contexts, but the role of teacher may still be the core personal lifetime narrative.

Blended theoretical framework. Savickas' (2002) career development theory lays out career development in three distinct, sequential stages of Self as Actor, Self as Agent, and Self as Author with accompanying lifetime developmental goals. Savickas' (2002) theory essentially explores individuals' core life narratives within a changing world. Savickas brings together understandings in both psychology and sociology to focus on how individuals' identities and personal traits play out in the realities of modern working environments over time. The lifetime goals and developmental tasks provide a framework for career development achievements. His work highlights the part other life roles play in career decision-making processes. Gottfredson's (2002a) career development theory emphasises the role identity categories such as gender and intelligence play in career-related development, and these classifications are particularly relevant to this study's participants. Gottfredson highlights narrowing career-related decision processes within social contexts at differing ages and stages. Gottfredson's work asserts career development begins in early childhood. Blending these two theories, as has been done in this study, gives insights into common internal and external experiences gifted adolescent girls may have had in the past, as well as their likely experiences during their most formative adolescent years. This

chapter's review of the blended theoretical framework provides a basis for the study methodology and methods discussed in the next chapter.

Summary

Examining career development theories over time establishes that perspectives from the fields of inquiry of both psychology and sociology contribute to our understanding of individuals' career trajectories. Together the career development theories of Savickas (2002) and Gottfredson (2002a) provide important insights into both the external and internal career-related developmental influences relevant to gifted adolescent girls. These theories also highlight that career development begins in early childhood years and spans across a lifetime. They provide reference points for discussion on what advanced career development may look like when comparing chronological ages listed in these theories with typical stages of development. Savickas (2002) views advanced career-related development as evidenced by adaptability to change, whereas Gottfredson (2002a) views it as the integration of a world view of humanity. Both concepts can be useful when discussing advanced development for gifted individuals. The theories provide chronological ages linked with their career-related stages, which in turn provides points of aged-based comparison for individuals who may be exhibiting advanced career-related values, decision-making processes, and goals not typical to their peers. Issues that have long been a focus in career development literature for females, such as navigating multiple life roles and gendered work-related experiences, are a focus in this blended theoretical framework.

CHAPTER 4: METHODOLOGY

This research was designed to explore the career development of gifted adolescent girls. The review of literature identified the knowledge gap addressed by this study and guided methodological decisions. The primary research question was formulated to examine how gifted adolescent girls in South Australian selective secondary school programs described the factors influencing their career-related values, decision-making process, and goals. The sub-question was designed to explore how those participants described any enablers, tensions, or inhibitors to their career-related values, decision-making processes, and goals.

The purposes of this chapter are to: (1) describe the methodology and research design, (2) describe data collection procedures, (3) explain data analysis approaches, (4) summarize the ethical guidelines followed, and (5) outline validation methods. Saldana (2018, p. 5) summarised the qualitative researcher's experiences as follows:

> Being a qualitative researcher means meticulous vigilance of details yet the ability to condense the minutiae, and to find what is salient and significant, even in the mundane. It is a work ethic that rivals a hardcore scientist—ruminating, reasoning, and evaluating how everything unifies, fits together, works together, and makes life happen together. It is fierce organization, strenuous mental effort, multidimensional thinking, metacognition, allowing a matrix of possible interrelationships to swirl in your mind, total immersion in the empirical materials, making plausible inferences, and relentless pursuit to generate new, insightful patterns and configurations of the social world. It's not just analyzing people, it's analyzing life, generating not just factual knowledge but clarity, understanding, discovery, wisdom, and profound revelation.

This quote accurately reflects the multi-layered journey that was integral to this project. Relentless investigation, reflection, and refinement were necessary throughout this iterative study.

Research Methodology

Qualitative research brings together the art and science of telling the most important aspects of participants' stories (Bochner, 2018). Qualitative research itself is a constantly developing and

fluctuating field (Koro-Ljungberg, Carlson, Tesar, & Anderson, 2015); however, many of the core research tools remain constant. The design of this study drew on both rigorous methods and a strong blended theoretical framework to gain rich, authentic results (Collins & Stockton, 2018). As has already been established, little is known about the career trajectories of gifted adolescent girls (Austen & Redmond, 2008), therefore qualitative methods were chosen to gain in-depth knowledge from the participants. Qualitative methods were a good fit for this projects' research questions which focused on participants' own perspectives.

This qualitative study adopted a social constructivist epistemology and an interpretivist methodology (Lincoln, Lynham, & Guba, 2011). A social constructivist view of knowledge is based upon the belief that social phenomena are interpreted in many different ways by different individuals (Crotty, 1998). A constructivist view of ontology, the nature of reality, is linked with relativism. Relativism can be defined as the view that multiple realities exist and are dependent on individuals to interpret what is true based on their own experiences (Guba, 1996). Savickas (2009) also referenced multiple career-related realities existing for individuals. As stated by Crotty (1998, p. 42), this

> is the view that all knowledge and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context.

Crotty (1998) argued that understanding knowledge in this way has a ripple effect into the way one views ontology and methodology. Put another way, individuals' ways of knowing are embedded in contextualized experiences and relationships that impact on perceptions of reality (Crotty, 1998). These ontological and methodological views are interrelated with the theoretical framework of this study.

In interpretive research, the "researcher, the topic, and the sense-making process [are] in [constant] interaction" (Altheide & Johnson, 2011, p. 585). The researcher is essentially both an insider and an outsider in the process (Dwyer & Buckle, 2018). Guba (1990, p. 27) explains this as a fusing together into a single entity of an "inquirer and an inquired". It brings together the art and science of understanding human experience (Bochner, 2018). Qualitative research is also a careful balance between the self and the other, and between the "personal and the universal" (Berger, 2015, p. 220). Of note, Denzin (2017) argues that qualitative research findings should primarily be used as platforms for social justice agendas. The findings of this study are based on participants' perceptions of truth based on their own experiences. Investigating participants' lived truths was the primary project focus.

Research Design

This study employed a cross-sectional, qualitative research design including semi-structured interviews with 18 gifted adolescent girls recruited from all three selective public high school programs in South Australia. Three participant groups reflected different ages to enable a focus on development. Participants were not grouped according to their schools. An overview of the research design is presented in Figure 2 below.

Interviews provided a tool for gathering in-depth, rich, and new knowledge to address the research questions. Each participant was interviewed twice, allowing approximately 12 months between interviews. Interviewing the participants at two points was deemed important. This choice was made in order to promote deeper relationships and rapport between the researcher and interviewees, as well as giving additional opportunities to pursue important ideas in follow up interviews (Read, 2018). Information gathered through interviews created an overall picture of the influential factors on participants' career-related values, decision-making processes, and goals.

The primary purpose of these qualitative research interviews was to provide an open-ended discussion for participant storytelling (Creswell, 2019). This approach to qualitative research study design is called an iterative strategy as "there can be an interplay between interpretation and theorizing, on the one hand, and data collection, on the other" (Bryman, 2008, p. 372). Time constraint limitations inherent in a doctoral project meant that a longitudinal design was not practical. Nevertheless, this design provided a career-related, developmental picture of adolescents aged approximately 13 to 19 years within a 12 month data collection period, albeit with three different cohorts of participants. Bronfenbrenner argued that a cross-sectional design such as the one used in this study effectively examines individual development (Bronfenbrenner, 1992; Bronfenbrenner & Evans, 2000).

The two interviews were also used because this strategy is seen as particularly important when researching an under-researched area (Read, 2018). The first interview guide (Appendix C) informed the second interview guide (Appendix C), as the primary purpose of the second interviews was to pursue salient issues emerging in the first interviews. The purpose of the pilot interviews (Appendix C) was to test the interview questions. The tasks completed between the two interviews were data transcription of the first interviews, early data analysis, additional literature review, designing the second pilot study interviews, completing the second pilot, and refining the questions for the second interviews.

Scope. The research design focused on the experiences of gifted adolescent girls in specialised educational program settings. As it was a qualitative, cross-sectional study, it provided rich and deep information on the age and stage experiences of gifted adolescent girls. This study examined participant perceptions on how social contexts might impact their career trajectories. It

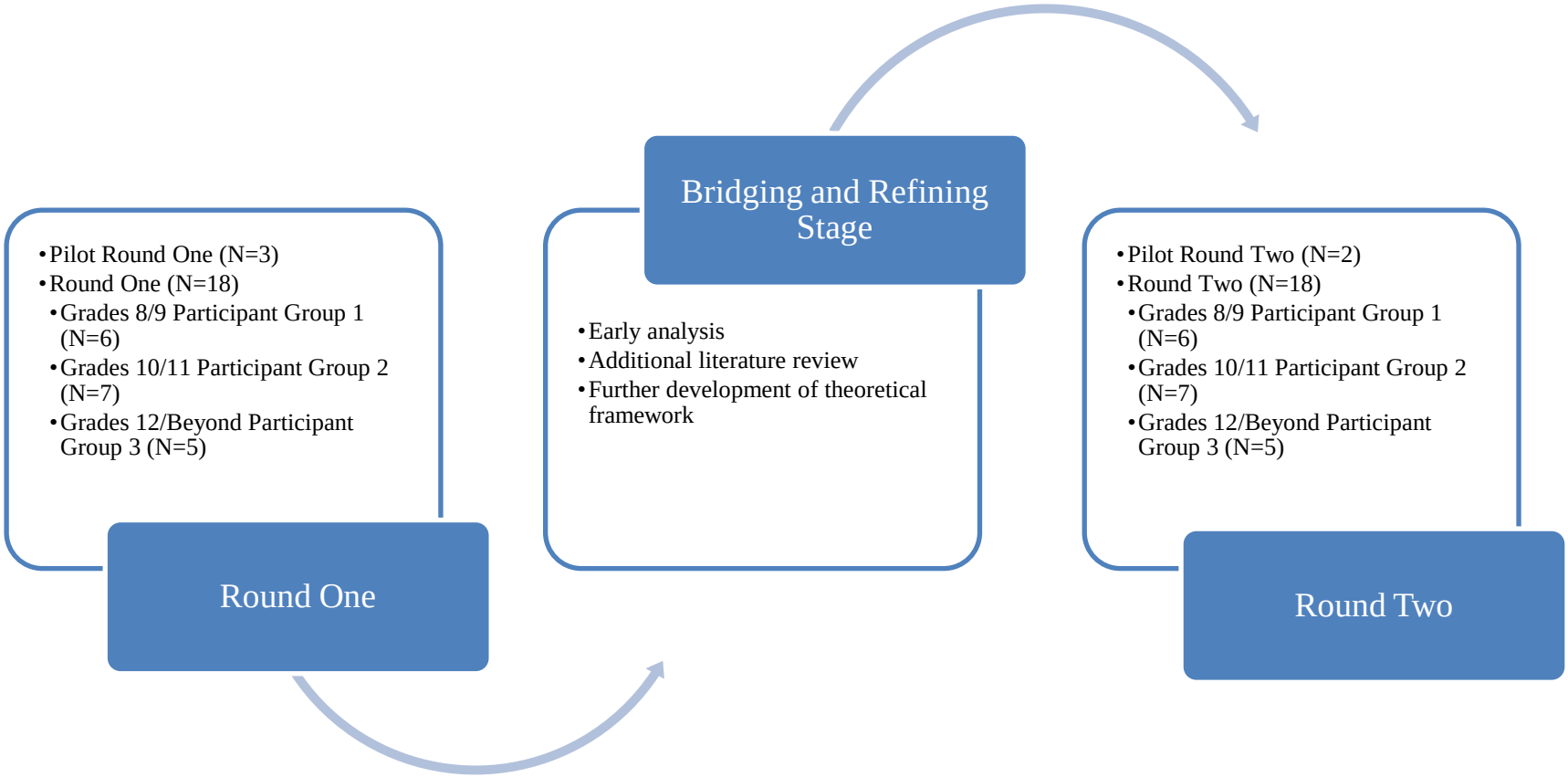

Figure 2. Qualitative Cross-Sectional Research Design

is most relevant to providing insights into the career development of gifted adolescent girls in selective academic settings. This research did not include experience of gifted adolescent girls in mainstream settings or gifted adolescent boys.

Participants and recruitment. All three South Australian secondary public sector schools containing selective entry gifted programs were invited to participate in the study. These school sites are in suburban settings around the state's capital city of Adelaide, South Australia. Details about these settings were included in Chapter One. To initiate the recruitment process, letters were sent to all three principals of schools containing IGNITE programs, with information sheets, consent forms, and assent forms. Once all three schools agreed to participate, recruitment arrangements were made through the IGNITE program coordinators. Female IGNITE Grades 8, 10, and 12 students at a school assembly were invited by the researcher to participate in two one-on-one, semi-structured interviews lasting approximately forty minutes each. At these assemblies, students were invited to ask questions about the research. Interested participants took student information packages which also included all consent and assent letters. Response letters were sent by mail to Flinders University School of Education.

Very few participants volunteered at the first school site where participants were recruited. It was then decided to provide an I-Tunes gift card valued at $20 to encourage participation. Three additional recruitment meetings were held at the first school in order to gain sufficient participant numbers, while only one recruitment meeting was held at each of the other two sites. Where the volunteer number exceeded the desired participant number of 18, appropriate protocols of random sampling were used to narrow participant numbers to six participants per school site. One participant did not continue beyond the beginning of the first interview as she did not have any specific career goals to discuss. All data were discarded from that interview. As a result another

volunteer was purposefully selected from that school site to take her place to reach the required participant number. All 18 participants were involved in both the first and second interviews. The first interviews took place in 2014, and the second interviews took place in 2015.

Grade skipping and compacting are common IGNITE practices, therefore the cohorts were defined by grade level stages rather than chronological age. Some participants had also been grade skipped in schools they attended before enrolling in the IGNITE program. Comparisons were not made between school sites. The focus during recruitment was on obtaining three different age groups of participants, with roughly the same number of participants from each school site. The first group included six participants aged 13 at the time of the first interview, and who were in Grades 8/9. The second group included seven participants aged 14-16 who were in Grades 10/11. The final group included five participants aged 16-17 who were in Grade 12. The second one-on-one interviews with the final group took place after their secondary school graduation. For additional participant information, see Table 2 below. Note that pseudonyms are used for the initials of each participant.

Table 2.

Participants' Demographic Information

Participant	School	Grade levels	Age at first interview
AM	SSS	8/9	13
EM	SSS	8/9	13
AW	TSS	8/9	13
SB	TSS	8/9	13
TM	TSS	8/9	13
EG	ASS	8/9	13
HV	SSS	10/11	15
NC	SSS	10/11	15
RB	TSS	10/11	15
KK	TSS	10/11	15
GB	TSS	10/11	16
OL	ASS	10/11	15
MP	ASS	10/11	14
LS	SSS	12/B	17
CL	SSS	12/B	17
EW	ASS	12/B	16
CS	ASS	12/B	16
AS	ASS	12/B	16

Four participants identified themselves as being from immigrant backgrounds. Two participants identified themselves as being from families with a low socioeconomic background. One participant identified as being a lesbian.

There are debates about what constitutes quality and rigorous saturation measures in qualitative research (Bryman, 2008; O'Reilly & Parker, 2012; Tracy, 2010). Based on recommendations in the literature, this study's sampling of 18 participants was chosen to be adequate in terms of authentically answering the research questions in appropriate depth and richness (Bryman, 2008; O'Reilly & Parker, 2012; Tracy, 2010). This number is relatively high given there are only several hundred enrolled female IGNITE students in South Australia (Bryman, 2008). Also, new knowledge of a rarely researched area can be gained using a moderate sample

size (Tracy, 2010). Based on the findings outlined in the next chapter, it was determined that this sample and data reached saturation in relation to the research questions (O'Reilly & Parker, 2012). As evidenced in the analysis, these findings captured both depth and breadth of participants' experiences of career development. No new significant ideas or patterns emerged from the data by the time data collection with all eighteen participants was completed. It was therefore decided that no additional data collection was needed in order to answer the research questions.

To ensure IGNITE enrolment practices were consistent with the information advertised on the IGNITE program websites (DECD, 2011, 2013a, 2013b), detailed identification and selection process information was gathered by interviewing two out of the three IGNITE program coordinators. These interviews ensured contextual understandings of IGNITE programs included richness and depth. Information was gathered on how closely student selection criteria and processes aligned with the school's program website information. The coordinators also discussed details of their own program design. The student application and enrolment information provided by SSS and ASS coordinators indicated program and practice consistency with the information contained in the IGNITE websites (DECD, 2011, 2013a, 2013b).

Data collection.

Interviews. In-depth interviews were the chosen method for data collection in this study. Two semi-structured interviews with each participant, lasting between 40-60 minutes, were undertaken at participating school sites. The first interviews took place throughout a single school year, and the second interviews took place the following school year. All interviews were recorded using a digital voice recorder and later transcribed by the researcher. Field notes and reflective journal entries were written by the researcher within the week of each interview as well as during

transcription. More details on the nature of these field notes and the reflective journal are provided later in this chapter.

In interpretivist, qualitative research, control should be shared between the researcher and participants (Guba & Lincoln, 2005). As a female researcher interviewing adolescent females on an issue that has been the focus of feminist activism encouraging equal rights for women, several considerations arose. Many researchers believe it is important to build a reciprocal, relational stance with participants in qualitative research focused on hearing female voices (e.g., Bryman, 2008; Burns & Chantler, 2011; Oakley, 2003). Oakley (2003, p. 253) pointed out that

> what [is] important [is that there are] not taken-for-granted sociological assumptions about the role of the interviewer but a new awareness of the interviewer as an instrument for promoting a sociology for women – that is, as a tool for making possible the articulated and recorded commentary of women on the very personal business of being female in a patriarchal capitalist society.

She contended that traditionally accepted interview protocol, such as formality, distance, and rigid objectivity, essentially went against women's values and collective histories. She argued these protocols are in opposition to the ways women make meaning. Therefore, a delicate balance was aimed for in order to maintain both an insider and outsider approach to the research relationships (Dwyer & Buckle, 2018). Interviews were intended to create a warm, informal relational space so participants felt at ease during these interviews. Extra time was spent discussing participant interests. Sensitivity to the emotional needs of the participants was a focus during the research interviews as this can greatly enhance the quality of data collected (Brayda & Boyce, 2014; Collins & Cooper, 2014).

Instruments.

Interview guides. The two interview guides were informed by the literature review. Questions were piloted with three participants aged 14–15 who were recruited through the Gifted

and Talented Children's Association of South Australia (GTCASA) prior to data collection being undertaken. The first interview guide was piloted before the first interviews with all three pilot participants, and the second interview guide was piloted with only two pilot participants before the second interviews (see Appendix C for all interview guides). The pilot process provided feedback on the appropriateness of the interview questions. As a result of the pilot interviews, several new questions were added and questions causing confusion or potential discomfort were reworded. For instance, pilot participants had difficulty articulating career-related influences from community life, so this question was reworded to "life outside of school". That is, the question "I am wondering how life in your community has helped you plan for a career?" became "How has life outside of school influenced your career-related decisions?" A question that seemed to elicit negative reactions was "How does being gifted make you different from your school mates?" Participants were focused on expressing equity with rather than differences from their typically developing peers. This question was shaped into the following two questions: "Does being gifted make you different from your school mates?" and "If so, how?". Based on the pilot, more weight was given to exploring conceptions of success, with the addition of these two questions: "How important is career success to you?" and "How would you describe what a successful career would look like for you personally?"

Following the first interviews, data analysis brought to light a number of important influences not discussed by participants such as the impact of common gifted traits like perfectionism on career development. Results from this analysis prompted an additional review of literature. This process helped to refine the interview questions for the second round.

Piloting the second round of interview questions led to several revisions. Questions related to internal and external difficulties (e.g., "Have you experienced any other things that might make

it more difficult to work toward reaching your career goals than you would like it to be?"; "Tell me your thoughts on how you have managed to, or think you might overcome these things?"; "Do you have any personal characteristics/qualities that you think might make reaching your career goals more difficult than you would like it to be?") appeared challenging for some participants. They were reordered so that questions about challenges or difficulties were not all clustered together. For questions about the influence of the changing world on career development, additional prompts were added to give participants examples to stimulate their thinking.

As discussed in the previous chapter, each of the two interviews used a different career development theory as a guide. The first interviews were primarily guided by Gottfredson's (2002a) theory of circumscription, compromise, and self-creation, and the second interviews were primarily guided by Savickas' (2002) career construction theory. Participants' responses and silences during the first interviews also helped guide the design of the second interviews. The first interviews focused on the career-related influences of gender and intelligence. They also examined ways families, schools, communities, and broader contexts influenced participants' career development. Early analysis done between the first and second interviews demonstrated that Gottfredson's (2002a) theory did not effectively cover the entire age group of study participants. It also did not effectively address some of the issues of older participants, modern workplace trends, or some of the participant silences on career-related barriers. Savickas' (2002) theory was used to guide the second interviews to create a more age appropriate blended theoretical model. The foundational concepts in Savickas' work also guided the design of the second interview questions. In addition, contemporary career-related influences such as new technologies and global marketplaces explored in Savickas' (2002) work were also a focus in the second interviews.

Data analysis. This study was guided by methodological congruence throughout the data analysis stages. Methodological congruence is defined by Spiers, Morse, Olson, Mayan, and Barrett (2018, p. 2) as being a process of "continually verifying and adjusting to ensure issues are identified and corrected as the research develops and the theory evolves". A number of different approaches to analysis were used to answer the research questions. Thematic analysis lays a strong foundation for all other related qualitative analysis methods, and can provide rich and complex insights into data (Braun & Clarke, 2006). Interview data were analysed thematically through Braun and Clarke's (2006) six step process bringing together strengths of both inductive and deductive approaches to answer the research questions. Braun and Clarke (2006) defined inductive analysis as being data driven, not using a pre-determined coding schema. In contrast, they defined deductive analysis as being driven by pre-determined theoretically informed maps. Thematic analysis is a flexible method that allows researchers to use both inductive and deductive approaches; therefore, it can be used to discover emerging themes as well as test pre-selected ideas. Inductive approaches were particularly important to research the career development of gifted adolescent girls as little is known on the topic. The article by Braun and Clarke (2006) guided the data analysis process because data were compared and contrasted to discover patterns relating to the research questions (Bryman, 2008; Creswell, 2019; Guba, 1990). Initial inductive approaches to data analysis were also shaped by the works of Janesick (2011) which provided guidance on how to immerse oneself into the initial meaning making stages of data analysis, and Saldana's (2016) work which provided a wide range of relevant coding strategies. Both manual and electronic analyses were used.

Srivastava and Hopwood's (2018) three element iterative data analysis framework focused on what the data indicated, what the research questions themselves were asking, and the

relationship between these two aspects. These three elements guided the data analysis. This allowed for continual refinement between the first and second interviews, which strengthened the overall findings. However, some of the challenges of this approach were ongoing ambiguity and the need to use broader data analysis tools than originally planned. Although the ongoing ambiguity of an iterative design proved challenging, it also showed it was an appropriate study design choice.

After the initial round of interviews, the first step in data analysis was becoming deeply and frequently familiar with the data. I transcribed all interview data in full and took field notes during transcription as guided by Janesick (2011). I then immersed myself in repeated data readings to gain overall understandings of participant messages. This helped gain new and important insights (Maher, Hadfield, Hutchings, & de Eyto, 2018). Mindmaps (visual representations) based on early analysis guided initial codes. These mindmaps helped form coherent and consistent overviews of the main participant messages.

Data analysis began with inductive approaches to explore the emerging messages, then progressed towards deductive methods which had a strong focus on the blended theoretical framework. The initial data analysis between interviews one and two was used as a guide for exploring important knowledge gaps, and was not intended to be final and definitive. More rigorous data analysis took place after the second interviews. Manual data analysis was initially used after round one of the interviewing, with all data included until the initial codes were formed as guided by Saldana (2016). Open, attribute, axial, and selective coding were employed, according to Saldana (2016).

The next step was generating the initial codes using inductive analysis. Initially, open codes focusing on main participant messages were used to group relevant meaning sets. Participant

messages emerging from the data guided the initial codes. Attribute coding as defined by Saldana (2016) was also used to record basic participant information such as age and grade level at school.

Initial codes were then collapsed into smaller and more meaningful units using axial and simultaneous coding (Saldana, 2016). Codes represented key influences on career-related values, decision-making processes, and goals. Due to the volume of data collected, a number of additional organisational strategies such as tables were used to ensure rigour.

Initial codes were then further refined using a deductive approach with core concepts from the blended theoretical framework. Central concepts in the blended theoretical framework (Gottfredson, 2002a; Savickas, 2002) that were transferrable across participants' ages and stages were explored. For instance, selective coding (Saldana, 2016) was done with the first transcripts using Gottfredson's (2002a) theoretical concepts such as circumscription, compromise, gender, intelligence, and prestige. Data from the second interviews were also selectively coded (Saldana, 2016) using Savickas' (2002) main theoretical concepts such as agency, beginning life narrative, and vocational self-concept. Thematic maps were drawn linking data with the blended theoretical framework. These mindmaps helped form sound overviews of the ways the data related to the blended theoretical framework.

After the initial codes were generated, I began looking for themes. I shifted from manual data analysis to using the NVivo software program in order to re-examine the data (Basit, 2003). Using electronic analysis for developing the main research themes was particularly important due to the volume of interview data (Basit, 2003; Robins & Eisen, 2017). All previous manual analysis was entered into NVivo before undertaking a more in-depth thematic analysis. Nine candidate themes were developed in cooperation with my supervision team, and tested during this round of

thematic textual analysis (e.g., Bronfenbrenner, 1979, 1992, 2004; Bronfenbrenner & Evans, 2000; Gottfredson, 1981, 2005; Subotnik et al., 2011).

After the initial nine themes were formed, I then began to review the themes using thematic maps linked to the blended theoretical framework. During this stage, Patton's (1990) dual criteria of internal homogeneity and external heterogeneity were used. Clear and important data that logically went together were grouped under a theme. These themes were also tested to ensure that there were clear delineations between them and other themes. Themes were reviewed with the whole data set and within the three grade level data sets. They were continually narrowed and redefined based on Pattton's (1990) criteria of internal homogeneity and external heterogeneity. The four different candidate theme outcomes were: (1) some were strong and remained, (2) some did not have sufficient data and were eliminated, (3) some needed further refining and reconceptualising; and (4) some new themes were created. This round of analysis brought to light relevant aspects of the blended theoretical framework as well as the main overarching participant messages.

The final themes were then named and more narrowly defined. Once all data had been analysed, a final round of inductive analysis proved fruitful in forming the final codes. A visual model was developed representing ways the themes fitted together. This model was used to review and refine all significant findings to ensure accurate representation. Significant findings in each of the three data sets were compared and contrasted through a process of triangulation to ensure the findings were robust. For instance, in terms of triangulation, the same core and sub-themes were important in both interviews as well as across the three data sets. By way of another example of triangulation, the career-related values commonly expressed by participants were consistent in both the first and second interviews. The decision was made that no further re-coding was needed.

Ethical considerations.

Ethical procedures and issues. This project followed the ethical procedures required by both Flinders University and the South Australian Department for Education. Ethics approval was obtained from the Flinders University Social and Behavioural Research Ethics Committee and the South Australian Department for Education ethics committee (see approvals in Appendices B and C). Given participant ages and the personal nature of the interview questions, provisions were made for referral to an appropriate counsellor, however this process was not required. Efforts were made to keep responses confidential by not using participant or school names in this thesis. This was particularly important because the decision was made to use the actual name of the school program (IGNITE), as it is the only academically selective entry public school program in South Australia. This program would be immediately recognisable even with a pseudonym; therefore, maintaining confidentiality for each school site and for individual participants was particularly important.

Measures of rigor employed within the study.

Credibility. Rigorous data analysis methods strengthened the trustworthiness and authenticity of the findings in the study (Lincoln & Guba, 1985; Lincoln et al., 2011). I met regularly with my supervisors to discuss the ways in which I was deriving meaning from the data during the coding process, in order to ensure the accuracy of my analysis. The supervision team acted as critical academic friends, which strengthened the analysis. I also used the strategy of member checking to ensure credibility (Creswell, 2019; Lincoln & Guba, 1985). All participants were invited through e-mail communication to review and verify their transcriptions for accuracy within a two week response deadline. Data were triangulated by comparing codes from each data

set with each other in order to produce a final overarching set of themes. Although there was some variance between data sets, the overall messages were consistent.

Transferability. The transferability of findings is limited to adolescent gifted girls in similar selective gifted education programs.

Confirmability. It is important to acknowledge the ways my own standpoints may have influenced the interpretation of the data, through researcher reflexivity (Dean et al., 2018). The literature differs on whether or not different researchers may interpret the same data in varying ways (Damsa & Ugelvik, 2017; Sword, Blumenstein, Kwan, Shen, & Trofimova, 2018). Reflexivity can be defined as "an attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process" (Malterud, 2001, p. 485). In this case, it was essentially about being transparent about my own research aim and interests through telling some of my own story in order to strengthen the study (Carter, Lapum, Lavalle, & Martin, 2014; Tracy, 2010).

A reflective journal provided a space for post-interview reflexivity. It was also used during transcription and data analysis. The role my own perspectives, preconceptions, bias, and emotions played in data analysis was the focus of the journal. It also provided a space for additional philosophical field notes, which Bridges-Rhoads define as "notes that I cannot NOT seem to write" (2018, p. 486). This journal also included descriptions of events, contexts, and outside influences (Holly & Altrichter, 2011). The reflective journal was not analysed as part of the data for this study, but provided an important reference point throughout the analysis of data.

Some of the multiple perspectives discussed in the reflective journal were my roles as a gifted education coordinator, mother of gifted adolescents, volunteer in not-for-profit gifted

education associations, woman, feminist, and my own career development. I had no formal role or power within the IGNITE programs. My personal connections with one of the schools were particularly relevant to record in the journal. I was a previous secondary student and parent of an IGNITE student at the school. Although I did not personally know any of the participants in the study, I had a personal connection to the site. As a result, I allowed more time for journaling during visits at that school site. This journal supported my objectivity and my personal reflection during all stages of data analysis.

Limitations. This study may not be transferrable beyond these specialised settings. Although it was a cross-sectional study, the long-term career-related outcomes of participants could not be included as data were collected in a limited time span. Strong generalisations about certain identity categories such as culture and socioeconomic status could not be made due to the nature of the selection process, which resulted in limited diversity among participants. As this study took place in an urban setting, the transferability of findings to regional and rural students may be limited. Further discussion of these limitations will take place in the final chapter of this thesis.

Summary

This chapter has laid out the social constructivist epistemology and interpretivist methodology used in this study design. Qualitative methods were chosen to answer the research questions based on the limited knowledge available on the career development of gifted adolescent girls. The cross-sectional design was well suited to the developmental focus of this thesis. This chapter also outlined the processes used in recruitment, data collection, and the data analysis strategies employed to ensure rigor. The methodology and methods presented in this chapter lay the foundation for the project findings outlined in the following chapter.

CHAPTER 5: FINDINGS

This chapter paints a rich picture of the factors influencing the career trajectories of gifted adolescent girls enrolled in South Australian selective secondary school programs. Findings are presented from three participant cohorts reflecting differing grade levels. The coding system used to present participant data in this chapter includes participants' initials and school grade levels during the study (e.g., (TM: 8/9)).

Results are presented in three main sections. The first section focuses on participants' descriptions of their career-related values, decision-making processes, and goals. The second section addresses findings relating to the two most significant factors influencing participants' career trajectories. The last section presents notable developmental patterns evident when comparing participants across the three groups. An emphasis on career-related enablers, tensions, and inhibitors is threaded throughout all three sections.

Career-related Values, Decision-making Processes, and Goals are Interrelated

Participants discussed values, decision-making processes, and goals in interrelated ways in connection to their career development. In other words, they consistently described forming their career-related decisions and goals in ways that aligned with values they considered to be most important, such as success and wellbeing in future career contexts. There were a range of patterns evident in participants' decision-making processes. For instance, all participants cited ways they narrowed their career aspirations. Participants discussed their career-related goals and decision-making processes as being interrelated. For instance, a new career goal can influence other related decisions such as needing to explore different training options. By way of another example, a

stable career-related goal can lead to a wide range of related decision-making processes necessary to reach this goal.

Career-related values are the foundation of decision-making processes and goals. Although the interview responses suggested that each participant had a unique combination of their own career-related values, some values such as enjoyment (e.g., "if you enjoy it, I think that's the main thing" (EG: 8/9); "I think when you're doing something that you love that's just real important for your wellbeing" (TM: 8/9)), were cited by almost every participant. Other values such as high salary were only mentioned twice. Participants appeared to consider their own career-related values when pursuing or ruling out career aspirations.

Participants sometimes made links between how their career-related values influenced their decision-making processes and goals (e.g., "if I was to, you know, when I get married and say we have children and that, then it would be really good to be a psychologist because you don't have to work full-time" (SB: 8/9); "there's no point having a career which has got tons of money behind it, but you're not enjoying yourself" (LS: 12/B)). Participants seemed to take their own values sets for granted.

All participants discussed their primary career aspirations in ways that suggested they valued future career success. For example, EW (12/B) summed up what she felt were the common attitudes of her IGNITE peers by saying, "we want to do something with our lives, and kind of be as successful as we possibly can." Another participant echoed similar ideas: "I want to get far in life and having a successful career will get you there" (KK: 10/11). They chose career pathways that aligned with their own individual views of success.

Many participants valued securing future career-related leadership roles as being part of their future success. Some saw career-based leadership as obtaining recognised leadership roles ("I would definitely want to pick a [leadership] role like that [in optometry]" (AW: 8/9), while others defined it more as becoming a respected community leader. Many participants saw leadership as integral in future career roles such as teachers or doctors ("you need to be able to gain that respect from your students" (AM: 8/9); "I believe in my field of teaching, you're already a leader to students" NC: 10/11)). Opportunities for future career promotions were usually mentioned as being important to participants.

Entrepreneurialism could be considered a form of leadership, and several participants valued opportunities to become future entrepreneurs. For instance, CL (12/B) expressed a desire of "having my own business probably, and being successful. People coming to you because they trust you and they've heard good things about the business, and enjoying what you're doing." Others were interested in owning businesses such as personal training or tutoring. Some participants expressed tensions between wanting to follow entrepreneurial pathways, and lacking the knowledge of how to achieve these.

Desiring to become future community role models was an influential factor for some participants' career choices in fields such as education, the arts, or health. For example, one participant planning a career in personal fitness coaching stated, "I think it would motivate me to stay on top of my game with my fitness and my nutrition, just so that I can be a good role model to those that I'm teaching" (LS: 12/B). Likewise, being a role model was an influential factor in another participant's decision to become an interior architect: "Everyone wants to make an influence or kind of be someone that people look up to. I kind of see it as being, as having success . . . when it is acknowledged it is, it's the best feeling in the world" (CL: 12/B).

Only a couple of participants were not interested in being future career leaders. Some of these expressed a general lack of interest in leadership (e.g., “I don’t know if I necessarily aspire to be the leader . . . because that’s not my forte” (AS: 12/B)). Others talked about it not playing a part in their career decisions (e.g., “I don’t mind not being a leader . . . but, leadership doesn’t really play a major role in that decision [to become a surgeon]” (KK: 10/11). Participants not interested in leadership cited a range of negative prior work or school leadership experiences as leading to this preference.

Participants were asked what role making a difference in the world played in their career-related decision-making processes and goals. This question was asked because of the literature on gifted individuals’ interest in social justice and not-for-profit causes. While they may have felt some pressure to answer this question in the affirmative, the way they explained this as a primary driver in career-related decision-making in all their fields of interest was unexpected. All participants gave examples that they valued harnessing altruism in future career-related contexts. Sixteen out of 18 participants stated the drive to make a difference in the world by helping people was the primary motivation for choosing their career pathway. For instance, one participant reflected being motivated by altruism this way: “I love the idea of helping others and that’s sort of why most of my things are based around things that will help others” (NC: 10/11). Another participant said: “all these career, especially careers in sciences . . . it’s such a big part in making people’s lives different. So I think I’m also in some senses . . . make the world a better place” (AW: 8/9). Only a couple of participants referred to valuing high future salaries or prestige (e.g., “I know that in medical parts of jobs there’s quite good pay and I . . . want to make sure that that is in there” (AM: 8/9)), and only one discussed valuing career-related eminence by saying “It’s

almost sort of a fantasy, I could image myself as an owner of a huge company and being pretty much rich" (MP: 10/11).

One participant discussed how her future role as a surgeon could affect both herself and others:

> Being a surgeon basically means helping other people and I've really valued that because I'm probably most happy when I know I've been able to help someone else and make the world a better place. (KK: 10/11)

One participant planning a career in psychology talked about her significant desire to make a difference in the world by "making a difference to other people . . . making people happy is a good thing" (EG: 8/9). Making life better for others was a central focus for most participants. Participants often voiced valuing the innate rewards of happiness when participating in activities related to their future fields where they believed they made a difference.

Many participants expressed clear future lifestyle preferences. Although participants came from a range of cultural backgrounds, they appeared to be interested in planning future lifestyles reflective of common Western societal norms. In other words, participants commonly described valuing future career roles that would allow them opportunities to travel, to own homes, and to have their own families. Almost every participant valued future careers supportive of a work/life balance that would promote wellbeing, and were not as interested in pursuing jobs with high salaries. Several believed that creating this future balance (e.g., "the personal life and work balance I think, just having enough hours in the day" (CL: 12/B)) would be significantly challenging. Participants discussed this in terms of balancing their time as well as family life (e.g., "I don't want to dedicate too much time to any one thing . . . there just needs to be a balance" (CL: 12/B); "If I look into the future, say if I had a family and I had children, it's actually a pretty good job to

have because it fits in with school hours" (HV: 12/11)). Participants' values appeared to underpin their decision-making processes and goals.

Only a couple of participants explicitly spoke of influential factors at play in forming their career-related values, and usually this was in relation to their families' influence (e.g., "I think it's a lot to do with the values I've been brought up on . . . everyone helped each other" (EW: 12/B)). In general, participants stated their values as being part of who they were as people, rather than referencing any other person or experience as directly influencing them. For instance, participants primarily spoke in first person voice when discussing their values: "I think it's important to definitely do something that you . . . really enjoy" (GB: 10/11); "I would like the kind of flexibility that . . . I don't have to choose between my children and my job" (EW: 12/B); "enough money to just be comfortable, enough time with family and friends as well on the side, something that I enjoy" (LS: 12/B). However, it is possible that they were not aware of external influences on their values. Several spoke of community-based work experiences as shaping their career-related values related to issues such as flexibility or small business ownership.

Career-related decision-making processes involve both broadening and narrowing. Patterns of both broadening and narrowing career-related decisions were evident in the data, but narrowing processes were more prominent. All participants were enrolled in a schooling system that linked specific career-related decision-making milestones with particular stages of school. In other words, certain career-related decisions such as narrowing school subject choices, choosing work experience placements, focusing on career-related research projects, and prioritising university placement options were required at certain stages of schooling. These milestones require students to make increasingly clear career plans during secondary school grades, with Grades 10 and 11 being key years students are required to make many of these career-related decisions.

Participants highlighted these years as being highly focused on career-related decisions, and this aspect is discussed in the section on developmental perspectives later in this chapter. All participants were focused on capitalising on their personal interests and strengths in future career pathways.

Approximately three-quarters of participants cited the ways many career-related influences were threaded together to form their primary career aspirations. One respondent clearly highlighted the constructionist nature of career development when she said, “It’s not just sort of one thing that’s made me want to do this career, it’s sort of everything just amounted into one thing” (NC: 10/11). Some participants discussed career aspirations they had held for a number of years, while others had only recently formed career goals.

Approximately two-thirds of participants were strongly committed to their primary career aspiration, while others were interested in being open to broader possibilities. For instance, one participant talked about her commitment to following a career in detective work: “I have been striving as hard as I can to you know get as many good grades as I can to then get the . . . [Grade] 12 the ATAR [Australian Tertiary Ranking Score for University entrance] score that my brother talked about” (EM: 8/9). In contrast, several participants were not very committed to their primary career trajectory. For instance, one participant said in relation to her goal to pursue a legal career: “In all reality it could change tomorrow” (EW: 12/B). Still others were focused on keeping many opportunities available (e.g., “I’m trying to keep my options open” (HV: 10/11)).

Most participants’ general fields of interest tended to be linked with certain decision-making styles. Twice as many participants with STEM career goals maintained their primary aspirations between interviews in comparison to participants aspiring to careers in the arts or English. When comparing participants with occupational goals, it was evident that those with

interests in STEM fields had been committed longer and more strongly compared to those in English or the arts. Students with career aspirations in medicine were particularly focused on following their main goal. Participants with strengths in English or the arts tended to be more open to diverse career pathways and significant directional changes in career goals. It is possible that the need for linear progression within mathematics and science curriculum could have influenced participants' career-related decision-making processes.

Enacting high career-related confidence enables career development. Almost all participants exhibited high levels of confidence that they would achieve their future career-related goals. They expressed belief in their future career-related success in a range of ways (e.g., "I would, out of ten, I would rate seven" (AW: 8/9); "I think that if I put, set my mind to it I can do nearly every, nearly anything that I want to" (NC: 10/11); "I don't think there would be that many downfalls if I know what I'm doing and have the dedication to do it" (CL: 12/B)). Participants made career-related decisions based on past positive, successful experiences related to their desired future fields, such as high schooling results or related work experience placements. No participant referred to negative external messages received from others that their abilities were not sufficient to achieve their primary career aspirations.

Narrowing career aspirations enables career development. All participants discussed going through a process of eliminating fields they were not willing to pursue. Participants narrowed their career aspirations based on their own interests and strengths. Often participants spoke of lack of interest in certain fields helping narrow their career options (e.g., "I'm sort of open but a bit there's just a few that I just wouldn't do like the lawyer I suppose . . . just doesn't interest me at all" (EM: 8/9); "I just don't seem like the person to be fighting fires" (EG: 8/9)). The desire to avoid monotonous, repetitive jobs also helped eliminate many occupations (e.g., "I

don't really want anything sort of like, you know those people that just, they sit by a conveyor belt and they just put things on" (HV: 10/11); "somewhere where I'd just sit in front of a computer the whole day" (KK: 10/11); "I don't really like sitting inside for long periods of time" (CS: 12/B)). Only a handful of participants spoke of avoiding occupations that lacked challenges (e.g., "I don't want to be stuck in a kind of lower class thing because I wouldn't be able to push myself to do things" (AM: 8/9)). One participant spoke about the role Christianity played in her ruling out negative careers ("not one that's bad-minded doing things that would hurt other people" (AM: 8/9)). Eliminating careers was an important part of participants crystallising their primary career aspiration.

Many participants discussed successful, positive experiences in school subject areas and extra-curricular activities as influencing their primary career aspirations. For example, one participant talked about involvement in athletics and science classes guiding her interest in physiotherapy: "I think one of the major influences has been my success in athletics lately . . . but also, just that I've been getting good grades in my biology classes and . . . enjoying that class" (GB: 10/11). It seemed that the more successful experiences participants had in related fields of interest, the more confidently they pursued their primary career aspirations.

Approximately a third of participants discussed lacking strengths needed in certain fields as ruling out some careers they had considered in the past (e.g., "I wouldn't want to do, kind of anything to do with engineering, or physicists, they're not kind of my strengths" (EW: 12/B); "definitely not, really nothing to do with teaching profession sort of thing. I'm not too good with, . . . teaching them new things" (MP: 10/11)). One participant discussed her process of narrowing career pathways in these terms:

> I don't work well with children, so I definitely do not want to be a teacher. I'm not good with blood . . . or bodies, so I don't really want to become a doctor or a nurse or anything in that field. I did my work experience as a carpenter, well with a carpenter. I enjoyed that, but I don't have the body strength to do it. It is just a lot of hard work. (LS: 12/B)

Participants reflected on a wide range of experiences, sometimes dating back to early primary school years, that helped them narrow their career-related pathways.

A handful of participants ruled out careers due to perceived school subject area weakness, and this was particularly the case with mathematics (e.g., "well I'm not really good at maths, so that could eliminate a lot" (EG: 8/9); "something that involves a lot of maths because that is just something I have no interest in at all" (RB: 10/11)). At times, even if participants were capable in mathematics, they lacked the interest to pursue careers requiring strengths in mathematics (e.g., "I'm not bad at maths, I just don't, I'm not very excited about it" (GB: 10/11); "anything related to maths, I'm sick of it" (EM: 8/9)). One participant explained her outlook on mathematics and science this way: "It would be a nightmare for me to end up in maths or science just because I, I'm not, struggle, but it just causes me so much stress" (CL: 12/B). Participants rarely discussed weaknesses in humanities or arts-based school subjects as being a narrowing factor in their decisions.

Several participants ruled out full-time careers in the arts due to strong, field-specific competition. For example, one participant spoke of ruling out a career in drama: "I've had a lot of thought about acting and singing, but I feel like there are the types of careers which you need to be the top number one to actually get a career in them" (LS: 12/B). The arts were the only fields participants ruled out due to potential field-specific competition.

Several participants' sensitivities sometimes helped rule out certain career fields (e.g., "nothing that involves me working with blood or guts or people's illnesses . . . a policeman or

policewoman sounds interesting, but I don't want to have a job that's sort of life threatening or mentally scarring" (HV: 10/11); "I was informed by my parents that you had to cut up dead bodies in university, so that kind of put me off a bit" (SB: 8/9)). No participant expressed interest in overcoming sensitivities to pursue particular career aspirations.

A handful of participants ruled some jobs out because of the potential impact on their future lifestyles. Some participants expressed strong preferences for flexible working schedules, and ruled out jobs that could not provide this (e.g., "I think nutrition and the arts are pretty free flow jobs . . . and the lawyers and accountant, they're pretty much just stuck in a position where they have to do the same thing" (AW: 8/9); "So I think that in my future having the flexibility to do what, I don't know, put my family and my friend first" (EW: 12/B)). At times, they considered ruling out certain occupations they viewed as incompatible with possible future family responsibilities. Several participants ruled out occupations they viewed as too stressful, such as teaching (e.g., "I've realised that it was a lot more work than I think I could personally handle" (EW: 12/B); "I definitely didn't want to be a surgeon or anything because that's too much pressure I think" (CS: 12/B)). One participant stood out as ruling out an occupation for financial reasons: "I don't really want to do as a main job in anything designing because I think it would be fun, [but] it might not get a big pay of money" (AM: 8/9). Participants' desires for a positive work/life balance in the future helped narrow their choices.

Having crystallising experiences enables career development. Although participants' decisions were often characterised by a gentle unfolding, a handful of others pointed to specific influences crystallising their career-related decisions. Some of these participants pinpointed decisions made at specific times, while others were unsure about the timing of their decisions. For instance, one participant reflected on her changing career aspirations due to growing independence

between the first and second interviews this way: “My last discussion the career path I wanted to go on my parents impacted on me a lot. Whereas this time it’s just been things that I’ve wanted to do and things that I actually found that I enjoyed” (AM: 8/9).

Approximately one-third of participants often credited crystallising experiences as a coming together of meaningful mentorship relationships within career-related contexts linked with their main career interest area. Exposure to mentors or being a mentor to younger children and peers was the most common career-related crystallising experience among participants. For instance, one participant spoke of a life rich with musical role models, mentors, and opportunities to mentor younger music students as providing specific crystallising experiences. Mothers and exposure to mothers’ workplaces were frequently cited as part of crystallising experiences. Other female role models such as teachers and extended family female members were also mentioned by many of the participants as being connected with career-related crystallising experiences. Male role models were rarely mentioned as having significant shaping experiences in participants’ crystallisation of career goals.

Another way to illustrate this study’s concept of crystallising experiences is by examining single participant career goals formed in relation to a specific experience in time. For instance, some participants who had meaningful relationships with health professionals and personal health-related difficulties experienced career-related crystallising experiences leading to health field career aspirations. One participant highlighted the ways several health-related factors influenced her career aspiration:

> I put on a heap of weight . . . which really kicked me into overdrive to start exercising and thinking about my body and my health. So, I started exercising daily . . . so I thought well, maybe I could make a career out of this. (LS: 12/B)

She went on to discuss the ways her fitness success, exposure to a fitness training role model, and discussions with her counsellor led to her career aspiration as a fitness trainer. Another participant talked about being exposed to younger children in music settings as being part of her crystallising experiences:

> I want to teach other kids about music because I think it's really important that kids learn about music . . . I've seen lots of organisations that have helped change kids' lives with music. (TM: 8/9)

She went on to talk about how these types of experiences were driving her to pursue a musical career. Other participants referenced similar turning points that combined experiences and meaningful relationships within settings such as education and medicine.

A strong sense of belonging in environments like universities, the military, or the theatre created crystallising experiences for some participants. For instance, one participant from the middle cohort expressed strong desires to be an educator in rural locations. She asserted:

> You see schools there and there's only one school with . . . only one class and one teacher there . . . it just sort of gives you a sense of how important that sort of a job is . . . out there, they've only got one teacher. (HV: 10/11)

Several participants spoke in both interview rounds of a sense of belonging in a certain space.

Mentoring enables career development. About one-third of participants discussed mentoring their peers or younger children as shaping experiences. Participants planning teaching careers stood out as having many prior experiences with younger children in mentoring settings (e.g., "I like to sort of interact with them and learn how they work and how comfortable they are around me" (AM: 8/9)). These experiences influenced their high levels of career-related

confidence and interest in working with children in future career contexts. For instance, one participant planning to become a music teacher linked being a mentor with her main career goal:

> I do a program with my orchestra which is really good fun. It's called the babies' proms . . . all little kids come to the concerts and we play nursery rhymes and . . . it's really good to see. (TM: 8/9)

Many participants planning to become teachers linked this to in-school mentoring experiences, but some also credited this to family and community-based mentoring experiences.

Taking measured risks creates tensions in career development. About two-thirds of participants were willing to take some measured career-related risks such as entering highly competitive fields that might involve the need to relocate for future jobs (e.g., "I think I'm definitely prepared to take risks. I just, I've got the sort of goals sort of lined up, what I want to do" (AS: 12/B)). However, a few stated these risks must be very carefully considered. The most common risk participants discussed was aiming for high university entrance scores or considering relocation to pursue their primary career aspiration ("I'm still scared about university . . . I don't know what ATAR score I'm going to get" (OL: 10/11); "sometimes you get that ATAR, but it's just like that one or two place that you just don't get in" (AW: 8/9)). Others talked about weighing up the risks of studying or working interstate or overseas (e.g., "I don't know if I'm fully prepared to move away from home yet, so that's a risk that I may consider or may not consider taking" (GB: 10/11)). One participant summed up weighing up career-related risks this way: "Probably first of all actually doing well at school and getting the grades I need to study medicine and then to actually move to [overseas] and live alone there. That's quite a big risk I think" (KK: 10/11a).

Other less common risks considered by a few participants were finances and time off from formal education. A few participants also talked about the risk of having to pay for their university degrees (e.g., "depending on the cost of the course, that could be a factor . . . I've heard that they're

getting high lately" (CS: 12/B)). One participant discussed taking a year off to make clearer career plans like this: "I've sort of taken a risk as I've taken a gap year, just to sort of think about what I want to do and really solidify that ambition" (CS: 12/B). A few participants pursuing fields such as chemical engineering and detective work spoke of being willing to risk physical injury. Overall, participants seemed to believe the risks involved in pursuing their primary career aspiration were worth the future opportunities provided.

Addressing barriers creates tensions in career development. Career-related barriers that were internal created greater concern than external ones. Participants saw internal barriers related to personal traits such as introversion as causing career-related barriers (e.g., "I guess it can be a challenge . . . because a lot of gifted girls they're not really used to sort of . . . interacting with other people sometimes" (CS: 12/B)). Few external barriers narrowed participants' career-related decision-making processes. Participants typically seemed to demonstrate a strong sense of agency, and described plans for solving most external experiential or anticipated barriers relating to issues such as finances or lacking experience. The primary external barrier participants discussed was high university entrance scores, but they were committed to obtaining necessary entrance scores in pursuit of their primary career aspirations. All participants believed that once they gained desired university entrance scores they would succeed in their career trajectories.

While most participants did not see multipotentiality as an issue in narrowing their career aspirations, four of the 18 participants found it to be difficult. By way of example, when asked about their biggest career-related challenge, one participant discussed the role of her multiple abilities: "It's taken me a long time to even vaguely decide on a career choice . . . I think I have a lot of options . . . I'm capable of doing a lot of things" (GB: 10/11). Several participants discussed having significant hobbies in the arts or sports, but each of these participants believed these could

be easily balanced with their future careers. EM (8/9), AS (12/B), and CS (12/B) were planning to pursue two careers at the same time and saw this as desirable. One participant talked about having "all sorts of mini-careers and then a big" (AS: 12/B). Participants voiced confidence in being able to manage their many interests and abilities in future career contexts.

Approximately one-third of participants expressed concerns about a lack of knowledge in creating a healthy future work/life balance (e.g., "it'll be difficult to keep up with the work and, and still having a social life and a family life" (NC: 10/11)). Several participants expressed experiencing work/life challenges during the course of the study. By way of example, one participant spoke about the difficulties of balancing school life and her personal life:

> Having a balance which is something I've tried really hard to do more this year because in [Grade] 8 I didn't have much balance . . . I was just spending my whole life working for school and that's just probably not healthy in the end. (RB: 10/11)

This lack of knowledge created tensions as they made plans for how their future careers would fit with their other future life roles.

Career-related goals. Individuals cited a range of occupational aspirations in the first interview, and two thirds of participants maintained the same goals when interviewed again approximately 12 months later. Participants' primary career goals are summarised in Table 2 below.

Table 2.

Participants' Career Goals

Participant	Stated Career Goal Interview 1	Stated Career Goal Interview 2
	Grades 8/9	
AM	veterinarian	primary school teacher
*EM	homicide detective, author	homicide detective
AW	nutritionist	optometrist
*SB	actress	actress
*TM	musician, music teacher	musician, music journalist
EG	light technician	psychologist
	Grades 10/11	
*HV	secondary art teacher	primary teacher
*NC	secondary science teacher	secondary math and science teacher
*RB	obstetrician then professor	obstetrician
*KK	surgeon	surgeon
GB	teacher	physiotherapist
*OL	medical officer	medical officer
*MP	chemical engineer	chemical engineer
	Grades 12/B	
*LS	fitness trainer	fitness trainer
*CL	interior designer	interior designer
EW	international lawyer	teacher then principal
*CS	speech pathologist, model	speech pathologist, model
AS	midwife, model	translator, model

Note. The 12 out of 18 participants whose primary career aspiration was maintained in both interviews are marked with an asterisk.

Five participants in the second interviews planned to become teachers, which was the most common aspiration in this study.

Factors Influencing Career-related Development

This section is divided into the two strongest influences on the career trajectories of gifted adolescent girls in the research settings. These two influences are presented as first the core themes of identity development influences career development, and then second the core theme of contexts influence career development. Each of these two core themes is supported by relevant sub-themes. These themes provide detailed answers to the research questions, and are supported by evidence from all three cohorts. Data are presented highlighting significant career-related enablers, tensions, and inhibitors in each of these themes and sub-themes. This chapter orders the sub-themes where possible in order of strength of impact.

Nine candidate themes were initially used and then refined during the analysis in order to define the final two core themes and supporting sub-themes. The candidate themes were: agency, beginning life narrative, circumscription, compromise, dynamic processes, external influences, giftedness, vocational self-concept, and epiphanies. Each of the nine candidate themes was linked with supporting candidate sub-themes. For instance, agency was linked with sub-themes such as creating opportunities, pursuing interests, barriers I can manage, and barriers I cannot manage. These themes were then refined during further analysis. For example, agency was strong and remained, but was renamed confidence. In contrast, the candidate theme of circumscription did not have sufficient data to support it and was no longer used. It became clear that each sub-theme could be grouped under a core main theme related to either external or internal influences. As mentioned above, these two core themes became identity and contexts.

The first core theme examines the impact of identity in terms of how participants view themselves, and the impact this has on their career development. The supporting sub-themes to identity include the main personal traits voiced by participants as having a strong influence on their career-related values, decision-making processes, and goals. These sub-themes include personal traits such as school subject strengths and leadership qualities. The second core theme of contexts examines their impact on the career trajectories of participants. The supporting themes presented in this section are related to families, schools, communities, and broader contexts.

Identity development influences career development. The first core theme in these findings is that identity development influences career development. The data suggest a strong influential factor on participants' career trajectories was their own sense of developing identities, as all participants cited this as important in forming their career goals. They discussed their identities in terms of their perceptions of their personal traits, including perceived strengths, interests, and weaknesses; however, they were primarily focused on harnessing their strengths in future career-related contexts. Participants were asked about the career-related influence of socially constructed identity categories of culture, gender, and intelligence as discussed by Gottfredson (2002a) and Savickas (2002), and some of their responses are included in this section.

By way of clarification, while participants seemed to define their career-related identities and values differently, there was some overlap between these two concepts. How they saw themselves in terms of identity was framed as self-perceptions of their personal strengths, interests, weaknesses, and traits. These beliefs about themselves influenced their career-related behaviours in terms of choosing values to prioritise and enact in their career trajectories. For example, many participants saw themselves to be leaders, and also prioritised securing future leadership positions as a career-related value. However, how participants saw themselves did not always translate

directly into the types of career-related values they aspired to in their future occupations. For instance, not all participants who saw themselves as having strengths in arts prioritised this as a career goal due to their career-related values of high job availability and stability. By way of another example, participants who reported being in low socioeconomic families were determined to value finances more in their own future careers than their parents had.

Directing personal traits from a strengths-based perspective enables career development. Participants reported that their personal strengths had much stronger career-related impacts than their weaknesses. All participants spoke of a wide range of personal strengths such as confidence, creativity, organisation, motivation, and being good at listening. Nevertheless, although participants mentioned many personal traits, they often only saw a handful of these traits as relevant to their career development. Being able and committed to making a difference in the world and having specific school subject area strengths were the most common participant strengths cited as influencing their career-related decisions. Participants also commonly cited being a leader as an influential factor on their decision-making processes and goals.

Understanding personal strengths and interests enables career-related decisions. When asked about how the kinds of people they were fit with their planned career trajectories, participants always mentioned some of their main personal traits. For instance, one participant surmised, “I suppose I’ve always been really creative and imaginative, which goes into being an author” (EM: 8/9). Similarly, another participant talked about several specific personal traits that would help her become a surgeon. She said, “I’m a very patient person and I can stand and focus for quite a long time . . . and I’m skilled with my hands . . . I don’t shake as much” (KK: 10/11). Another participant discussed her personal traits as being useful in midwifery: “I can be fairly nice

and polite, and sort of calm people down in situations" (AS: 12/B). Participants believed their personality strengths would enable them in their future careers.

Possessing abilities and commitment to making a difference in others' lives enables career development. Participants were asked what role the desire to make a difference in the world played in their career trajectories. All participants spoke of seeing themselves as able and committed to making a difference in the world as the primary driving force in their careers, and many stated this was their main priority in their career-related choices. One participant discussed her abilities to make a difference this way:

> About 120% of my aspiration to be a teacher, just that ability to have the positive impact on a child's life . . . perhaps they don't have that support at home or support anywhere else in their life . . . they can come to school and feel comfortable there. (EW: 12/B)

Participants appeared to have a strong sense of purpose linked with their abilities, and confidence to make a difference in the world. They each believed they could harness this desire to make a difference in a wide range of fields. For instance, some participants planned to save lives in the field of medicine, and others desired opportunities to shape young lives as teachers (e.g., "I really want to be an impact on someone's life when they're really young because I know that can be a really precious time" (AM: 8/9); "so I definitely want to be able to influence young people . . . it's just helping them to grow up and achieve their goals" (HV: 10/11)), and still others believed creating original artistic works could make a difference in others' lives. All participants discussed seeing themselves as able and committed to making a difference in people's lives as being an enabling factor in their career goals.

Building on this idea, even participants in less socially oriented professions such as interior architecture or chemical engineering discussed impacting others' lives as a driving force. By way

of example, MP (8/9) who was aspiring to become a chemical engineer talked about the potentially "life-changing" impact this could have for others' lives. She believed she could have an impact on global warming:

> A belief that I will maybe I'll be able to make a difference in the world, not for myself but for other people. . . it's given me a lot of hope . . . made me try a lot harder especially with school work . . . to try my best to achieve my goals . . . I'd be able to help other people's lives, not just my own. (MP: 10/11)

Participants looked for ways their own strengths and interests could impact the world.

Identifying school subject area strengths and interests enables career development. Participants formed a strong sense of self related to their perceived school subject areas of strength and interest. In terms of personal interests, all participants referred to school subject areas and outside of school hobbies. Participants referred primarily to the school subjects of mathematics, science, English, and the arts as influencing their career trajectories. Participants cited hobbies such as sports, the arts, and volunteer work.

When participants' school subject area strengths and interests aligned, this significantly influenced their career-related decision-making processes and goals. In a response representative of the cohort, EG (8/9) talked about the career-related influence of her school subject area strengths, weaknesses, and interests this way: "I'm good at the practical stuff" and discussed her favourite types of design and technology projects. She then made links between her practical skills and her aspiration to become a light technician. She ruled out careers that had "anything to do with lots of Maths because I just can't do Maths".

Only a handful of participants had extracurricular interests overlapping their subject area strengths, and this was usually in the arts or physical sciences. Artistic hobbies such as drawing, drama, or playing in a symphony orchestra were perceived enabling influences for participants

planning to pursue professional art careers (e.g., “I’ve always really loved doing art . . . so probably since about [Grade] 7 I was looking in that kind of art way, art field” (CL: 12/B)). No participants expressed tensions about balancing their outside of school interests with other aspects of their lives either during the study or potentially in the future.

Strengths and interests are not necessarily the same things. For instance, a handful of participants expressed school subject area strengths in mathematics coupled with a lack of interest (e.g., “I was good at maths, but I decided to drop that this year because I didn’t want the stress” (CS: 12/B)). Others talked more specifically about a lack of mathematical skills influencing their career goals. For instance, CL (12/B) discussed ruling out sports psychology due to a lack of mathematics and science strengths rather than interests:

> Sports psychology or that kind of area has cropped up in my head because . . . I know that would be something that interests me, but I’ve kind of pushed that to one side because I know that I’m not strongest in doing a maths or science subject. (CL: 12/B)

Almost every participants’ experience in mathematics played a unique role in comparison to other school subject areas. Discussions on mathematics were initiated by most participants, whereas other subject areas were referenced much less frequently. It was perceived as a watershed school subject area by many participants in terms of their career goals (e.g., “I’m not really good at maths, so that could eliminate a lot” (EG: 8/9)). Mathematics was the main subject area a number of participants discussed with them having strengths in it coupled with a lack of interest. One participant aspiring to be a surgeon said, “I realise that I was capable of doing well in the subjects [Math, Chemistry, and Biology] and that that meant that I could, I would most likely also do well in my career pathway” (KK: 10/11). In contrast, RB (10/11), who was planning to enter the medical profession requiring high levels of mathematics said, “Maths is definitely something I have to

work harder for" (RB: 10/11). She went on to say that she was willing to do the additional mathematics work required for university admission to medicine. Other participants expressed similar commitments to additional work in pre-requisite mathematics courses.

Positive, field-specific experiences or relationships strengthened participants' sense of identification with disciplines such as mathematics or the arts. In general, participants saw themselves as having either strengths in mathematics and science or in English and the arts. Out of the 18 study participants eleven reported strengths in English, seven reported strengths in art, six in science, and five in mathematics. In terms of an overlap of subject strengths, most students who reported strengths in the arts art also cited strengths in English. Likewise, most students mentioning science strengths also mentioned mathematical strengths.

Confidently enjoying being a leader enables career development. Most participants saw themselves as confidently enjoying leadership roles. They had built this view of themselves based on their prior leadership experiences. Only a few participants discussed tensions or inhibitions due to lacking leadership skills.

All but a few participants discussed already having experienced formal leadership roles within a wide range of contexts, and saw these experiences as enabling their career goals. They discussed leadership roles such as school ambassadors, student rights advocate, tutor, and school captain as influencing their career-related decisions and goals. For example, one participant discussed her past leadership roles in the field of music increasing her interest in future music leadership roles:

> I've always really enjoyed leadership opportunities . . . I do like being a leader [in the music field] because that would be like an orchestra leader . . . it would be good to get to those kind of positions. (TM: 8/9)

Leading music workshops for younger children made her interested in becoming a future music leader. She went on to say:

> Any leadership opportunities that I do get I think really do help me improve on my leadership skills and make me more enthusiastic, determined to keep going and so I can get more opportunities. (TM: 8/9)

Participants particularly entering the field of teaching discussed how previous experience leading younger children influenced their career-related decision-making processes and goals. By way of example, one participant with a strong background volunteering in education settings said, "I want to become a teacher because . . . I just have been told that I possess leadership qualities and I really enjoy doing that sort of thing" (NC: 10/11). The more positive leadership roles participants had experienced, the more they were interested in future career-related leadership roles.

Approximately one-third of participants discussed a view of themselves that they worked best when having a balance of independent and leadership roles. As a result, they were planning future work environments allowing for both of these opportunities hand in hand. In a representative response, one participant planning a legal career talked about needing a blend of these working styles:

> I'd like to work independently, but I mean independently as part of a team, but I don't want to be bossed around by someone. I don't want to be taking orders and I don't want to be taking cases if they are not what I believe in. (EW:12/B)

Participants often spoke of this blend being both necessary and comfortable.

Almost every participant expressed a high degree of confidence in their abilities as future field leaders. For instance, one participant discussed eventually wanting to lead a medical team: "I feel like I would be able to do that quite well, have the confidence and the motivation to be able to

do that" (RB: 10/11). Others expressed confidence in fulfilling future positions such as a school principal or specialist surgeon.

Understanding personal weaknesses creates career-related tensions. All participants cited a range of personal traits they viewed as tensions or weaknesses, such as lacking risk taking skills, social introversion, time management issues, and procrastination. However, they generally viewed these traits as manageable and having minimal influence on their career trajectories. For instance, a representative response which mirrored most participants' approaches to challenging personal traits was: "I suppose generally I do procrastinate . . . I think I just need time management. I need to really set a schedule . . . for myself and stick to it" (CS: 12/B). Participants expressed confidence in dealing with most of these internal issues.

However, two main personal traits stood out as creating significant tensions or challenges in their career trajectories. All 18 participants was that they saw themselves as perfectionists, and four of them saw that as creating tensions in their career development. Participants with a formal diagnosis of mental health issues spoke of this as part of themselves, and this had a significant impact on their career trajectories. Six out of the 18 participants cited formally diagnosed mental health issues, and five of these believed their mental health considerably impacted their daily schooling and future career-related plans. Most participants with formally diagnosed mental health issues saw this as their most significantly inhibiting career-related influence.

Having a mental health diagnosis inhibits career development. Participants cited a range of formally diagnosed conditions as impeding engagement and achievement, and therefore influencing their career development pathways. They talked about these mental health issues negatively affecting their schoolwork, school attendance, and abilities to make career-related

decisions. Several participants experiencing family breakdowns perceived this to be a particularly significant influence on their mental health. Several participants were seeing mental health professionals and also taking psychiatric medications. Two participants with formal mental health diagnoses cited guidance from their counsellors as helping crystallise their career goals. Some were concerned about the impact their mental health issues would have on their future university education and long-term career plans. Although most participants with mental health issues lacked the confidence to successfully manage these in their career trajectories, one participant stood out as seeing these challenges as inspiring her primary career aspiration.

Being a perfectionist both enables and inhibits career development. Participants were asked whether or not they saw themselves as perfectionists, and as mentioned earlier they all did. They had different perceptions on how this influenced their career-related decision-making processes and goals. All but a few saw perfectionism as a potential career-related enabler but some saw it as a potentially significant inhibitor. Many saw perfectionism as an asset in their schooling (e.g., "work harder and achieve that [career] goal" (AW: 8/9)) and future career roles requiring high levels of excellence or precision such as in medicine, education, and design. For instance, one participant spoke of the enabling impact of perfectionism in her planned future workplace this way:

> Although being a perfectionist personally might be. . . not a terribly positive thing . . . it might be really helpful because everything has to be done perfectly when you're a doctor . . . lives are at risk. (RB: 10/11)

Another participant said:

> I guess [perfectionism] both helps with keeping focused and getting good marks to finish high school well, and get more researching into it but at the same time it also stresses me out a lot so it's sort of both negative and positive at the same time. (EM: 8/9)

Most participants believed they could manage career-related perfectionism themselves, but that it caused tensions in their personal lives (e.g., “I can be a perfectionist, and it can stop me from doing certain things just because I want to do them perfectly or I don’t want to do them at all” (LS: 12/B)).

Some saw perfectionism linked with high work ethic as getting in the way of career-related development (e.g., “too focused on doing well for myself rather than helping other people” (HV: 10/11)). These participants talked about it making them too focused on their career goals to “work out well and perfect” (EG: 8/9). They felt that indecision at times made them miss out on good options. One participant had undergone professional counselling to manage her perfectionism. She was unsure about the career-related impact this would have on her future career pathway.

Being identified as gifted and female influences career development. Membership in the socially constructed identity categories of giftedness, gender, culture, and socioeconomic status appeared to influence career decisions. Of these identity categories, giftedness and gender had the most career-related significance. Four of the 18 study participants were from immigrant backgrounds. Two participants perceived their families to be from low socioeconomic backgrounds, and both stated this influenced their career trajectories.

Being identified as a gifted student can both enable and create tensions in career development. All but a few participants agreed that giftedness was part of the way they saw themselves as people. A handful of participants reported that being IGNITE students would open up additional future employment options for them. Participants made links between being labelled as gifted and both high internal and external expectations of their career goals. Some participants discussed having high personal career-related self-expectations due to being identified as gifted

(e.g., “if you’re gifted you shouldn’t be wasting your talent on just flipping burgers . . . you should be something that you study on and just become something . . . useful to the society” (OL: 10/11)). Some participants spoke of high self-expectations for school achievement (e.g., “I do put a lot of pressure on myself to do it” (GB: 10/11)) However, many participants questioned whether their career goal was good enough for highly able individuals, particularly those with teaching career aspirations.

Some participants reported being influenced by others’ expectations of gifted students (e.g., “people expect me to do . . . quite big things” (AS: 12/B); “I have a massive fear of disappointing people . . . the last thing I want to do is let them down” (CL: 12/B)). Mixed career-related messages were given by parents, teachers, employers, peers about being labelled as a gifted student, and this often created tensions (e.g., “my mum has wanted me to do . . . something like maybe be a doctor or be an engineer or something because Mum thinks I have the brains for that” (NC: 10/11); “based on other people’s expectations like teachers, family, friends, I guess I always try to live up to the expectations” MP: 10/11); “I felt that I couldn’t choose something that I just I personally wanted to do because I had these pressures from other people” GB: 10/11)). One participant said:

> I definitely get peer pressure and pressure from I guess adults being a leader since they see they tend to view the IGNITE group as potential leaders in their career . . . definitely getting hints that we should be great leaders in our field. (AW: 8/9)

Participants seemed to experience the most tensions from external parental expectations related to being a gifted student. For instance, one participant said, “so it’s not like my parents are, you know, tiger parents or anything like that, but they do, you know, push us to strive a little bit above what we could possibly do” (RB: 10/11). By way of another example, one participant felt her parents always wanted her to do better:

> I think that my parents just want me to be as best as I can and sometimes that means they say, oh well you can do this instead and it's even better and bigger, but that's not what I want to do . . . listening to what I want to do is probably the best thing to do. (AM: 8/9)

Others talked about delaying making career goals if their parents were pressuring them to pursue more prestigious career goals.

Teaching was the main career aspiration that stood out as attracting the most negative external messages related to being a gifted student. For example, one participant (GB: 10/11) discussed these struggles this way: "Somebody will ask me what I want to do . . . and I'll say teaching and they [say] you're much smarter than that, why would you choose to be a teacher?" She went on to say she found it difficult to deal with these pressures. Other aspiring future teachers expressed on-going external pressures especially from parents and teachers to pursue careers such as engineering, law, medicine, or architecture.

In contrast, some participants received general enabling support for their main career aspiration such as acting or chemical engineering regardless of their gifted student label (e.g., "people have taken me for drama, acting stuff . . . dance that I do outside of school, they've always been quite encouraging I would say" (SB: 8/9); "they just want me to go for whatever the hell I want to do, and they're just really supportive" (MP: 10/11)). One participant stood out as seeing external pressures and messages related to being a gifted student as an enabling influence by opening her mind to additional options ("I guess they can help me open up to new ideas, but in the end it's my decision" (HV: 10/11)). In general, specific negative feedback on their primary career goals had an inhibiting influence, whereas explicit positive encouragement had an enabling influence.

One participant stood out as having unique perspectives on teachers' career-related attitudes to IGNITE students. She thought although teachers believed in IGNITE students' future career success, they did not provide sufficient individualised career support: "Every teacher . . . just kept going on about how being a smart girl . . . that it didn't matter to her which subject she did" (GB: 10/11). She was concerned about there being less career-related support for IGNITE students by comparison with the mainstream students.

Being female creates tensions in career development. Gender had a range of career-related impacts on participants, however only a few participants saw their gender as a significant career-related factor that was either enabling or inhibiting. Almost every participant expressed strong beliefs in career-related gender equality, and usually believed their gender would not get in the way of being able to pursue any career pathway. However, many participants reported being female meant they had not considered certain career pathways in younger years. Some expressed significant tensions about careers they may not have considered due to workplace gender bias and potential work/life balance issues related to future caregiving roles. A handful of participants discussed knowledge of feminism impacting their own career-related decision-making processes. They also believed being female would involve ambiguous career-related issues in the future.

Many participants discussed concerns about having consciously or unconsciously chosen gender-based career pathways. They sometimes spoke regretfully about external gender-based expectations having led to ruling out certain careers at younger ages. For instance, one participant discussed gender influences on career decisions:

> I think women are turned off from working around construction . . . because they feel that the men are the strong ones and that's what they should do and the girls should be girly I guess or weak or work in different areas. (HV: 10/11)

Several received direct discouragement from entering certain fields due to their gender (e.g., "they should take it more easy than boys because boys are sometimes are more physically . . . mature . . . just choose this doctors in general" (AW: 8/9); "as a girl or a boy you should follow a more conventional field like guys shouldn't work in design or girls shouldn't work in sport or construction" (CL: 12/B)).

Only one participant in this study perceived external gender-based messages having ruled out one of her main career preferences:

> When I went for my work experience, most of that I was going to do carpentry. It was . . . over-sexualised to put it bluntly. It was, oh well you're going to be the hardest girl on the site, and just, it didn't make me feel good about choosing that. It made me feel dirty and disgusting. And it felt like, well, if I want this career, I'm going to have it, but it's also going to be so much stigma, and so much . . . gross harassment that women get every day on the street from other blokes on worksites. That's just going to be what happens to me but all the time. (LS: 12/B)

As a result of her experiences, she ruled out a career in carpentry. Her experiences were unusual in this study.

A few participants expressed tensions about gender equality in their future romantic relationships. One participant in particular voiced uneasiness about this:

> The guy feels like he should have the more, the higher earning, why it should be the breadwinner . . . at the end of the day, you should be able to do what you want to do. I don't see why gender should influence what you do. (CL: 12/B)

She went on to talk about concerns over gender equity in salaries.

Several participants discussed growing understandings of feminism as a result of student led school projects as broadening career options they were willing to pursue. For instance, one participant talked about how her research project on feminism was an enabling career-related influence:

> I've learnt a lot about feminism . . . popular culture and reading . . . and some of those things have really influenced me and I've learnt a lot and also it made me feel more empowered and . . . made me not feel as restricted in my gender. (GB: 10/11)

She went on to talk about the ways understanding career-related challenges other women had overcome encouraged her in her own career trajectory.

Being from some cultural and socioeconomic backgrounds creates tensions in career development. Cultural backgrounds and low socioeconomic status had some influence on participants' career-related values, decision-making processes, and goals. They discussed either heightened external or internal expectations as a result of their cultural backgrounds. For instance:

> There's a stereotypical stuff going on with becoming a doctor . . . if I wasn't planning to become a medical doctor . . . I wouldn't really feel comfortable talking to my parents about what I want to become. (OL: 10/11)

One participant spoke of the career-related influence of her culture as meaning her parents were laid back about her career plans.

The two participants from low socioeconomic status backgrounds discussed high parental career-related expectations that the children rise higher than themselves in their future careers. For instance, MP (10/11) reflected:

> We don't have . . . the best income . . . so my parents have always not really pushed me and my sister, but they've always wanted us to get the career we want so . . . I've grown up thinking that it's really important to get a good career. (MP: 10/11)

These two participants were expected to pursue prestigious career pathways.

Contexts Influence Career Development. The second core theme in these findings is that contexts are integral to career development. The four contexts participants often cited as being strongly influential on their career trajectories were family, school, local community, and broader societal contexts. In this section of the chapter, these four contexts form sub-themes that are

presented sequentially in order of participants' perceptions of their impact. For instance, the sub-theme relating to family appeared to have a stronger impact than the sub-theme relating to community, so it appears earlier in this section. Participants discussed a wide range of experiences within these contexts as impacting their career pathways. At times participants expressed a strong sense of fit with specific contexts such as arts or military settings, which influenced their career-related decisions (e.g., "my brother's really into drama . . . and he performs on stage and I just like to work with people like that" (EG: 8/9); "it was like another society in a society, it was really cool to see" (OL: 10/11)).

Participants primarily discussed meaningful relationships such as role modelling or mentoring within these contexts as having the most significant impact. Participants usually described career-related role models as those working in their own fields of interest. In contrast, they described mentors as people worthy of admiration who also trained them in field-specific skills related to their primary career aspiration.

Family contexts enable career development. All participants were asked about the influence of family on their career trajectories. Participants discussed family contexts in comparison to other contexts as having the most significant impact on their career-related values, decision-making processes, and goals. The five different types of family influences they discussed ordered from the most to the least influential were: (1) mothers, (2) fathers, (3) parents together, (4) siblings, and (5) extended family. By way of clarification, occasionally participants discussed their parents' influence together as a unit, but the individual influences of their mothers or fathers

were much more frequently reported. Family members were an integral part of participants' career choices.

Mothers both enable and create tensions in career development. All participants cited their mothers as having a significant impact on their planned career pathways. Participants often described their mothers as role models and sometimes also as mentors in their career trajectories. They looked to their mothers as role models in navigating their future career and work/life balance. Most participants perceived their mothers as enabling influences.

A handful of participants discussed their mothers as being the primary influence on their career trajectories (e.g., "the main person would be my mother" (KK: 10/11); "my mum is the biggest [influence] at the moment" (EG: 8/9)). They often discussed the roles their mothers' career decisions, workplaces, and communities played in their own decisions. For example, KK (10/11) credited her career aspiration as a surgeon to a combination of her mother's regrets of not pursuing medicine, medical friends, and constant support. Although most participants perceived their mothers as an enabling influence, several participants expressed tensions about their mothers' lack of support (e.g., "I felt sort of I guess upset because my mum wasn't really as supportive as I wanted her to be" (EM: 8/9)).

Others talked about the ways their mother's career choices enabled their own career-related decisions. For instance, CS (12/B) who was planning on becoming a speech pathologist discussed how her mother's own previous speech pathology career aspirations encouraged her goal. Some participants identified themselves as having similar personal, career-related traits as their mothers. For instance, CL's (12/B) mother had strong people skills and an enjoyment of work, and this inspired her to use similar approaches in her planned interior architectural design career.

Some participants cited times spent at their mothers' workplaces as providing significantly shaping career-related influences (e.g., "I've spoken to Mum's bosses before, the doctors at Mum's work . . . it gave me the opportunity to see what I would be like in that career" (EW: 12/B), "ever since I can remember whenever we've had a day off Mum's taken us into school and we've sat with the younger classes" (NC: 10/11), "one of my Mum's clients, her daughter was a nutritionist and that inspired me a lot because she told me all these things about nutrition" (OL: 8/9)). As a representative example, HV (10/11) spoke of her career aspiration of becoming a teacher being heavily influenced by her mother's workplace and their close relationship: "My Mum was a teacher . . . she works as a . . . Student Support Officer. So, I guess, she's fairly significant in my life being my mum and all" (HV: 10/11). She discussed her mother's teaching background and ideas as appealing to her. Other participants spoke of similar experiences with their mothers in fields such as medicine.

A few participants spoke of exposure to their mothers' broader communities as shaping their own career goals. For instance, one participant remembered times with her mother's friends influencing aspirations to enter medicine: "[Where I used to live], my mother had lots of friends that were . . . doctors and we had them over a lot . . . they'd talk about their experiences and it was always very interesting" (KK: 10/11). Participants viewed their mothers' communities as enabling factors.

While many study participants found career-related inspiration from their mothers, a couple learned from their mother's regrets. For example, AW (8/9) discussed the ways her mother's regrets of choosing an office-based career pushed her to choose a more enjoyable pathway. Similarly, RB (10/11) referenced ways her mother's regrets were influencing her own decisions:

> Mum did really well at school and started off in medicine, but really didn't like it. She's really musical too, she was in a band and decided to go and follow that dream instead, which she kind of regrets now . . . then . . . into nursing . . . which has also probably influenced my decision as well. (RB: 10/11)

The career decisions of some participants' mothers helped narrow their own decisions.

Participants were influenced by their mothers' direct messages relating to their primary career aspirations. All participants receiving their mothers' general support to pursue their primary career aspirations found this to be enabling. Some participants expressed tensions that their mothers believed their primary career aspiration was not good enough for them due to their high potential. Several participants such as EM (8/9) aspiring to become a detective and LS (12/B) aspiring to become a personal trainer expressed concerns over their mothers' lack of career-related support. For instance, LS (12/B) talked about how her mother's lack of support for her primary career aspiration resulted in her ignoring her mother's career advice: "I think just letting her know in the nicest way possible that this is my life and I'm going to do what I want with my life. If I make mistakes, I'll learn from those mistakes" (LS: 12/B). Few participants appreciated clear suggestions from their mothers that they follow a certain pathway. Mothers' direct messages tended to create a mix of positive and negative career-related influences for participants.

Some participants spoke of appreciating their mothers' practical support for their primary career aspiration. For instance, while TM (8/9) reported her parents both providing strong support, she especially highlighted her mother's role: "My family are very supportive of what I want to do. My mum particularly is always looking for opportunities for me to do different things usually to do with music, but anything else that I'm interested in." Others spoke of their mothers' enabling influence by offering additional practical supports such as providing extension curriculum or

attending career days together. Practical actions supporting participants' primary career aspiration were appreciated.

Fathers enable career development. All participants cited their fathers as being an enabling influence, and usually this was through providing general support, advice, and role modelling. Several main differences stood out between paternal and maternal influences. Participants spoke both more often and strongly of their mothers' on-going support. Responses suggest that career-related financial advice was more frequently provided by fathers than mothers. No career-related tensions or inhibiting factors relating to their fathers were described by participants. Several participants cited their fathers as being the most significant person influencing their career choices, but this was less frequent than with their mothers. They often described the nature of their father's work in vague, unsure terms (e.g., "I've always been confused about my dad's job but he works for a company called [company name]" (EM: 8/9)), whereas they often showed strong understandings of their mothers' workplaces. Fewer participants described the impact of their father's workplaces than their mothers' workplaces. HV (10/11) spoke about her father's work this way: "it doesn't appeal to me so it's given me a view on something that I know now that I definitely don't want to pursue." Fathers were only occasionally viewed as career-related mentors (e.g., "Dad's worked in the medical field for his whole life pretty much, so he's given me lots of information about what it might be like or careers or education at school that leads me down that path" (RB: 10/11)). Most participants described their fathers as role modelling undesirable career pathways. Only a few participants were interested in following in their father's career fields.

Two out of the 18 participants spoke particularly strongly of their father's influence. CL (12/B) perceived her strong, open, and respectful relationship with her father to be the primary

relationship shaping her career trajectory. She explained the reasons for his impact this way: “He wants you to do well and he will show, he would tell you your strengths without, with being brutally honest, but being knowing that you can do it” (CL: 12/B). She discussed admiring her father’s commitment to a stable but undesirable job to support his family. She planned to pursue a more enjoyable pathway. LS (12/B) credited the unexpected financial support from her father for post-secondary training fees as opening up her career options.

A few participants discussed ways their fathers provided practical support with their education. They viewed this as supporting their career development. For example, one participant said, “Dad helps me a lot with my Maths homework and things, but I don’t think it’s his fault that I’m not interested in [a career in engineering]. I think it’s just me” (GB: 10/11). Specific support from fathers in school subject areas such as mathematics or science did not seem to increase participants’ interest in pursuing related career trajectories.

Some participants expressed appreciation for general career-related support provided by their fathers (e.g., “my dad’s always told me that I could be the best if I wanted to . . . he’s always . . . it’s just comforting me and guiding me in a way” (AM: 8/9)). A number of participants cited specific suggestions from their fathers that they needed to consider future job reliability and salary levels when making career decisions. Nevertheless, financial considerations played a small role in participants’ career-related decision-making processes and goals.

Parents who provide unconditional support enable career development. Participants generally found the support given by their parents to be enabling, and this was particularly the case if they provided unconditional support for their primary career aspiration. While several participants spoke of similar support styles of both their parents (e.g., “my family’s really determined to have us all do well and so a career in medicine is something . . . to aim high for

something . . . that's also influenced my decision" (RB: 10/11)), most participants discussed their parents' career-related influence separately (e.g., "my mum was a teacher and that idea . . . really grew on me . . . my dad, being an engineer, I've always looked and thought no, I don't want to do that" (HV: 10/11)). Sometimes parents differed in their opinions of their adolescent's career goals. Practical support, unconditional support, and exposure to their own workplaces had the most enabling effects.

Some participants perceived their parents as providing general support for any career pathways they would choose (e.g., "my family are a driving influence, but I think they're encouraging of whatever I want to do, if I can succeed in that, it's always a good feeling" (CL: 12/B); "they're both so supportive of me doing whatever I want to do" (EW: 12/B)). For example, one participant expressed her parents' support as flexible: "My parents are pretty simple about my career . . . although they have had suggestions . . . their flexibility kind of just made me choose this [career]" (AM: 8/9). Participants found this unconditional support enabling.

Other participants discussed specific career-related guidance from their parents. For example, EM (8/9) who was planning a career as a detective talked about their support this way:

> My parents and a counsellor I see now and then has helped give me ideas and suggestions of things I could do to help with my subject choices and with general community service to help me be able to actually get the job when I'm older so then I've got a better chance for it. (EM: 8/9)

Participants usually found parental advice to follow a certain career pathway that aligned with their interests and abilities helpful. However, parental messages that participants' primary career aspirations were not good enough usually created tensions.

Some participants discussed specific enabling practical steps parents took to support their chosen career trajectories (e.g., "I've got a really supportive family. We have the resources that

can, you know, pay for me to go to university. I have the, I'm at a great school" (RB: 10/11)). For instance, TM (8/9) talked about her parents providing opportunities in her chosen field of music:

> My parents have been really supportive. They do so much for me to do all my music, like take me to all my lessons and my concerts . . . they've always tried to give me as many opportunities as they can. (TM: 8/9)

Others spoke about parent help with school work as enabling their career goals:

> When I come home to do my homework, they're there and they're really supportive in helping me . . . so probably support in being able to achieve high grades because that's what's going to get me to medicine in the end. (RB: 10/11)

Still other participants spoke of parental help with obtaining specific career-related information (e.g., "mum and dad taking me to the career expos and taking me the places, that's been, most helpful and meant the most" (EW: 12/B)). Participants found these practical parental support strategies enabling.

As discussed earlier, two participants referenced ways their parents' relationship breakdown was impacting their mental health, education, and career trajectories. One participant stated, "I think there will be a little trouble of getting into [university] because during one year, during the past year, my family hasn't been in the good relationship lately, so that kind of puts me in a stress-ish . . . and that could kind of distract me from studying hard" (OL: 10/11). Another participant discussed finding it hard to be motivated to do anything as a result of her family breakdown. She was concerned this would mean having to repeat her final year of secondary school, and maybe having trouble attending future university classes.

Siblings acting as both mentors and mentees enable career development. Siblings had a strong influence on some participants' career trajectories, with several participants citing them as the primary influential person. Although older brothers had the strongest influence, younger

siblings also had an impact. The unique influence identical twins had on each other's career trajectories stood out among the data.

Most participants who discussed the career-related impact of role modelling and mentoring relationships between siblings found them enabling in their career pathways. Participants often spoke of older brothers as career-related role models and mentors. Although several participants had older sisters, no participants spoke of them significantly influencing their career trajectories through role modelling or mentoring. At times older brothers provided the primary information on university pathways their younger sisters could not source at school. For example, one participant planning to become a detective saw her older brother as her main career-related information source:

> I'll talk to my brother about something at school and then he will tell me it could be related to with what I might the job I want to do then he'll sort of give me this information of what I'd actually have to know. (EM: 8/9).

One participant planning to be a light technician for drama productions called her brother her "inspiration" (EG: 8/9) due to his music performance roles and teaching her to play instruments. In another example, when asked about who was the most significant influence on her career development, OL (10/11) highlighted her brother:

> My brother . . . helped me a lot . . . he taught me by just looking at him. He studies really hard for the medical [field] and I know how hard it is and how challenging it is. I love challenges. (OL: 10/11)

In contrast, EW (12/B) stood out as having a brother who provided negative career-related role modelling. She believed her older brother's lack of school engagement made her want to do better for herself and her parents. Participants pursuing careers involving children viewed their mentorship roles with younger siblings as shaping their career trajectories.

One set of identical twins was part of the oldest cohort, and they viewed their career trajectories as interrelated. During the course of the study they were together involved in a modelling career, secondary school graduation, and a gap year from formal school. They had similar career aspirations during the second interviews with one twin being interested in translation work, while the other twin was interested in speech pathology. Out of the twins, AS (12/B) stood out as viewing her sister as her most influential career-related factor: "She's the one I guess that would impact pretty much . . . everything" (AS: 12/B). She perceived them both to have the "same thinking patterns" (AS: 12/B). She particularly viewed their modelling careers as being interconnected when she said "I know that she probably wants to do something different, but probably she's the most significant contributor to that" (AS: 12/B). Her twin CS (12/B) seemed more open to independent career pathways in the future:

> We've always sort of done the same sort of things just taken all the same subjects, always been in the same class. So I guess, yeah, that's probably the most significant consideration, but I think it would be okay for us to do different careers, because we'd still, I guess it's kind of good to still branch out. (CS: 12/B)

Being a twin had a significant influence on career trajectories for these two participants.

Extended family members enable career development through both mentoring and providing family history information. Some participants referred to the career-related impact of extended family members, particularly if they were working in fields related to participants' primary career aspirations. All participants viewed extended family members as enabling influences on their career development. Participants cited valuing their career-related role modelling, mentorship, advice, and information about family history.

Usually participants highlighted the enabling impact of unconditional career-related support from extended family members. For instance, EG (8/9) appreciated the general support

offered especially from her uncles. EW (12/B) indicated extended family support being given as she was the first family member attending university:

> I'm the first one in my family to go to [university], but that's not a risk because everyone that I've spoken to, my whole family is entirely supportive from my parents to my grandparents, my aunties and uncles.

Participants found this additional career-related support to be confirming.

Several participants viewed extended family members as role models or mentors. For instance, CL (12/B) who was pursuing a career as an interior architect saw her grandmother, an artist, as a role model. Other participants experienced similar support when entering common family professions.

Significant enablers, tensions, or inhibitors. Participants found unconditional family encouragement to follow their primary career aspirations as enabling. They always found their fathers to be supportive, but sometimes in a general way, and usually found their mothers to be as well. Mentoring between siblings was enabling for participants' career pathways. Extended family members provided enabling influences through mentoring and providing career-related family history information.

Many participants expressed tensions relating to the perception that their parents did not see their primary career aspiration as good enough for a girl with high academic ability. A few participants experienced tensions due to their mothers' lack of support for their primary career goal. Several participants expressed tensions about their fathers' concern over the financial viability of their preferred future career.

The primary inhibitor relating to families was the marriage breakdowns experienced by two participants, and their related mental health difficulties. These two participants also believed their mental health issues could affect their future university success.

Selective school contexts both enable and inhibit career development. All participants were asked about the influence of their school on their career development. In comparison to other contexts such as family and community, school emerged as the second most influential factor on participants' career-related decision-making processes and goals. Generally participants spoke of school contexts having an enabling career-related influence, but they also strongly believed they lacked enough formal school career guidance to make effective decisions. Participants discussed four different types of school-related influences as: (1) teacher–student relationships, (2) formal career support, (3) peers, and (4) program structure (grade level compacting as part of the IGNITE experience). Approximately half of the participants discussed the important impact one-on-one conversations with special teachers had on their career decisions. Most participants referred to formal school career support such as Personal Learning Plan classes or exposure to enrichment opportunities at universities as enabling their career development. All participants viewed peers as enabling career-related influences due to both their general support and similar career goals. The influence of strong identification with specific school subjects as well as being labelled gifted IGNITE students (addressed under the theme of identity) were also part of the role of the school context.

Teacher–student relationships enable career development. Of the 18 participants 16 mentioned teachers as being strong enabling influences. Some participants cited specific unplanned one-on-one conversations or experiences with certain teachers as helping cement their career goals (e.g., "identify what I would be good at" and "pushing her to do better" (EW, 12/B);

"I'm pretty good at Maths, my teacher held me back and told me that I'd be a pretty good doctor" (OL: 10/11)). For example, EM (8/9) mentioned a teacher helping her select school subject pre-requisites for detective work. TM (8/9), who was planning a career in music, appreciated her teachers accelerating her in her music classes. Others spoke of strong, on-going encouragement from specific subject area teachers to pursue careers related to their teaching area (e.g., "she thought I could do that kind of thing and always giving me information on how I could pursue that career" (HV: 10/11)).

Participants cited a range of examples of positive teacher role modelling (e.g., "a lot of my teachers had influenced me I guess because I looked up to them" (GB: 10/11); "so many of them love what they do" (HV: 10/11); "from his point of view [teaching was] the best job in the world" (HV: 10/11)) and mentoring as influencing their career-related decisions and goals. Those who viewed teachers as mentors particularly appreciated these relationships. Several participants mentioned their IGNITE coordinators as playing a key role in their career goals (e.g., "her kind of belief that I could make it and I should follow what I want to do, she was a huge driving influence" (CL: 12/B); "In [Grade] 10 my teacher . . . she sort of helped me choose a career . . . helped me look it up and learn about it" (CS: 12/B)). Meaningful relationships with teachers had an enabling influence on participants' career pathways.

Teachers were particularly influential role models for five out of the 18 participants planning education careers. As a representative example, one participant said, "having good and bad teachers sort of made me want to be a teacher" (NC: 10/11)). She further summed up her ideas this way:

> The people in a child's life help to mould them as a person. And I guess some of my biggest influences have been my teachers. . . . there are some teachers that, where I've been really upset haven't done much, and I want to be one of those

> teachers that are there for everyone . . . I just want to make a difference to people as they're learning and going through changes. (NC: 10/11)

Participants planning to become teachers were often driven by wanting to be positive role models and mentors for children (e.g., "I just want to be someone that will . . . help them benefit in the future, but also be someone that they can go to and then reflect on as a role model for someone" (AM: 8/9)).

A couple of participants spoke of receiving strong encouragement in a particular subject to pursue related career pathways. For instance, one participant planning to become an art teacher discussed positive reinforcement she had received:

> Art class definitely . . . just the fact that I have learned so many different skills and I've learned that there's more to art than just drawing . . . now I've learned that there's this whole broader thing . . . and the fact that I've received so much positive feedback is really sort of motivating. (HV: 10/11)

In another example, one participant aspiring to be an interior architect talked about her strong education results encouraging her career goal:

> I did [Grade] 12 Art last year which I did really well . . . it was nice to have that recognition that all your kind of hard work has kind of paid off. But then going to [university] . . . and kind of getting good grades that indicate that I could make this as a career . . . it's a big confidence boost, for sure. (CL: 12/B)

Other participants spoke of being strongly encouraged by their teachers to pursue careers in fields such as medicine, mathematics, and speech pathology.

Formal career supports are enabling but insufficient for career development. Although participants were not asked directly about the formal career-related supports available to them at their schools, many discussed these as influencing their career-related decision-making processes and goals. Some supports were provided at school, while others were coordinated by school staff off site at locations such as universities and workplaces. One participant credited the wellbeing

program for gifted students as impacting her career direction. The four main types of school-related career supports that appeared to be influential were: (1) work experience placements, (2) Personal Learning Plan classes, (3) career exposition days, and (4) Research Project class.

Most participants viewed school organised work experience placements as helping rule out fields, rather than encouraging further interest in those fields (e.g., "there was work experience . . . that helped me rule out the kindy teacher sort of thing" (AS: 12/B)). However, participants interested in a medical career usually found work placements as confirming their career goals (e.g., "I did work experience . . . which was really interesting and it made me really like the atmosphere there as well" (KK: 10/11)). They sometimes expressed tensions about the lack of work placements available in their fields of interest (e.g., "I actually went to a chiropractor's office because it's very hard to get work experience with obstetrics" (RB: 10/11)). Some expressed concerns that necessary work experience placements would not be available in their future university years.

Seven out of the 18 participants referred to the Personal Learning Plan class as being an empowering career-related experience (e.g., "PLP was a good little step because you get to look into the courses that you could possibly be doing" (CL: 12/B); "throughout doing the PLP subject . . . I had considered going into megatronics" (MP: 10/11)). This is a required Grade 10 class in South Australia focused on career planning. Participants primarily referred to the enabling influence of the Personal Learning Plan teacher rather than the curriculum content.

A handful of participants discussed times spent on university campuses doing extension classes or attending career exposition days as shaping their career trajectories. For instance, one participant explained:

> I did a workshop last holidays about getting into medicine and that . . . definitely concreted the fact that that's what I want to do . . . meeting like-minded people, getting to spend a couple of days just seeing the university. (RB: 10/11)

Participants often expressed a strong sense of belonging to university environments beginning even in primary school years. One participant discussed how university extension classes encouraged her to pursue secondary science teaching:

> I could see we had three teachers at SMATH, three lecturers, and then we have a teacher back at school . . . we have so many people that we're exposed to that we can get help from, and it just really helped to see various teaching styles . . . seeing in particular the way one of my teachers . . . taught it really helped me to decide what I wanted to do . . . just made me want to be that type of person. (NC: 10/11)

Others spoke of career-related information provided on university campuses as having an enabling effect on their career-related decisions.

A couple of participants found their independently chosen topics in the required senior secondary Research Project class as enabling their career-related decision process. For instance, EW (12/B) chose to research feminism, and this helped open her views on women in the workplace. Others chose to research future career fields of interest (e.g., "I think through doing the research project . . . it brought up all the things that I actually enjoy doing" (CL: 12/B); "so looking into why general practitioners choose to work rurally or metro-based" (RB: 10/11)). This class is not specifically designed to inform career trajectories, but participants reported that it did.

Almost every participant believed their schools were not effectively equipping them with enough career-related knowledge to make informed decisions (e.g., "I think the school not letting me know anything about career kind of . . . makes me difficult to think about other careers that I want to do" (OL: 10/11)). One participant talked about her lack of knowledge of careers this way: "I do believe a lot of the career options aren't advertised enough, so basically all you ever hear are to become a doctor or to study law . . . but out of law and doctor . . . I think I'd definitely be a good

doctor" (KK: 10/11). No students referred to receiving support from school guidance counsellors informing their career goals.

Peers provide both solidarity and mentoring opportunities that enable career development. All participants were asked about how they viewed their abilities in comparison to their peers. As a result of this question, participants often discussed the influence of their IGNITE and mainstream peers on their career-related decision-making processes and goals (e.g., "being in IGNITE has given the opportunity to become friends with people who think the same way as I do, so have similar kind of career paths to me, or similar aspirations in life" (EW: 12/B)). They found having similar high work ethics and career goals as their IGNITE peers enabling in their career development. They were also aware of competing with peers for university entrance scores. The three related influences peers had in order of impact were: (1) role modelling and mentoring, (2) being like-minded, and (3) unconditional peer support for their primary career aspiration.

Many participants saw their own school role modelling and mentorship responsibilities, such as being school ambassadors or peer tutors, as influencing their career trajectories. They also referenced informal roles as shaping their career goals (e.g., "I've gone in at lunchtimes and mentored students who are having trouble with concepts" (NC: 10/11)). These roles were influential in them wanting to pursue the teaching profession specifically, as well as future career-related leadership roles in a range of fields.

Five out of 18 participants expressed a strong sense of career-related solidarity with their IGNITE peers due to shared understandings (e.g., "they understand me more than what other kids used to" (EW: 8/9)), career goals (e.g., "I'm in the IGNITE class as you know, and girls around me are looking in that direction of medical and law or these high and hard . . . career path" (OL: 10/11)); "we've all got pretty clear goals has helped me kind of shape what I might be interested

in" (RB: 10/11)), and work ethic. This had an enabling influence on their career-related decision-making and goals. At times, participants discussed a lack of career-related solidarity with their mainstream peers.

Participants experienced career-related peer support in a range of ways. Several participants spoke of specific practical support given by friends as enabling their career trajectories. For instance, TM (8/9) pursuing a musical career appreciated friends attending her musical performances. By way of another example, EM (8/9) talked about her online peers encouraging her interests in a writing career. Several participants stood out as citing one main friend having a strong influence on their career goals (e.g., "I don't think she's really ever doubted me, she just, she helped me with choosing biotechnology as a back-up plan" (MP:8/9)). In contrast, one participant stood out as perceiving her IGNITE friendship group as putting too much career-related pressure on her. Participants particularly appreciated unconditional support from peers to pursue their primary career aspiration.

Long-term implications of grade level compacting create tensions in career development. A handful of participants were concerned that being in a compacted program leading to early secondary school graduation would impact their career trajectories. One participant completing Grades 8, 9, and 10 within two years instead of three discussed these pressures:

> I guess we missed that year [due to grade skipping], so then sometimes we might not have that opportunity to discover more of ourselves . . . we have to sort of rush a bit, although there's still time to decide because you can still decide [Grade] 11, [Grade] 12, but I guess you don't have as much time to discover all these other wonderful stuff that could or might interest in. (AW: 8/9)

Other participants were uneasy about finishing before their "normal friends" (EG: 8/9). As a result, some participants were considering taking a year off from the education system between secondary school and university to pursue part-time jobs or other interests. One participant explained:

> I'll finish school a little bit earlier than my "normal friends" . . . I'll be going to other places before they do maybe . . . go on to university or TAFE . . . I might have a gap year, but I'd probably just, might be going to those type of places before the rest because I finish earlier. (EG: 8/9)

In another example, one participant pursuing an education career expressed similar tensions:

> I think my age adds a little bit of kind of difficulty to it all. I'm studying with a lot of people who are in their early twenties . . . I'm going to be twenty-one and I'm going be a qualified teacher . . . I feel like I'll be a little bit of a baby compared to girls I know who are and boys, you know, who are currently in their twenties studying . . . someone who's twenty-five will be much more respected in a sense. (EW: 12/B)

She also discussed her age as being a limiting factor in gaining early employment experience at childcare centres, but also that it could be an asset as she might pursue a doctorate at a young age.

Two participants, AS (12/B) and CS (12/B), took a gap year from education during the year of the second interviews. In both interviews one and two, they discussed making this decision due to their early secondary school graduation ages. Lacking general life experience, needing to make career-related decisions early, and concerns over others' perceptions of being young university students were their main concerns.

Significant enablers, tensions, or inhibitors. A number of aspects of school life had enabling effects on participants' career development. Teacher-student relationships played an important role. Participants particularly viewed their one-on-one unplanned discussions with special teachers who gave them individualised career-related guidance as important, enabling factors. Also, participants interested in teaching careers viewed their teachers as vital role models.

School peers were also seen as enabling influences through providing career-related opportunities for mentoring and through unconditional support.

Many participants expressed several career-related tensions linked with their school life. They were concerned about inappropriate and lack of work experience placements. Participants also expressed pressures experienced by being younger than their mainstream peers at their planned secondary school graduation due to grade condensing.

Participants found a lack of school career supports as significantly inhibiting in their career development. They expressed a sense of not knowing what they felt they should know about career pathways. Participants held their schools responsible for this feeling of lacking career-related knowledge.

Community contexts provide mentorship, mentoring, and workplace opportunities that enable career development. All participants were asked about the career-related influences of life outside of family and school. As a result, participants spoke of community contexts influencing their career development in a range of ways. Participants discussed community-based role modelling and mentoring relationships as shaping their career goals. Part-time jobs influenced their career goals. Some participants discussed strongly identifying with community contexts such as the arts, the military, or university life.

Some participants looked to community leaders such as university law students, doctors, and small business owners as career-related role models and mentors (e.g., “my conductor from when I was in Adelaide Youth Strings . . . he really inspired me . . . because of what he does” (TM: 8/9)). TM (8/9) who was pursuing a music career cited meaningful relationships with her

music teachers, orchestra members, and orchestra conductor as career-related mentors. She also cited famous composers and performers as role models.

The data suggest that the more mentoring roles participants experienced in fields related to their main career aspiration, the more committed they became to their field. This was especially the case with participants whose primary career aspiration was teaching. They cited a broad range of mentoring experiences with younger children in settings such as Scouts, church youth groups, or sports coaching as helping crystallise their career goals (e.g., "I definitely think that younger children have had an impact on what I want to do" (AM: 8/9); "hands on experience of working with people who are younger" (HV: 10/11)). For example, one participant pursuing a music career talked about the mentoring roles she had with younger children:

> I got chosen to work with . . . the Australian String Organisation. So I got to go to a workshop with all these little kids and help tutor them on violin and cello . . . and I got to conduct the little orchestra as well . . . so it was really good experience. (TM: 8/9)

These experiences helped confirm her career pathway. Other participants pursuing fields such as teaching, speech pathology, and translation work cited time with younger children as shaping their choices (e.g., "I enjoy being a mentor and that kind of role" (HV: 10/11)). By way of example, one participant described volunteering with children as helping shape her career aspiration:

> I've done a lot of work with sort of younger kids at my church and crèche and I've volunteered at kindergartens and even at the high school for a while in a Reception class. . . and working with them, I've sort of aimed to become a child speech pathologist. (CS: 12/B)

All participants pursuing careers with children perceived their mentoring and role modelling experiences with younger children as enabling their career trajectories.

Some participants discussed both positive and negative experiences in their part-time jobs as helping crystallise their career goals. Several participants discussed exposure to small businesses as influencing them to want follow a similar pathway (e.g., "seeing how much they put in to their business kind of almost makes me want to be, okay, I want to have that kind of reputation" (CL 12/B); "a small group training outside with a small business owner from the community, . . . she had a big impact on me choosing this career" (LS: 12/B)). For the two participants who worked in retail, modelling, and tutoring, their experiences of enjoying some work environments and not others helped shape their career goals (e.g., "I guess ruling out retail and customer service has been helpful because that does rule out a lot of things, and that helped me to narrow down what I wanted to do" (CS: 12/B)). One participant stood out as valuing her income from her part-time job as helping drive her career goals:

> It's still gives me a slight sense of sort of being able to support myself and be a little bit more independent than I was. And doing that has sort of increased the priority that having a career has to me, because I've had a taste of what it's like to be able to support yourself. (NC, 10/11)

All participants found their part-time jobs enabling in their career decisions and goals.

Some participants were concerned about a lack of community-based role models and mentors in their fields of interest. Participants with aspirations in the medical field were particularly concerned about this. However, participants pursuing education careers were not concerned about lacking role models or mentors.

All participants expressed their community contexts as providing enabling experiences and relationships. Time spent with mentors and role models, as well as time invested in being community-based role models and mentors, helped inspire their career goals. However, participants expressed tensions about a lack of mentors in fields of their primary interest. Part-time

jobs helped participants gain real world experience to refine their career trajectories. Exposure to small business environments inspired participants to follow similar career pathways.

Broader contexts create tensions involving ambiguity in career development. Participants were asked about the impact of the changing world on their career trajectories. As a result, many participants discussed tensions related to broader changing contexts such as new technologies, competition for jobs, and global economies as influencing their career trajectories. Specifically, they expressed concern over (1) competition for jobs (e.g., "I think the big risk that I've, that some people have voiced is finishing [university] and not being able to get a job" (CL: 12/B)) and university places, (2) changing technologies affecting the nature of work (e.g., "I think probably technology will greatly change what I end up doing, not what I end up doing, but how I end up doing it kind of thing." (CL: 12/B);"I guess traditional methods of teaching will sort of move out the window I guess because it'll be more based through technology" (NC: 10/11)), (3) changing economies (e.g., "changing economics, if we have a downfall in money there will be less people wanting to spend their money on gym memberships or PT sessions" (LS: 12/B)), and (4) changing field-specific trends (e.g., "we are getting bigger size wise and a lot more people are wanting to get fit" (LS: 12/B)). They also discussed the impact of the media on helping to shape their ideas about a career.

Many participants were concerned about the ways competition for university places and future jobs could affect their career trajectories, however, most participants felt that hard work could overcome these challenges (e.g., "I think that teaching is a very popular field, so the amount of other people trying to be teachers, I think that that'll definitely be a challenge, having that kind of constant competition in a sense" (EW: 12/B); "It's so hard to get to a stable position, but once you're there, again, I think you'll be fine" (LS: 12/B) "I have been striving as hard as I can to . . .

get as many good grades as I can" (EM: 8/9)). Some participants saw competition as a positive motivation to work harder (e.g., "I just have to constantly remind myself that there is a competition . . . just keep pushing myself to do better" (KK: 10/11); "I know I'm quite a competitive person who wants to hit high standards . . . so if I have other people to compete against, it will help me to kind of gather myself and do better" (HV: 10/11)). Although participants felt they had some control over these uncertain issues, they still saw them as causing significant tensions.

All but a few participants expressed a lack of control in several other aspects of career development related to broader contexts. Some participants were concerned about changing technologies making their primary career aspirations in fields such as medicine or translation work obsolete. Others were weighing up whether changing economies would mean they would need to relocate or change specialisations in the future. Still others spoke of field-specific trends resulting in changes in the future demands for service. For instance, one participant spoke of the increase in television design shows leading to less work for professional designers. Unpredictability relating to broader contexts caused career-related tensions for participants.

A handful of participants cited the influence of media sources such as television shows, the news, and websites containing career-related information. For instance, one participant planning to become a veterinarian said, "I've watched vet programs before and there's a TV show called Bondi Vet where they help animals and for some reason I'd really like to help like that" (AM: 8/9). Similarly, when asked about the main reason for deciding to pursue a career in midwifery, one participant said, "when I started watching "Offspring" because it's sort of just interests me and the environment in the hospital" (AS: 12/B).

Most participants believed they had the personal traits and attitudes to address some career-related challenges related to broader contexts. For instance, participants believed their hard work

and commitment would help secure competitive university placements or future jobs. They also felt they could develop new skills to respond to future unpredictable trends in specific fields.

Important tensions were discussed regarding the roles of career-related ambiguity and change in broader contexts. A few participants expressed tensions about lacking career-related financial literacy skills. Several participants were reluctantly considering future interstate moves to allow for stronger financial options. Many participants expressed tensions about newly emerging technologies changing or replacing future jobs. They also expressed concerns about lacking up to date career-related technology skills.

Developmental Perspectives Evident in Comparing the Three Data Sets

This section presents the five key findings that stood out from the data when comparing the three cohorts, representing different age groups. First, the role of growing clarity about strengths and interest in career development is explored. Then, the ways the strongest career-related influential factors are evident in Grades 10/11 in comparison to Grades 8/9 and Grades 12/B are presented. Next, the career-related impacts of participants' increasingly complex conceptions of success are discussed. After that, increasing participant concerns with older participants about planning an effective work/life balance are examined. Finally, the ways participants increasingly developed more tensions when thinking about the role gender played in their career trajectories is discussed.

Increasing clarity about interests and strengths enables career-related decisions. Insights into how participants increasingly clarified their interests and strengths was evident when comparing the way the three different cohorts discussed identifying with specific school subject areas. When comparing the three cohorts, older participants in comparison to younger girls

expressed a stronger sense of identifying with certain narrow school subject areas. It seemed that the more strongly they identified with specific school subject areas, the more committed they were to their primary career aspirations that were related to these subjects. For instance, the youngest cohort in comparison to the other two cohorts referenced a much wider range of school subject strengths such as technology, drama, and English as influencing their planned career trajectories. One Grade 8/9 participant discussed her enjoyment in many subject areas in reference to her school subject area choices this way:

> I've kept all of my subjects open. I've got my Maths and English, which I have to do, but I've also got Science. And so I've tried to keep them as well as Art and Music, which is another aspect that's a bit abstract and helps me because I enjoy those subjects. (AM: 8/9)

In contrast, the oldest cohort referred to mainly one school subject area as their main interest and strength.

The strongest career-related affordances and constraints occur in Grades 10/11.

The data suggest that some of the most influential relationships and school career supports are evident in Grades 10/11, as well as the strongest sense of lacking all the school support necessary for making career decisions. Grade 10 in particular has a focus on career development in South Australia (e.g., "This year at school especially as well has probably really put into concrete the fact that I want to do medicine because in Year 10 we have a real focus on career pathways and things like that" (RB: 10/11)). In terms of affordances, formal in-school supports and meaningful relationships with important adults were highlighted the most strongly by the middle cohort. Both the middle and the oldest cohort cited the most important enabling in-school supports as being provided during Grades 10/11, such as the Personal Learning Plan, career exposition days, Research Projects, and work experience placements (e.g., "I guess the experiences

I've had through excursions to, to universities for, for young women in science and for IGNITE science has sort of influenced what I wanted to do" (NC: 10/11); "It was after work experience actually where I did work experience at a primary school. Work experience was in [Grade] 10 . . . and I enjoyed it and I thought, yeah, this is something that I could do" (GB: 10/11); "Interior design more specifically from [Grade] 9 or [Grade] 10 just because you get more exposed to it, and I think through doing the research project, I did mine based around that" (CL: 12/B)).

This middle cohort also indicated they had the strongest career-related support from important adults in both their family and school lives. Family influence on participants' career development was substantial in all three cohorts, but it had the greatest influence in the middle cohort (e.g., "I think they're just really supportive of me" (GB: 10/11); "Definitely my mum's past as a teacher [is the greatest influence] . . . because she can give me lots of advice (HV: 10/11); "I guess pointing me in this direction would be my mum's side of the family with all of the teaching and everything" (NC: 10/11)). When comparing the three cohorts, participants in the middle cohort perceived their mothers as having the highest career-related influence and often credited this to their close relationships. When comparing the three data sets, five out of seven middle cohort participants discussed teachers as being the strongest school-related influence on their career trajectories (e.g., "Would be my teachers . . . because I look up to them and they're really good and where I'd like to be a good teacher like that one day" (GB: 10/11); "I guess my teachers . . . because they let me know what sort of strengths I have . . . so I know that I'm not just pursuing a pointless career" (HV: 10/11)).

Participants from each of the three cohorts highlighted specific meaningful relationships as having the most impact on their career-development during the time of the study. They indicated these relationships as having the most significant career-related influence within school and family

contexts. For comparative information on the career-related impact of the most important family and school relationships across time for all three cohorts, see Table 3 below.

Table 3.

Most Influential Career-related Family and School Relationships According to Grade Levels

	Grades 8/9	Grades 10/11	Grades 12/B
Relationship			
Parents		*	
Siblings	*	*	
Extended family			*
Teachers		*	*
Peers	*		

The middle cohort spoke of the most career-related challenges by comparison with the other two cohorts. In terms of constraints, the middle cohort expressed a particularly strong sense of lacking the knowledge needed to effectively make career decisions. As mentioned earlier in the core theme of contexts, these participants believed their schools needed to be held responsible for meeting this need. Those participants in the middle cohort who had a formal mental health diagnosis struggled more with the career-related impact of this in comparison with those in the youngest and oldest cohorts. They often talked about the impact their mental health had on their ability to perform well in school. Participants reported these struggles with school would likely have an impact on their career trajectories.

Middle cohort participants also more frequently reported the career-related tensions of perfectionism in crystallising their career goals. For instance, one middle cohort participant

expressed the career-related tensions perfectionism caused her in forming her primary career aspiration:

> I think it just makes me consider every single option, and consider all of the different factors and all of the different possible outcomes and it just makes it more difficult to go in one direction. (GB: 10/11)

Middle cohort participants compared with the youngest and oldest cohorts more frequently viewed perfectionism as a career-related tension, rather than an asset or manageable issue. For instance, EW (12/B) discussed the ways she found perfectionism to be more manageable than in her younger schooling years this way: "I can deal with it, the perfectionism, if I didn't know how to deal with the perfectionism, then it would be a negative [in my career development]."

Conceptions of future career-related success become more complex. As discussed earlier in this chapter, all participants valued future career-related success. However, when comparing the three cohorts, older participants in comparison to younger participants' conceptions of what success meant to them were much more complex. Participants in the youngest cohort tended to define career success in more objective ways, such as in terms of obtaining certain positions within their future fields. Participants in the oldest cohort described success in more individualised, subjective terms. For example, one younger participant discussed objective career success by suggesting that, "I think if you want extra stuff like a cat then you'd need a job that provides the money for that and enough money to at least pay for the rent" (EG: 8/9). In contrast, Grade 12/B participants often spoke about career success in more subjective ways by including elements such as positive work/life balance, strong community reputation, legacy opportunities, leadership opportunities, and entrepreneurial pathways. For example, an older participant defined career success by saying, "I'd have my own clients, I'd be quite high up, getting quite a high wage, be very good at my job and very comfortable in what I'm doing" (CS: 12/B). As mentioned earlier

in this chapter, participants saw themselves as confidently enjoying leadership and valued future career-related leadership opportunities. When comparing the three cohorts, their interests in the types of future career-related leadership positions they wanted were more diverse for older participants. For instance, only the oldest cohort cited valuing opportunities to become future entrepreneurs as part of the conceptions of future success. Four out of five of the oldest cohort expressed these preferences.

Planning for future work/life balance creates increasing tensions. As mentioned earlier, many participants placed a high importance on planning for future career-related mental and physical wellbeing. However, older participants' conceptions of success were more complex, and their tensions about planning for future work/life balance were also higher. Older participants in comparison to younger participants reported being more aware of the complexities involved in designing a career along with other life roles and options. Often their concerns were about balancing future caregiving responsibilities within families. For instance, the youngest cohort seemed as though they were not ready to consider how a career could impact their personal life (e.g., "I'm a bit too young to start thinking about that but it has crossed my mind once or twice how much it would take up my time." EM: 8/9)). However, a middle cohort participant expressed the potential challenges of balancing a medical career with a personal life this way:

> I've read a lot that being a surgeon is mainly your life, and having a life outside of the hospital is rather difficult to handle so I might not become a surgeon if that affects my life outside of the hospital too much . . . because I would like to have a nice family and . . . kids . . . and spend time with them. (KK: 10/11)

Another participant aspiring to a career in medicine discussed it this way: "I'd have to work really hard to maintain a balance because being able to be with my family and still have a balance would be a really important part of my life" (RB: 10/11.) Participant CL (12/B) aspiring to be an interior

architect stood out as being significantly concerned about her future work/life balance, and discussed already always wishing for one more hour in her day to better balance her work, study, and private life.

Concerns on the career-related impact of gender creates increasing tensions. When comparing the three cohorts, more tensions were evident with older participants as they frequently reported the career-related impact that being female had on their past career decisions and on their future career pathways. Participants in the youngest cohort did not believe gender influenced their career goals (e.g., "I really think that your career choice should be based on something you enjoy rather than something that you think is sort of stereotypical" (SB: 8/9)), and frequently discussed being part of globally changing times regarding gender and careers. Although the older two cohorts also spoke of these changing times, they expressed a need for more societal, career-related gender equality (e.g., "convention that just needs to be broken down" (CL: 12/B)).

There seemed to be a general sense of uneasiness on how gender was impacting participants' career trajectories that was more pronounced with the older participants . The older two cohorts in comparison to the youngest cohort expressed significant concerns about gender stereotypes having influenced their career choices. As a representative response common among participants, one participant discussed gender as subconsciously influencing her own career choices: "I think just on the sub-conscious level I haven't considered some opportunities that I could have" (GB: 10/11)). Similarly, one participant said:

> I think there should be more encouragement of women pursuing subjects like engineering and those kinds of science subjects because the, one of the reasons I ruled it out was because I've always kind of just had this negative opinion of it, but if in [Grade] 10, [Grade] 11 I had more education on it, I think that really, I mean that really would have changed my career choice I think. (EW: 12/B)

A handful of middle and oldest participants spoke of hearing messages about female shortages in STEM fields (e.g., “lately there has been a lot of bombardment about women going into technology” (HV: 10/11)), but most felt these messages were given too late in their schooling years.

Summary

This research provides an overview on the career-related priorities, external influences, and internal drives of gifted adolescent girls in their most formative career-related decision-making years. These findings indicate influential factors on gifted adolescent girls’ career-related development were both internal and external. Career-related values formed the basis for all participants’ career-related decisions and goals, and individual participants’ career-related values tended to be stable between interviews one and two. Some common participant career-related values were success, wellbeing, and altruism. A broad spectrum of influences was cited as crystallising participants’ primary career aspirations. They either formed their primary career goals over a long period of time or in a short space of time through crystallising experiences. Mentorship and role modelling experiences often helped cement their career-related decisions. Participants reported having high career-related confidence in their decision-making. Participants used a wide range of approaches to broaden and narrow their career-related decisions, but they primarily focused on narrowing their career aspirations through a strengths-based approach. Nevertheless, they commented that they desired more experiences and information that would broaden their career-related options. Two-thirds of participants had stable career goals in the approximately 12 months between interviews one and two.

Participants were driven to make a difference in the world based on seeing themselves as able and committed to do this. They planned to use their own strengths and interests in ways that

linked with a specific future career field. Participants saw themselves as leaders, and valued future career-related leadership opportunities. These future opportunities were viewed as both necessary and comfortable.

Participants primarily used a strengths-based approach when making their career-related decisions; however, there were a few personal traits seen as career-related barriers. Internal barriers such as diagnosed mental health issues rather than external career-related barriers such as high university entrance score requirements were viewed as the most notable influence. Participants with formally diagnosed mental health issues saw this as their most significant career-related inhibitor. Although perfectionism was sometimes viewed as a personal challenge, it was usually viewed as a future career-related asset.

Socially constructed identity categories had an influence on participants' career trajectories. Being identified as gifted students and enrolled in specialised school programs was seen as a mixed experience. Participants considered it to potentially be an asset opening up future career-related options. Being IGNITE students was enabling in terms of career-related solidarity with their peers. However, participants also reported these labels and school experiences came with high internal and external expectations for future career-related achievement. A number of participants stated grade level condensing in the IGNITE program created some challenges related to early secondary school completion timeframes in comparison to their peers.

Gender created tensions in participants' career trajectories. They held strong views on career-related gender equality. However, participants stated their gender may have had a narrowing impact on their career aspirations at younger ages. They also indicated gender would likely have an ambiguous impact on their future career-related opportunities and other associated life choices.

Participants found family and community settings enabling in their career trajectories, but school settings and broader contexts created career-related tensions for them. Within family settings participants found their mothers to be the most significant influence, and they always found their fathers to be an enabling influence. Older brothers and extended family members also had an important, enabling career-related influence, and this was often linked with career-related mentoring experiences. Mentoring younger siblings had a particularly enabling influence for participants entering future career fields requiring working with children.

Teacher–student relationships had an enabling impact on the career development of this population. They found their one-on-one time with special teachers especially important. Participants appreciated the formal career-related school supports provided, but found them to be considerably insufficient. Participants' IGNITE peers had enabling impacts due to career-related solidarity and mentoring.

Life outside of family and school contexts was an influential factor in these gifted adolescent girls' career-related values, decision-making processes, and goals. Community-based experiences provided enabling opportunities to test out career-related skills and interests. They also provided enabling role modelling and mentorship relationships in fields related to participants' primary career aspirations. Ambiguous career-related factors in changing broader contexts, such as competition for university entrance and newly emerging technologies, created career-related tensions.

Five strong developmental patterns were evident in the data. Findings indicated that Grades 10/11 in comparison to Grades 8/9 and Grades 12/B had particularly strongly influential career-related factors. Complexity related to gender, work/life balance, and conceptions of success were more pronounced with the older cohorts. However, stronger clarity about interests and strengths

evident in the middle and oldest cohort helped enable them to plan for both the kinds of careers and lives they wanted in the future.

CHAPTER 6: DISCUSSION

The purpose of this cross-sectional, qualitative study was to explore the career development experiences of gifted adolescent girls enrolled in selective secondary school programs in South Australia. The primary research question investigated participants' perspectives on influential factors impacting their career-related values, decision-making processes, and goals. Information was also sought from participants on their perceptions of any enablers, tensions, or inhibitors to their career development. The chapter presents a visual model – The Psychosocial Theoretical Model of Gifted Adolescent Girls' Career Development - as a framework which illustrates the interrelated factors influencing career development for gifted adolescent girls in relation to the blended theoretical framework.

Interrelated Factors Influencing Gifted Adolescent Girls' Career Development

As stated in the opening sentence of this thesis, career development is a complex and multifaceted process influenced by a range of interacting factors at different points across a lifespan. Based on the findings of this study, Figures 4–9 in the following pages illustrate the interrelationship of the three constructs of career-related values, decision-making processes, and goals within a broad framework of career development for gifted adolescent girls in specialised school settings. The Psychosocial Theoretical Model has values, decision-making processes, and goals at its centre. It illustrates the ways other important psychological and sociological factors influence these three related constructs.

Each part of this Psychosocial Theoretical Model is progressively explained in the following sections in order to build to the whole picture. Essentially this visual model contains six interactive parts. The six parts are: (1) the relationship between values, decision-making processes,

and goals, (2) crystallising experiences, (3) change, (4) two core themes and six sub-themes, (5) time, and (6) links to the blended theoretical framework. A fixed diagram can only partially capture the fluid and organic nature of career development. The reality of participants' daily lived experiences indicates the six parts overlap and interact in varying, sometimes unpredictable ways.

Relationships between values, decision-making processes, and goals. Findings from this research illustrate how career-related values, decision-making processes, and goals are interrelated. In seeking to understand the influences on these three constructs, it became important to first understand how they fit together. During data analysis, it became apparent that these constructs were tightly interrelated. While some theories refer to aspects of these three concepts (Gottfredson, 2002a; Holland, 1997; Krumboltz, 2009; Savickas, 2002; Super, 1990), they sometimes use different terminology to discuss these ideas. The way these three concepts are conceptualised in this thesis indicates that new terminology summarising the interrelatedness of these three concepts could be developed.

Figure 3 below illustrates differing degrees of impact of values, decision-making processes, and goals. In other words, different sized cogs represent different levels of career-related influence as voiced by participants. The larger the cog, the higher the importance participants placed on its role in career development.

The findings indicate these three constructs influence each other in a range of ways. As a reminder, the concept of career-related values in this study refers to individual values when pursuing a career such as success, comfort, high salary, or altruism (e.g., Rimm et al., 1999; Rounds et al., 1987). This model illustrates that, based on data from this group of gifted adolescent girls, career-related values influence both their decision-making processes and goals. For example,

participants who highly value career-related wellbeing may choose careers that enhance their wellbeing. Likewise, participants' goals influence their decision-making processes. For instance,

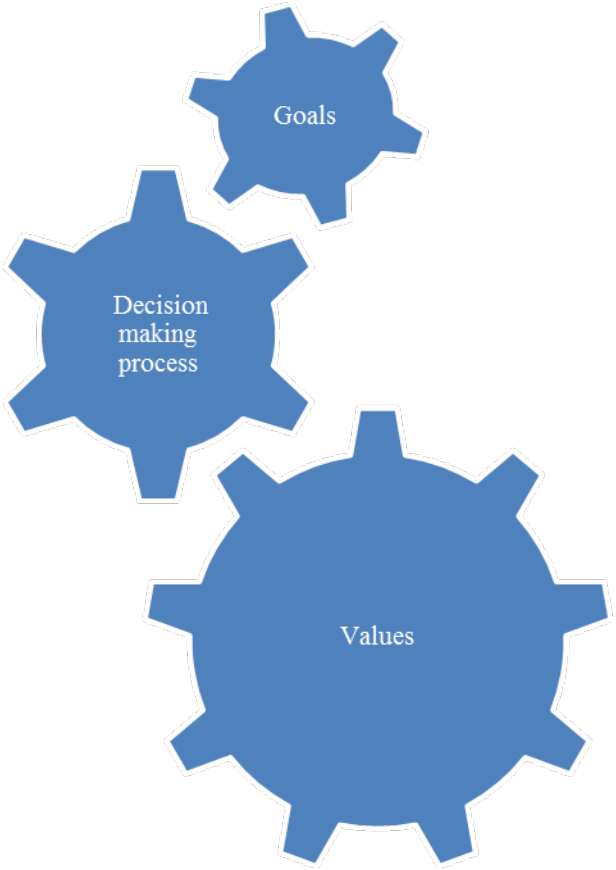

Figure 3. Relationships Between Values, Decision-making Processes, and Goals

clear primary career aspirations may lead to firmer post-secondary training decisions and related financial planning.

Values. This model presents ways career-related values are both developed and maintained. This study reinforces previous research findings (Arnold et al., 1996; Chen & Wong, 2013; Ferriman et al., 2009; Gottfredson, 2002a; Jung, 2013; Reis, 2002; Rimm et al., 1999; Rinn & Bishop, 2015; Savickas, 2002) suggesting that values drive career-related decision-making processes and goals. These findings suggest there are a number of core career-related values that

this population may have in common. However, little research exists on the ways specific values drive career trajectories of gifted adolescent girls. Findings suggest that participants' career-related values stem primarily from their perceptions of their own personal traits such as leadership and school subject area interests and strengths. Nevertheless, participants sometimes cited external messages and experiences as shaping their career-related values. For instance, these girls were told by teachers that as IGNITE students, they were expected to be future leaders in career contexts, and they were given in-school leadership roles. Success in these leadership roles led to some participants valuing future career-related leadership roles. This raises questions about what types of experience and external messages are important for gifted adolescent girls in selective school programs in order to develop their career-related values.

Values are to career development as a rudder is to a ship. All participants spoke clearly of the kinds of values that were guiding their decisions. No conflict between individual participants' stated career-related values and their resulting decisions was evident. Career-related values play an important role in both the broadening and narrowing of career aspirations. This finding is consistent with Savickas' (2002) work, which posits values as underpinning career-related decision-making processes and goals.

Six main career-related values stood out among these participants. These were: future career-related success, leadership, enjoyment, interest combined with strengths, wellbeing, and altruism. These results support previous literature asserting gifted adolescent girls have high internal expectations for their own future career-related success (Arnold et al., 1996; Jung, 2012; Kerr, 1994; Ozcan, 2017; Reis, 1998; Rimm et al., 1999). Success is not the same as eminence, and participants did not frame discussions about success as achieving eminence. It is possible that due to other values more common among females, such as care and relationships (Gilligan, 1982),

career-related eminence is more important to males than females. Possibly these participants felt uncomfortable discussing career-related goals linked to eminence. Nevertheless, the findings raise questions about why this population does not value career-related eminence. More research is warranted on a lack of drive for eminence among this sample. While there is debate in the literature about whether or not gifted adolescent girls lower their career aspirations as they progress through secondary school (e.g., Armstrong & Crombie, 2000; Cassie & Chen, 2012; Fiebig & Beauregard, 2010; Lee & Rojewski, 2009; Patton & Creed, 2001; Perrone et al., 2006), this did not appear to be the case with participants in this sample. Although research by Fiebig and Beauregard (2010) found that gifted adolescent girls maintain moderately prestigious career goals over time, these study participants sustained moderately to highly prestigious aspirations in both interviews. They continued to have high internal career-related aspirations even after secondary school graduation, as evidenced by the second interview with the oldest cohort. It is possible that this was due also to the family support and specialised school environments experienced by these participants.

Although there is debate in the literature about whether gifted individuals seek positions of prestige and high salaries or tend more to not-for-profit or social justice causes (Eccles, 1994; Ganzach & Fried, 2012; Gottfredson, 2002a; Greene, 2006; Miller & Cummings, 2009), neither was the case in this sample. Greene (2006) particularly highlights the role social justice and moral sensitivity can play in gifted students' career goals; however, these gifted adolescent girls did not report these motivating factors as part of their primary career aspirations. While they were interested in future career-related success and leadership positions, participants in this study saw harnessing their desires to make a difference in the world by focusing on altruism in their field of interest as the most important pursuit.

No participants expressed an interest in pursuing a career-related 'calling' such as working in a not-for-profit role, despite research on this being more frequent with gifted individuals in comparison with typically developing peers (Bronk et al., 2010). However, some participants were service oriented in their leisure pursuits such as investing in being Scout leaders, church leaders, or sports coaching leaders for younger children. This aligns with the literature that indicates service oriented pursuits are common with gifted adolescents (Bronk et al., 2010). It may be that the ways of enacting altruism within career contexts has changed for girls over time as career possibilities have expanded, from a focus on social justice or not-for profit causes to harnessing a drive to make a difference in much broader career contexts. Perhaps these girls view many more opportunities than were available to girls in previous generations for making a difference in the world. However, given the sample size of this study it is possible that similar future studies could include participants with interests in more traditional social justice or not-for-profit causes.

Both Savickas' (2002) career construction theory and Gottfredson's (2002a) career development theory of circumscription, compromise, and self-creation refer to career-related values. Gottfredson's (2002a) career development stage four outlines ages 14 and over as the time when individuals typically develop their career-related values. Nevertheless, this study included participants from ages 13 to 19, and all participants clearly articulated their career-related values. It is possible that due to participants' advanced cognitive abilities they defined their own career-related values at young ages.

Participants articulated their career-related values in ways that link with Gottfredson's (2002) proposed stage five of development. This proposed developmental stage is marked by individuals having integrated world views of the human condition. In relation to this theory, the participants in this study would be considered advanced in their career development. The finding

that altruism is the driving force in many gifted adolescent girls' career trajectories, at least in these school settings, indicates that they tend to align most closely with the proposed stage five of development as altruism is focused on addressing needs inherent in the human condition rather than their own needs. This indication of advanced development for gifted adolescent girls has not been highlighted in the literature, and warrants further investigation and development, including in diverse education settings.

Both Savickas' ideological presupposition of personal patterns and his concept of individual life narratives (Savickas et al., 2009) highlight career-related values as being what matters most in a life. Although both theorists highlight the role of values formation in career pathways, it plays a much larger role in Savickas' (2002) career construction theory and related publications (2001; 2005; 2010, 2011a, 2012b). Individual life narratives on the career development of gifted adolescent girls have not been explored in the literature, and this research adds new insights into this phenomenon and suggests the potential for further research.

Decision-making processes. Values were a strong reference point for participants during their career-related decision-making processes, and this is highlighted in some of the literature (Armstrong & Crombie, 2000; Ferriman et al., 2009; Gilligan, 1982; Kelly & Cobb, 1991; Lirio et al., 2007; Patton & Creed, 2007a; Savickas, 2002; Super, 1990). In essence, participants used their career-related values as both a lens and a filter when making important career trajectory choices. For instance, participants who highly valued enjoyment used this as a filter in weighing up which career goals would be most enjoyable. Along these lines, participants who valued high salaries filtered out careers likely to have low salaries.

This process of refining and strengthening career aspirations plays a vital role in career development (Gottfredson, 2002a; Neihart & Yeo, 2018; Savickas, 2002; Wood et al., 2018), and

findings from this study reinforce this as an important process for gifted adolescent girls. Although this research was not longitudinal, the cross-sectional design allowed for a snapshot of development at different points in time. When comparing the three age cohorts, it became clear that age played a part in the ways they broadened their career goals. Many participants stated they considered work-related fields that they did not necessarily consider when they were younger, due to new information, experiences, or relationships. For instance, several participants discussed deeper understandings of women's history and feminism or exposure to STEM initiatives for females as opening up their options. This suggests gifted adolescent girls would benefit from developing understandings about factors such as gender-related career influences that may expand their future career options.

Participants who crystallised their career goals over a long period of time credited this to a number of factors, and this is consistent with existing career development literature (Gottfredson, 2002a; Savickas, 2002; Super, 1990). Often, they credited a combination of family, school, and community experiences, along with developing a deeper sense of career-related identity that led to clear career goals. Crystallising specific career goals was always related to harnessing desires to make a difference in the world by enacting altruism in fields of interests and strength. This research opens up questions worth further investigation about how key stakeholders could best collaborate in ways that help this population crystallise their career goals.

Decision-making processes involve both a broadening and narrowing in order to crystallise primary career aspirations. This broadening and narrowing process involves a range of internal and external factors. These findings reinforce Maxwell's (2007) views that while there are some common decision-making processes for gifted adolescent girls, there are also many differences. They discussed being aware that they needed more experiences that would expand their career-

related perspectives. The next chapter sections discuss influences that broadened or narrowed their career decisions.

Broadening influences. Participants reported that several main factors contributed to broadening their perceived career-related opportunities. Career-related confidence plays an important enabling role in career development (Bandura et al., 2001; Betz & Hackett, 2006; Thompson, 2016). In this study, participants reported an extraordinary level of career-related confidence when planning for their future career trajectories. These high levels of career-related confidence among gifted adolescent girls have not been discussed in the literature to date, and may be related to the specific, specialised program setting from which the sample was recruited.

Apart from tensions related to challenges with ambiguity and societal change, such as newly emerging technologies replacing existing jobs, there was rarely any doubt among the girls that they had the abilities, resources, and problem solving skills to achieve their primary career aspirations. Many were interested in future leadership positions and believed they would succeed in future career contexts. Even when they chose to follow pathways others viewed as not prestigious enough, they were confident about achieving future high level success in these fields.

This high level of confidence could be credited to a number of influential factors. Participants' high problem solving skills were evident in their decision-making processes, and this is likely due to problem solving being a common gifted trait (Callahan, 2017). Being IGNITE students may have contributed to their career-related confidence due to being with their intellectual peers with similar academic and career goals, as well as school staff who expressed high expectations for their future career success. Additional research comparing the career-related confidence of gifted adolescent girls in these types of selective secondary schooling programs compared to other gifted adolescent girls in mainstream settings would be beneficial. The ways

self-perceptions of intelligence influence career-related decisions in this sample was consistent with Gottfredson's (2002a) theory, which highlights that comparison to peers' levels of intelligence can influence career-related decisions.

Despite research indicating that gifted students in selective school programs may experience lower levels of academic self-efficacy (Marsh & Hau, 2003; Marsh et al., 2007; Robertson, 2013), this was not the case with this sample. Rather, these girls discussed the enabling influence of a sense of career-related solidarity with their IGNITE peers, due to a similar work ethic and high career aspirations. As a result, they may have considered more prestigious career options than if they had been enrolled in mainstream school settings. However, unlike research by Robertson (2013), this current study does not include a comparative sample of gifted students enrolled in mainstream programs. This question about the influence of program setting on career aspirations cannot be answered based on this study, but is an important question for future research. Teacher perceptions of these girls' abilities may have played a part. Participants expressed that teachers held high expectations for their future career success. As indicated in the literature, teacher perceptions of their gifted students' abilities can have an important influence on their achievement outcomes (Cross et al., 2010; Reis, 1998; Thompson, 2016; Tischler, 2006; Vogl & Preckel, 2014; Watters, 2010). Almost all participants reported that they received enabling career-related support from their family members. Some of this career-related confidence could also have come from having such supportive family environments.

These study results give additional insight into the role that being labelled as gifted plays in influencing career-related decisions and goals. Literature indicates that being labelled as a gifted student may be better handled in specialised school settings (Berlin, 2009; Vu, 2011), and this could have been the case with these study participants. Although research by Vu (2011) highlights

gifted students' sense of pride from being labelled as gifted and enrolled in selective school programs, participants in this study discussed these experiences more as assets in their career trajectories than in relation to a sense of pride. These positive IGNITE student experiences could be discussed in the marketing of these programs within the community.

Participants did experience internal and external tensions about choosing careers that were seen as socially undesirable due to their giftedness. This is consistent with existing literature on both internal (Greene, 2006; Kerr, 1994) and external expectations (e.g., Garn et al., 2010; Greene, 2003; Kerr & Sodano, 2003; Mudrak, 2011; Neihart & Yeo, 2018). Contrary to Gottfredson's (2002a) concept that individuals seek out a socially acceptable space, these study participants did not. For the most part, many participants discussed keeping their options open by following their own pathways independent of social acceptance. Literature does not indicate gifted adolescent girls as being determined to follow their own plans independent of external expectations. The lack of interest in seeking out socially acceptable careers among this population merits further investigation. Nevertheless, those who had it particularly appreciated the unconditional support of their primary career aspirations from family and peers.

Questions about the role of multipotentiality are also raised by the results of this study. Given the debate within the literature about the implications of this concept for gifted students (Achter & Lubinski, 2005; Rinn & Bishop, 2015; Rysiew et al., 1999; Super, 1953), this research provides potential insights into the role of multipotentiality. It has been suggested that multipotentiality can be associated with lower levels of wellbeing related to career indecision for gifted individuals (Rysiew et al., 1999; Wood et al., 2018). A few participants discussed multipotentiality in terms of it broadening their career aspirations. In terms of barriers to narrowing career aspirations, multipotentiality did not emerge as a significant issue for most participants.

This finding that multipotentiality was not a significant concern for these gifted adolescents is consistent with recent Australian research by Jung (2018). Participants did not discuss extracurricular interests or commitments getting in the way of their career development. It is possible that any additional interests or career options served to enrich their lives, rather than to add confusion to their career-related decision-making processes. Participants seemed to see their many abilities as contributing to a full life well lived, so it is likely that gifted adolescent girls should be encouraged rather than cautioned to explore interests not related to their primary career aspirations.

Narrowing influences. All participants went through the process of narrowing their career aspirations, and this is consistent with theory in this field (Gottfredson, 2002a; Savickas, 2002). Most of their common career-related values such as leadership and altruism had a narrowing influence on career-related decisions. Participants' perceptions of their own interests and strengths were always used as filters for making career-related decisions and setting goals, and this aligns with career development literature (Holland, 1997; Jung, 2017; Kerr & Sodano, 2003; Parsons, 1909; Savickas, 2002).

Career-related compromise is defined by Gottfredson (2002a) as choosing to follow a secondary, rather than a primary, career aspiration. Several participants decided to rule out careers in the arts such as music, drama, or visual arts due to potential future competition for work. This issue connected with the arts has not been raised in the gifted education literature to date. It is possible these girls did not receive external encouragement to follow arts careers. Gifted adolescent girls in selective secondary school programs may benefit from guidance on how to successfully pursue careers as professional artists.

Usually, career-related values had a narrowing impact on participants' career-related decision-making processes and goals. However, the career-related value of wellbeing stood out having both a broadening and narrowing impact on their decision-making. Participants discussed wellbeing in terms of future mental health, physical health, and work/life balance. For some participants, wellbeing issues narrowed their choices, such as ruling out teaching careers due to the potential challenges with work/life balance. In contrast, valuing wellbeing broadened some participants' career choices, especially those planning careers in the health fields such as personal fitness training. Authors such as Robertson (2013) and Neihart and Yeo (2018) highlight the needs for wellbeing to be prioritised in the career-related decision-making process for gifted adolescents; however, this study highlights gifted girls' own awareness of needing to prioritise these wellbeing issues during their career development. Further investigation is necessary on how this population conceptualises career-related wellbeing, and how they believe this can best be supported in their career trajectories.

The important filtering role mathematics plays in the career-related decisions of gifted adolescent girls is highlighted in these findings. The narrowing career-related role played by the presence or lack of interest in mathematics during career development has been indicated in previous research (e.g., Betz, 2005; Feyerherm & Vick, 2005; Konrad et al., 2000; Watt et al., 2012). Participants did not cite low level of skills in mathematics as shaping their career-related decisions, but rather a lack of interest. This is in contrast to more dated research that suggests girls' low self-efficacy levels in mathematics hold them back from STEM occupations (Bandura et al., 2001; Patton & Creed, 2007a). Some participants were aiming for careers such as medicine, requiring high levels of mathematical achievement scores for university entrance. These participants were committed to any additional mathematics work needed to gain these results. It

was more a case of participants perceiving that mathematics-based careers were not a good fit or preferring other options, which aligns with other research (Ceci et al., 2009; Lloyd et al., 2018; van Tuijl & van der Molen, 2016).

This study continues to raise questions about the role gender plays in the career development of gifted adolescent girls. These participants discussed gender as having a narrowing influence on their career trajectories. Participants commonly believed gender had a subtle narrowing impact on the careers they had considered pursuing since younger ages, and this was consistent with Gottfredson's (2002a) theory. This implies that gifted girls may benefit from exposure to career-related gender equality concepts in primary schooling years.

The two participants who reported being from low-socioeconomic backgrounds expressed additional pressures from family to achieve highly in their future careers due to their family's economic status. Families expected them to rule out jobs with low prestige or salaries. While some recent work has been done on the impact of socioeconomic status in gifted adolescents' career-related decisions (Jung & Young, 2017, 2019), these findings suggest further information is needed on how socioeconomic background influences the career aspirations of gifted adolescent girls. There was a sense their parents believed it was their job to fight social reproduction as defined in the literature (Durkheim, 1893; Willis, 1977). Gifted adolescent girls from low socioeconomic backgrounds may need additional career-related support navigating external expectations, although the low number in this study mean that definitive conclusions cannot be drawn.

Some participants discussed experiencing external encouragement to enter STEM fields as occurring too late in their schooling. This resulted in having ruled out these careers earlier in their schooling. These decisions could be also partially linked with subtle stereotypes that have been reinforced about females pursuing STEM careers (Cadaret et al., 2017; Deemer et al., 2014;

Woodcock et al., 2016); however, the girls did not discuss this concept themselves. These findings suggest additional information on careers in STEM fields is needed for gifted girls at young ages.

Anecdotally, while the first interview questions were intended to only be a data collection tool, there was some indication that it played a role in shaping or refining career goals for some participants. Approximately half of the participants stated in the second interviews that participating in the first interviews had a shaping influence on their own planned career trajectories. This suggests that the process of sitting down with an interested adult and talking through career goals and values in some depth may be beneficial for some girls.

Goals. In many ways, participants' career aspirations represented only a tip of the iceberg as a way of understanding the decision-making process and values that underpinned them. While career-related values were stable, primary career goals were much less stable. This shifting of goals closely relates to Savickas' (2002) views on the Exploration stage when individuals move from daydreaming about a job to entering a socially appropriate employment setting. The three main tasks he outlines as part of this stage are increasing self-clarity, moving into specific career pathways, and leaving school to enter the workforce. Transition and emerging life themes are ongoing tasks in the Exploration stage.

Crystallising experiences. Some participants discussed the ways relationships or experiences at specific points in time guided or affirmed their primary career aspirations. The concept of certain experiences having a strong career-related impact has emerged in previous research on eminent women (Kronborg, 2010). However, little research has been done on these experiences with gifted adolescents. Drawing on a range of works (Denzin, 2017; Kronborg, 2009, 2010; Rimm et al., 1999; Robinson, 2009; Savickas, 2002; Towman, 2008), these defining

occurrences are called crystallising experiences in this study. As highlighted by adult participants reflecting back in research by Rimm et al. (1999) it is possible these defining adolescent career-related experiences may become even more clear with the passage of time. Figure 4 below represents the relationship between crystallising experiences, and participants' decision-making processes and goals.

The three cogs in this model illustrate that some gifted adolescent girls make their career-related decisions gradually. The arrows between decision-making processes, crystallising experiences, and goals highlights that for others, there is a specific point in time that sharpens their career goals. These crystallising experiences were usually reported as a significant step during the gradual interactional process in these participants' career-related decisions, bringing together many different influences into a primary career aspiration. Some participants described crystallising experiences as being linked with interactions with specific people, while others spoke of particular career-related experiences. Often, there was an overlap of both. For instance, one participant discussed struggles with physical health, but working with an in-school fitness coach led her to her aspiration as a personal fitness instructor. Several other participants discussed volunteering with their mothers in education settings as crystallising their goals to become teachers. By contrast, sometimes participants pointed to singular occurrences such as exposure to military settings, as crystallising experiences.

Research on adult narratives of eminent women highlights mentors as an important influence in talent and career development for highly able girls in their adolescent years (Kronborg, 2009, 2010; Rimm et al., 1999; Schlosser, 2001; Towman, 2008). Crystallising experiences in this study often involved meaningful mentorship relationships formed in fields related to participants'

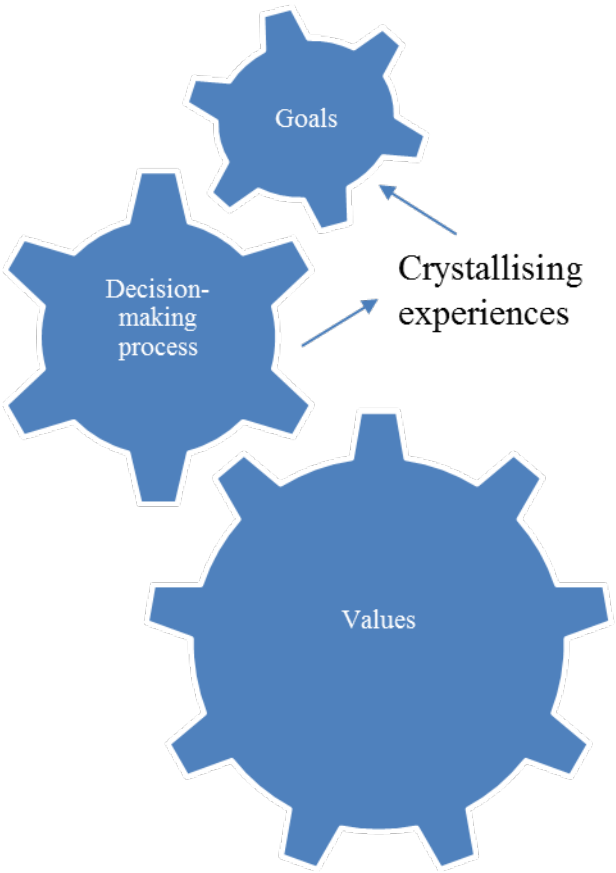

Figure 4. Crystallising Experiences

primary interests. For instance, participants cited a range of relationships such as working with a symphony conductor or a teacher as defining interactions resulting in crystallising experiences. While these relationships were sometimes ongoing, very little exposure to these mentors or role models in terms of time had a strong influence on some participants' career-related choices. This highlights the power inherent in some of these relationships to influence the direction of a life.

These crystallising experiences may have a lasting impact. However, given this is a cross-sectional rather than a longitudinal study, it is possible that some participants who referred to crystallising experiences impacting their career goals may still end up changing their future career

directions. The way participants described these experiences affirms the important roles mentors play in areas of interest and strength as girls form their career goals. While it is not necessarily possible to plan crystallising experiences, the conditions under which they are likely to occur should be considered when planning career-related support and interventions for gifted adolescent girls.

Participants frequently cited mothers and female mentors as being part of their crystallising experiences. This could also be due to fewer male role models and mentors being available to support gifted adolescent girls, for a range of reasons. It is possible that, as in research by Fiebig and Beauregard (2010), the mothers of participants in this study could have impacted their daughters' views of gendered norms and their own career choices. However, that was not a focus of this current study. Research indicates that gifted adolescent girls are more likely to be influenced in building skills such as work/life balance, risk taking, and independence from female rather than male mentors (Beck, 1989). More information is needed on how mentorships between gifted adolescent girls and other field-specific female mentors develop both in formal and informal settings. No participant spoke of a relationship with a male being linked with a career-related crystallising moment. The impact of mentors' gender in influencing the career development of gifted adolescent girls in specialised school programs is worthy of further investigation.

While Gottfredson's (2002a) theory of circumscription, compromise, and self-creation does not specifically include the concept of crystallising experiences, it does highlight that important career-related decisions are often made during early childhood and primary schooling years. The youngest cohort had the clearest memory of career-related crystallising experiences, and this could be due to the strong impact that childhood influences have on adolescent career decisions. Savickas' (2002) career construction theory discusses the process of crystallisation in

the Exploration stage of career development, but he does not highlight the types of specific shaping experiences likely to have the most significant impact within this process.

Ambiguity and societal change. The extent to which changes in broader contexts can lead to tensions in career development is an issue that has been increasingly highlighted in the literature within the last few years (Andersen & Vandehey, 2012; Atanasoff & Venable, 2017; Dengler & Matthes, 2018; Dillon, 2017; Frey & Osborne, 2017; Kenny et al., 2019; Kwok, 2018; Lechner et al., 2016; Sachs et al., 2015; Savickas, 2005; Savickas et al., 2009; Wood et al., 2018). The concept of ambiguity and societal change is used in this research to summarise three important aspects of Savickas' (2002) work. His ideological presupposition of 'dynamic processes' (Savickas, 2002) refers specifically to how transient global marketplaces interact with a range of life roles. People needing to relocate for work and uncertainty associated with changing global environments can create concerns. This theory addresses the unpredictability of modern working lives through the ideological presupposition of 'non-linear progression' (Savickas, 2002). In this study, some participants discussed their concerns about needing to change occupations, perhaps multiple times, within their working lives. 'Contextual possibilities' addresses career development as socially constructed, co-created, and interactive (Savickas, 2002).

Although adolescent girls in this research asserted high levels of career-related confidence in their capacity to overcome future challenges and achieve career success, they still expressed tensions about ambiguity. For instance, these participants were particularly concerned about ambiguity within broader contexts such as unpredictable university entrance scores or competition for future jobs. This is in keeping with current literature on adolescents' challenges with career-related ambiguity (Dillon, 2017; Kwok, 2018; Lechner et al., 2016; Wood et al., 2018). Career-related ambiguity is an important issue to address with gifted adolescent girls, as research by

Lechner et al. (2016) indicates that perceived growing career uncertainties in adolescents and young adults can lead to increased disengagement in attaining future career goals. According to Savickas' (2002) theory of career construction, adaptability to changing career-related environments is the primary measure of career maturity.

The arrows in this (Figure 5) model show the impact of tensions of ambiguity and societal change for these study participants. While they were often certain about their own career aspirations, these gifted adolescent girls discussed the general unpredictability of career development and shifts in society as on-going challenges in making long-term career goals. What stood out in the data was that participants' perceptions of external, changing contexts helped shape their views of both career opportunities likely to be available to them and their own suitability for these opportunities. While managing ambiguity and societal change was an ongoing challenge, many were particularly unsure about how to personally manage the effects of new technologies on their career trajectories. It was as though they were experiencing early technostress (Atanasoff & Venable, 2017) before even entering the workforce in a full-time capacity. This could have been partly due to the generation gaps in technology skills between participants and many of the key people supporting their career goals, such as parents and teachers. More information on how best to equip this population with necessary career-related technology skills is needed.

This uncertainty relating to ambiguity and societal change could be heightened for some gifted individuals in comparison to typically developing individuals due to their sensitivities, higher order thinking skills, and tendencies towards perfectionism (Greene, 2006; Muratori & Smith, 2015; Ozcan, 2017; Wood, 2010). While it could also be argued that these individuals will likely have more career options in the future and, as a result, may be more resilient when dealing with career-related barriers such as needing to learn new technology skills, they keenly felt the

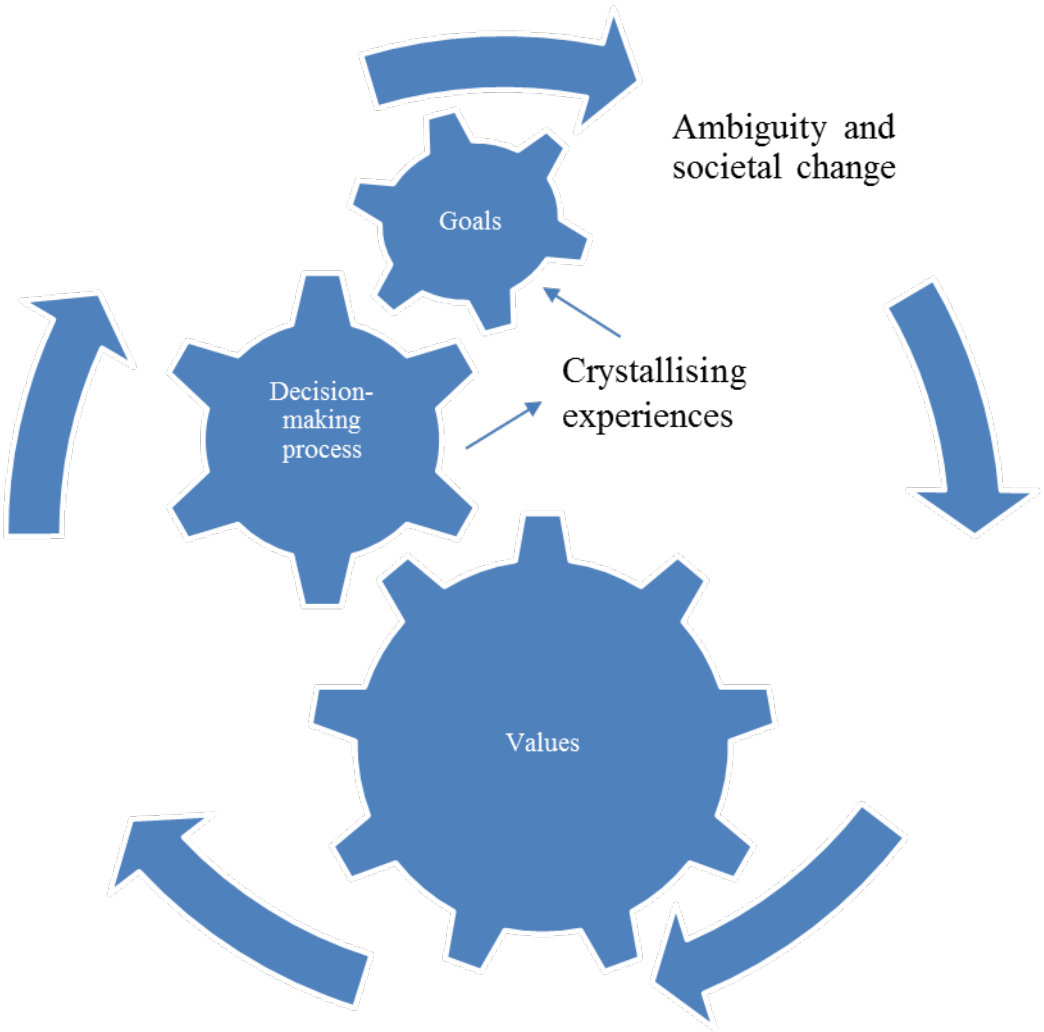

Figure 5. Ambiguity and Societal Change

roles that ambiguity and societal changes played in their career-related decision-making processes and goals.

The influence of identity and contexts on career-related development. The previous section outlined the relationships between career-related values, decision-making processes, and goals. It also highlighted the role of crystallising experiences, ambiguity, and societal changes. This section addresses the two main themes that emerged from the data, representing key influences on career development for gifted adolescent girls in these selective secondary school

programs - identity and contexts. Responses from gifted adolescent girls in this study reflected that their sense of developing identity, and the various contexts in which they live and interact, primarily influence their career development.

Linking identity and contexts with career-related values, decision-making processes, and goals. Identity and contexts impact participants' values, decision-making processes, and goals. While contexts such as family and communities played a role in career-related values, participants mainly discussed contexts as impacting their decision-making processes and goals (Figure 6). For example, experiences of being mentors in a range of contexts such as family and school settings, helped clarify participants' career goals.

The arrows in Figure 6 below between identity and career-related values, decision-making process, and goals show that participants' sense of identity had an impact on all three of these concepts. For example, identifying as leaders led these participants to value future leadership and to plan for these roles as part of their primary career aspirations. Participants usually discussed contexts as primarily impacting their decision-making processes and goals, and the arrows in this model illustrate this. For instance, while all participants valued future career success, they rarely discussed contexts such as their school or families impacting this value being formed. It could be that these values had been held for some time, and that participants took them for granted.

It is important to point out the interactive nature of The Psychosocial Theoretical Model. According to this model, when identity or contexts impact these participants' career-related values, decision-making processes, or goals (cogs) there are two results. First, there is an impact on one of the cogs, such as values which then impact another cog in the model such as decision-making processes. For instance, seeing oneself as someone who is committed and capable of making a difference in others' lives is part of identity, and this connects to prioritising altruism as a career-

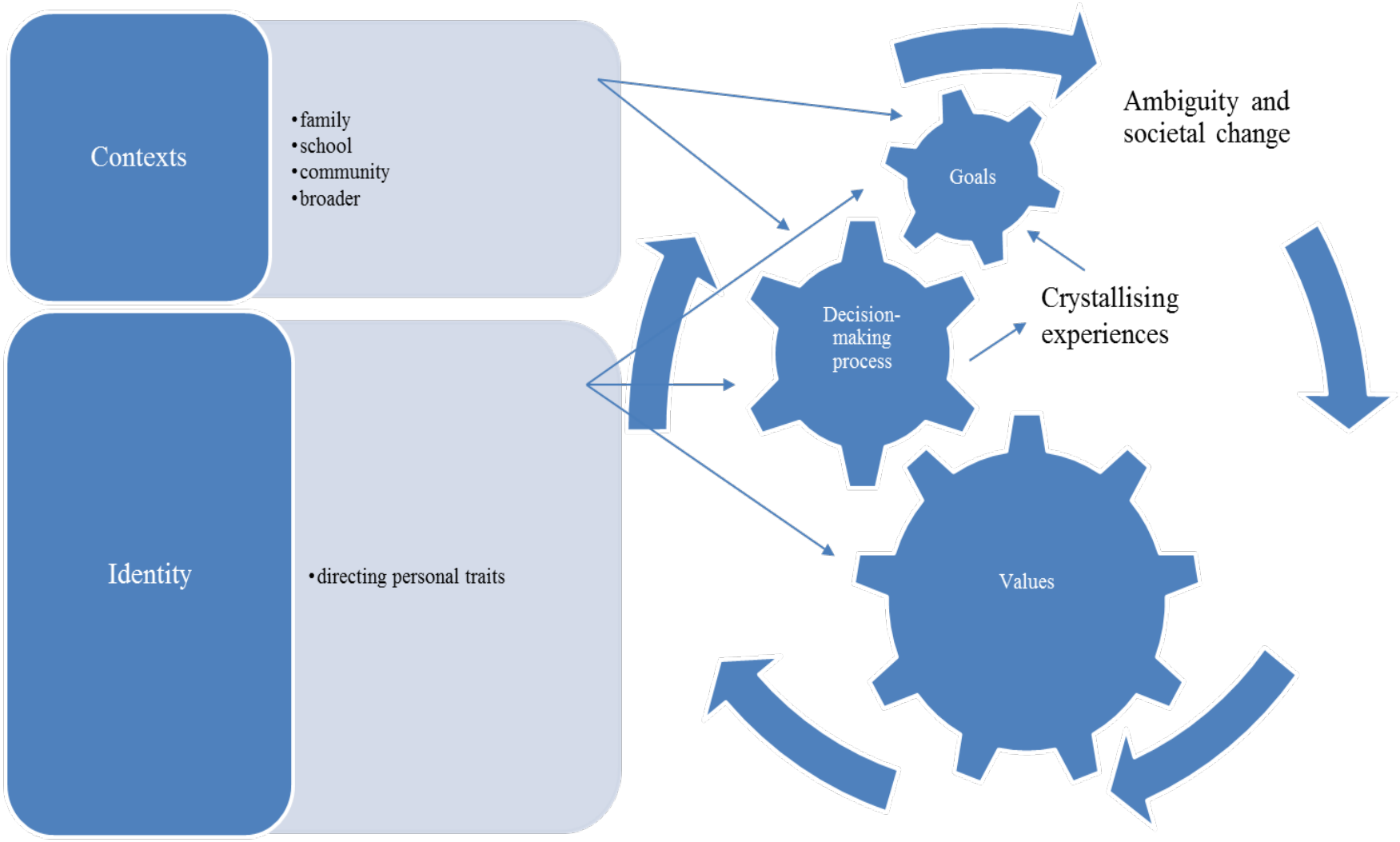

Figure 6. Linking Identity and Contexts with Career-related Values, Decision-making Processes, and Goals

related value. As discussed in previous sections, this interaction between values, decision-making processes, and goals was repeatedly evident in how participants framed career-related decisions.

Identity development and career-related values are interrelated. Gifted adolescent girls in these specialised school settings discussed their career-related values as having stemmed from their own sense of identity. Identity refers to personal perceptions of traits such as interests and strengths in specific school subject areas, whereas identity categories relate to socially determined constructs such as cultural background. Literature dating back to early last century (Parsons, 1909) laid the foundation for the notion that personal strengths and interests, as part of individuals' identities, are important in choosing a vocation.

These findings are consistent with previous career development theories, in which the role of identity in career development is emphasised (Holland, 1997; Savickas, 2002; Super, 1990). Gottfredson (2002a) primarily refers to identity in terms of socially constructed identity categories such as gender or levels of intelligence. However, Savickas (2002) highlights developing identities as important aspects of his Self as Actor stage of career development, and is more broad in his views on identity in terms of the focus of life narratives.

Findings from this study align with literature asserting individual interests and strengths of gifted adolescents play an important role in their talent development and career trajectories (Chen & Wong, 2013; Fiebig, 2008; Greene, 2006; Henderson & Jarvis, 2016; Jung, 2018; Miller & Cummings, 2009; Muratori & Smith, 2015; Ozcan, 2017; Renzulli, 2012; Robinson et al., 2002; Seward & Gaesser, 2018; Thompson, 2016; Wood, 2010). No participants discussed lacking opportunities to develop their areas of interest and strengths; it is possible that, as Seward and Gaesser (2018) point out in their research on career development with rural gifted adolescents, location could partly explain this. These girls were enrolled in suburban selective program settings

that catered specifically to their giftedness, whereas it is possible that mainstream students or those enrolled in schools with fewer options might struggle to find outlets to develop their interests and strengths. Like the findings on influential factors in their decision-making processes and crystallising experiences, the findings about a preference for working with mentors in an area of significant interest suggest that mentors and mentoring opportunities within school subject areas play a crucial role in gifted adolescent girls' career trajectories.

The findings suggest these gifted girls saw themselves as leaders, and they expressed a drive for future leadership roles in their careers. Leadership has been frequently cited as a common trait among gifted individuals (Borland, 2009; Callahan, 2017; Ganzach & Fried, 2012; Hebert, 2019; Mendez & Crawford, 2002; Renzulli, 1982). It is possible that participants viewed future leadership opportunities as integral to flourishing in their future careers due to the high expectations of their teachers and families. In addition, experiences in different settings, especially within their specialised school programs, enabled them to develop this aspect of their identities. Fulfilment gained from prior school and community-based leadership roles built participants' confidence and desire for future career-related leadership roles. This highlights the importance of leadership roles for gifted adolescent girls, as these experiences may help to shape their identities and confidence. Further research comparing which types of leadership roles in adolescent years have the strongest enabling impact on this population would be helpful.

While some vulnerabilities have been highlighted in the literature on career development for gifted young people (Greene, 2006; Meinster & Rose, 2001; Mendez & Crawford, 2002; Neihart & Yeo, 2018; Ozcan, 2017; Reis, 1998; Robertson, 2013; Wood, 2010), results from this study indicate this sample placed a particularly high priority on personal wellbeing in their future careers. Participants believed that balancing future career-related leadership opportunities with

time to work independently would help support their sense of wellbeing. This was particularly evident in participants who disclosed formally diagnosed mental health issues. Questions are raised such as the prevalence of mental health diagnoses in gifted adolescent girls in specialised school settings and how best to provide mental health support in ways that also facilitate career development. These findings suggest that more investigations are needed about how mental health influences the career trajectories of gifted adolescent girls in specialised settings, which may come with additional pressures not found in mainstream settings.

Despite prioritising future work/life balance, participants often expressed a lack of knowledge about effectively planning for this in the future. Consistent with previous research (Armstrong & Crombie, 2000; Johnstone et al., 2011; Kelly & Cobb, 1991; Meinster & Rose, 2001; Patton & Creed, 2007a), these findings reinforce that as adolescent girls approach the end of secondary school graduation and enter university or working years, their career goals become increasingly shaped by other life roles. However, in their longitudinal comparative study of female secondary school students, Meinster and Rose (2001) found that those with higher career and academic aspirations placed less emphasis on other future life roles over time. This is an area that warrants further research with gifted adolescent girls. Additional support in planning for future work/life balance should be a priority in helping gifted girls shape their career trajectories.

Research is divided on whether perfectionism can intensify career-related issues for gifted adolescents (Chen & Wong, 2013; Kerr & Multon, 2015; Maxwell, 2007; Neihart & Yeo, 2018; Rice & Ray, 2018; Silverman, 1993; Speirs Neumeister et al., 2007). However, the girls in this study most frequently described perfectionism as playing an enabling, rather than an inhibiting role in career planning. Nevertheless, several participants were aware that being too caught up in perfectionism could be harmful to their future careers, which is consistent with some previous

studies (e.g., Perrone-McGovern et al., 2015). Gifted girls may need support for managing perfectionism as it relates to career planning, but not all see this as a concern, at least within these selective programs. It is possible that this is partially due to these participants being surrounded by so many other perfectionists in these specialised settings.

Contexts provide both affordances and constraints that influence career-related decision-making processes. Participants reported that their particular social contexts–the immediate physical and social settings in which they live and interact-had a significant influence in their career trajectories. The four contexts that emerged as most influential in shaping career development were family, school, community, and broader settings. This set of findings is consistent with prior research that particularly points out the significant roles of families and schools (e.g., Bronfenbrenner, 2001; Garn et al., 2010; Greene, 2003; Kerr & Sodano, 2003; Miller & Cummings, 2009; Mudrak, 2011; Neihart & Yeo, 2018). However, these findings particularly serve to point out the pivotal role mothers and special teachers play with this population.

Family influences. Family was the strongest contextual influence, and this aligns with literature asserting that settings where individuals spend the most time are likely to have the greatest impact (Bronfenbrenner, 2001). Although the literature indicates families have a strong impact on career trajectories for gifted young people (e.g., Garn et al., 2010; Greene, 2003; Kerr & Sodano, 2003; Mudrak, 2011; Neihart & Yeo, 2018), its overwhelmingly positive influence among participants in this study was notable. It is possible that the nature of the IGNITE admission and enrolment process attracts supportive parents willing to ‘go the extra mile’ for their children’s education. Nevertheless, as in research by Mudrak (2011) that indicates the negative impact parental performance pressures can have on gifted children and adolescents, these study

participants also discussed the negative impact of high parental expectations of their career trajectories, despite their overall encouraging home environments.

Consistent with previous research on gifted girls (Fiebig, 2003; Fiebig & Beauregard, 2010; Miller & Cummings, 2009), mothers had a strong influence on their daughters' career trajectories. They had the strongest influence out of all family members. In this sample, fathers were always described in terms of having a generally enabling role in career development, whereas mothers usually had a more direct influence. It could be that mothers had a particularly strong influence as participants more frequently reported exposure to their mothers' workplaces and broader career-related communities than their fathers' workplaces. Siblings and extended family members had an important career-related influence on these study participants, and there is little research on this specific topic in the giftedness literature.

School influences. The findings of this study highlight the role of specialised gifted education programs in the career development of gifted adolescent girls. Although the enabling influence of teachers on career trajectories in specialised settings for gifted students was consistent with the literature (Batterjee, 2016; Coleman et al., 2015; Schmitt & Goebel, 2015; Vogl & Preckel, 2014; Vu, 2011), research has yet to explore the career-related impact of unplanned one-on-one time with special teachers for gifted adolescent girls. These findings imply that additional one-on-one time with special teachers is likely to support gifted adolescent girls' career trajectories, and should be considered a priority in school settings. Teachers were also strong role models and mentors for participants choosing to pursue teaching careers. Nevertheless, it is possible that teachers in these specialised settings may have had qualities particularly appropriate to gifted adolescent girls, resulting in a particularly enabling influence on their career trajectories. When comparing participants with aspirations in education with other participants, those who were

planning to pursue teaching careers stood out as not lacking mentors necessary for their career-related trajectories.

In terms of school contexts, participants also noted the key influence of peers within the IGNITE program. They described a strong sense of solidarity coming from the experiences of sharing similar career-related interests and work ethic with their IGNITE peers. These findings align with Robertson's (2013) research that indicates gifted students have higher self-concepts and other social benefits in selective programs as a result of being with their peers of similar ability. Findings from this current study reinforce the career-related value of these selective gifted secondary school programs.

A key finding from this study was the girls' sense of lacking adequate, formal school supports for career development. It seemed more attention was given to academic success than career guidance, as has been found in other literature on school career-related influences for gifted adolescents (Greene, 2006; Muratori & Smith, 2015; Ozcan, 2017). These findings indicate both a potential lack of generalised information on a broad range of career fields, and a perceived lack of specialised career-related supports. While participants reported valuing existing school-based career guidance provisions such as work experience placements, Personal Learning Plan classes, and career days at universities, they expressed much tension about the low prevalence of these supports. It should be noted that no information was collected about the actual career supports provided by each school, so this set of findings relates to gifted girls' own impressions of what was lacking. Additional research is needed to understand the types of experiences gifted adolescent girls perceive that they need at school, or why there seems to be a mismatch between the school-related career supports provided and those valued by this population.

Participants were concerned about only having information on a handful of careers, and expected that their schools should be providing much more relevant information. They particularly reported lacking knowledge about STEM careers early in their schooling. Even in these specialised school programs with high expectations for post-school achievement and exposure to STEM field recruitment programs, participants said they still needed additional information.

Many factors could have contributed to these girls' view that their schools lacked appropriate career guidance and intervention. It could be that the formal support offered was not presented or communicated in ways that effectively met their needs. Participants reported the perception that schools were too focused on only a few popular pathways such as law and medicine for IGNITE students, perhaps school staff could be unaware of this perception. It has been suggested that a lack of career knowledge can lead to social reproduction (Dolby et al., 2004; Kerr & Gahm, 2018; Neihart & Yeo, 2018; Simmel, 1903; Willis, 1977; Zambrana et al., 2015), and this could be a particularly significant issue for gifted adolescent girls from low socioeconomic backgrounds. Additional research is warranted on whether or not social reproduction exists with disadvantaged and minority individuals within this population in the long-term, particularly in specialised settings. The lack of socioeconomic diversity among the sample in this study leaves that question unanswered.

Another important finding related to participants' silence relating to the school curriculum. Although it was anticipated that participants would discuss the career-related impact of the specialised IGNITE program, including enrichment, extension, or differentiation opportunities, this was not the case. It could be that these schools provided a wide range of opportunities, but that they were not deeply focused enough on students' primary interest areas within the curriculum. In

addition, it is possible that they may have taken for granted some of the program experiences that had a career-related influence and simply not recognised their relevance to the interview questions.

Community influences. Researchers highlight the important career-related influences of community settings (Bronfenbrenner, 2004; Ozcan, 2017). Findings from this study explicate some of the specific types of experiences gifted adolescent girls found enabling within community contexts such as community-based part-time jobs, volunteer roles, and experiences with mentoring. These community-based opportunities should be considered when prioritising career development for gifted girls. The strong enabling influences that community-based role models and mentorship relationships had on participants' career development points to the links between future career outcomes and early domain-relevant experiences, which has been a consistent finding in the talent development research (Csikszentmihalyi et al., 1997; Gagné, 2003; Rinn & Bishop, 2015; Subotnik et al., 2011). Results from this current study indicate participants sought out a wide range of domain-specific experiences in their areas of interest and strength.

Mentoring influences. Participants reported both the enabling impact of field-specific mentors and role models, and a sense that they sometimes lacked these relationships. The importance of role models and mentors to career development, both in formal and informal relationships, is well established in the research literature (Freeman, 2001; Kerr & Gahm, 2018; Kerr & Kurpius, 2004; Kronborg, 2010; Liang et al., 2008; Little et al., 2010; Neihart & Yeo, 2018; Rimm et al., 1999; Schlosser, 2001; Thompson, 2016; Towman, 2008). Participants discussed the enabling career-related impact of role models and mentoring within a range of contexts such as the family, school, community, and the media. They more often discussed the ways informal rather than formal mentoring relationships influenced their career trajectories. This research particularly highlights the important role informal community mentors play with this

population. Savickas (2002) points out mentors as being important enablers during these stages of career development. Nevertheless, some participants expressed concerns about lacking mentors both during the course of the study as well as potentially in future university programs and early working years. These findings suggest that gifted girls could benefit from additional mentorship opportunities in areas of career interest, both during secondary schooling years and beyond.

Although the literature highlights the value of female mentors adolescent girls (Davis & Pearce, 2007; Gilligan, 1982; Gottfredson, 1981, 2005; Kerr, 1994; Lirio et al., 2007; McMahon et al., 2002), participants did not express a preference for a certain gender for role models or mentors. Nevertheless, it is possible due to their specialised school settings that these girls had more easy access to female role models such as teachers or visiting experts than gifted adolescent girls in mainstream or other settings. Future research is needed on informal mentoring relationships for gifted adolescent girls and how these enable career development.

Influences of external expectations. Findings from this study reinforces the notion that gifted adolescents often experience a strong sense of high external career-related achievement pressure, including from parents and teachers (e.g., Garn et al., 2010; Greene, 2003; Kerr & Sodano, 2003; Mudrak, 2011; Neihart & Yeo, 2018; Yoo & Moon, 2006). Further investigation of whether parental expectations are higher for gifted adolescent girls in selective secondary schooling programs in comparison to mainstream settings would be useful. These high expectations created tensions in career development for the sample in this study. Research by Garn et al. (2010) on the ways parents of gifted students influence their academic motivation found that pressures to achieve highly in school are also often linked with expectations for high future career achievements. It is possible that these girls experienced heightened external expectations as IGNITE students compared to gifted students in mainstream settings. These heightened pressures

may have delayed some participants from crystallising their career goals. Perhaps significant others, such as parents and teachers, would benefit from support in learning how to communicate their high expectations for gifted adolescent girls in productive ways. Gifted girls, at least in the specialised settings as in this study, may need additional strategies for dealing with these external pressures. Regardless of the perceived pressures however, older participants in particular were determined to carve out their own independent career-related pathways.

Time. Age had a clarifying effect on participants' career-related decision-making processes and goals, and this aligns with prominent theories of career development (Gottfredson, 2002a; Savickas, 2002; Super, 1990). When comparing the three cohorts, it was evident that older participants were clearer about their own career-related identities and goals than younger participants. This finding aligns with existing literature (Gottfredson, 2002a; Savickas, 2002; Super, 1990) indicating the impact of time on career development. No participants discussed their career development in terms of being stuck against barriers or moving in circles. The ways participants voiced the impact of time ties into the Growth and Exploration stages of Savickas' (2002) theory.

The passage of time is illustrated by the arrow and information along the bottom of The Psychosocial Theoretical Model (Figure 7 below). Some participants' career-related experiences were closely linked to the timing of certain formal school career-related supports. South Australian career-related decisions such as school subject choices need to be made at specific times within the public school sector. For instance, participants reported how their experiences in the Personal Learning Plan class usually offered in Grade 10 focused on career planning led to deeper understandings of their identities and clearer career goals. The middle cohort, Grades 10/11, is represented as larger than the other two cohorts in Figure 7, reflecting the significant affordances

and constraints occurring in these two years. It is possible that due to these being such important decision-making years in the school system this is when career-related values, decision-making processes, and goals were most salient. In other words, these are the years where career-related experiences and decisions develop most intensively for the gifted adolescent girls in these settings. For instance, Grades 10/11 participants reported having the most formal career supports at school as well as the strongest sense of lacking the additional information needed to make appropriate career-related decisions. More information on a broad range of fields may be beneficial for gifted girls in Grades 8/9 and earlier in similar school settings. There is debate in the literature about the final secondary school years being a time when gifted adolescent girls lower their career aspirations (e.g., Armstrong & Crombie, 2000; Cassie & Chen, 2012; Fiebig & Beauregard, 2010; Lee & Rojewski, 2009; Patton & Creed, 2001; Perrone et al., 2006). However, that was not indicated by this sample.

As noted above, it is possible that due to the timing of formal in-school supports being focused on Grades 10/11 that this was a time that career-related decisions come to the forefront. As a result, gifted adolescent girls appear to rely heavily on their network of support people in considering career-related decisions. Of course, given that this was a cross-sectional rather than a longitudinal study, it is possible that the Grade 10/11 cohort happened to include participants who were particularly focused on issues related to career development. This set of findings requires further investigation.

Older participants exhibited deeper understandings of the ways future life roles would be intricately linked with career development, and this was consistent with career development theories (Savickas, 2002; Super, 1990). What stood out in the results was that, older participants' conceptions of success were more complex and included balancing multiple life roles and

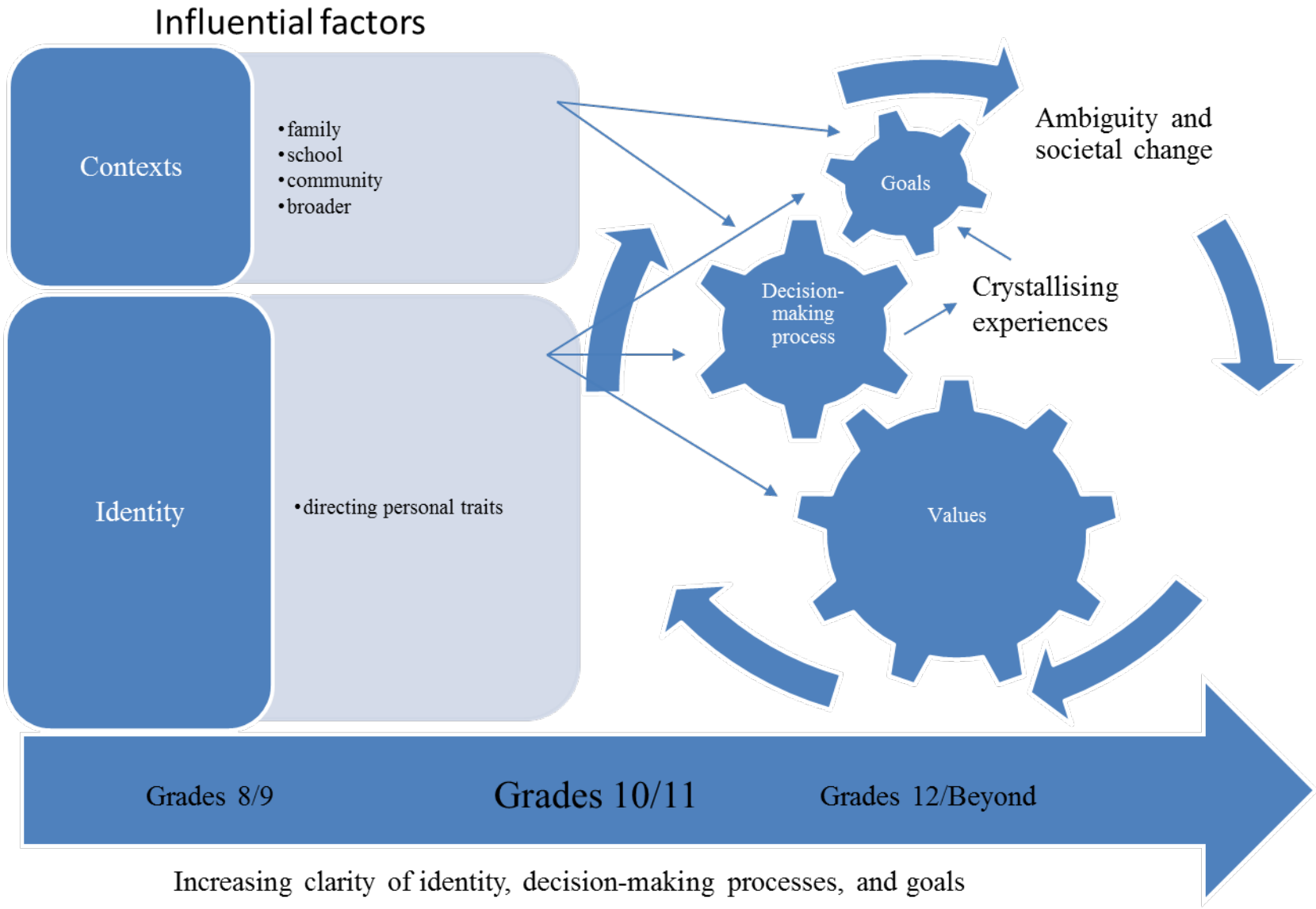

Figure 7. Increasing Clarity of Identity, Decision-making Processes, and Goals

entrepreneurial pursuits, and they had higher concerns about how to effectively plan for future work/life balance than younger participants. These increasing tensions linked with age in planning for future work/life balance, particularly in the last few years of secondary schooling for females, has been reinforced in the literature on adolescents (e.g., Armstrong & Crombie, 2000; Kelly & Cobb, 1991; Patton & Creed, 2007a). Across the age cohorts, participants also discussed increasing understandings of possible future workplace gender bias and unequal career-related expectations in potential romantic relationships. These findings point to additional guidance needs on future life planning as an integral part of career planning.

Older participants in comparison to younger participants expressed greater clarity about their interests and strengths, and this enabled their career-related decisions. This increasing clarity was particularly notable in relation to a stronger sense of identification with specific school subject areas across the age cohorts. These findings align with previous research that highlights deep involvement in interest areas are an enabling factor in development for gifted students (Chen & Wong, 2013; Fiebig, 2008; Greene, 2006; Henderson & Jarvis, 2016; Jung, 2018; Miller & Cummings, 2009; Muratori & Smith, 2015; Ozcan, 2017; Renzulli, 2012; Robinson et al., 2002; Seward & Gaesser, 2018; Thompson, 2016; Wood, 2010).

Gender appeared to play a unique role, as it had both a broadening and narrowing influence on participants' preferred career fields. When comparing the three cohorts, it was evident that each cohort discussed how they saw gender impacting their career development differently. The Grades 8/9 participants particularly discussed having unconsciously narrowed their career aspirations at younger ages due to gender.

Gottfredson (2002a) conceptualises the role of gender as part of circumscription in terms of individuals orienting themselves to gendered normative careers pathways at early ages; this

conceptualisation resonates with the way the girls in this study discussed gender and early career goals. In Gottfredson's (2002a) theory, circumscription is a process of individuals aged between four and 13 eliminating culturally unacceptable career pathways in favour of culturally acceptable alternatives. It is linked with individual perceptions of gender, intelligence, and prestige during this period. A central element of Gottfredson's (2002a) theory of circumscription, compromise, and self-creation concerns the ways individuals' perceptions of socially acceptable occupational sex roles influence their career-related decisions. She raises the issue from her earliest writings that occupational sex roles are at the heart of career development decisions and the least likely for an individual to compromise.

Although the Grades 8/9 participants especially reported having narrowed career aspirations at younger ages due to their gender, study participants asserted during the course of the study that, as Schoon et al. (2007) suggests, they were currently living in changing times much less bound by gender equality issues in career development. Nevertheless, participants did not see their gender as an asset in most fields, and perhaps this is a concept worth further exploring with gifted adolescent girls. They did believe that they had broad options regardless of their gender.

Across the age groups, older participants were notably more concerned about future gender-based issues in their career development. Easy answers or solutions about the career-related role of gender did not seem feasible to the oldest cohort. They saw gender as a potential barrier to future workplace opportunities and positive work/life balance. It was as though with additional maturity, the oldest cohort had further insights into the complex role gender might play in their career development. These findings raise the question on how this population can be best equipped with the skills needed for future work/life balance.

While some research suggests that gifted females lower their career aspirations in the last years of secondary school (Cassie & Chen, 2012; Patton & Creed, 2001), the uneasiness experienced by the oldest cohort had when considering the career-related impact of gender was not coupled with lowering career aspirations. They reported these gender-related issues as being ambiguous and were unsure of the impact this would have. This suggests that more education is needed on future gender-based issues this sample may face. The impact of gender on career aspirations remains a complex issue, so more research is needed.

Summary of applications to the blended theoretical framework. Figure 8 below shows links between these findings and both Gottfredson's (2002a) theory of circumscription, compromise, and self-creation and Savickas' (2002) career construction theory. This study confirmed as well as challenged some aspects of Gottfredson's (2002a) theory. It also confirmed many aspects of Savickas' (2002) theory.

The career-related influences of intelligence and compromise as defined by Gottfredson (2002a) were confirmed by the study findings. For instance, participants clearly viewed their high levels of intelligence as opening up options rather than narrowing them. Only a few participants made career-related compromises when choosing their primary career aspirations, and this was not connected to perceptions of intelligence. However, this raises questions about whether or not gifted adolescent girls not identified as gifted or enrolled in selective secondary schooling settings would view their intelligence as empowering in their career trajectories. It should also be noted that this research did not enable comparisons between the experiences of gifted girls and those not identified as gifted.

Other aspects of this study raise questions about the application of central aspects of Gottfredson's (2002a) theory to this sample of gifted adolescent girls in selective programs. For

instance, as discussed earlier in this chapter, Gottfredson (2002a) talks about the driving career-related need to carve out acceptable social spaces. However, these participants aimed to follow their own individual pathways rather than to seek social acceptance in their career choices. This individualism increased with participant age, and could partly be due to gifted individuals already having a sense of being different (Arnold et al., 1996; Kerr, 1994; Kronborg, 2010; Reis & Sullivan, 2009; Rimm et al., 1999; Towman, 2008). In terms of the identity categories linked with Gottfredson's (2002a) concept of circumscription, which is the narrowing of socially unacceptable choices according to individuals' identity categories, gender had a more complex impact on these participants' career trajectories at older ages than indicated in this theory. This may be due to her work being focused on individuals below age 14. Contrary to Gottfredson's (2002a) theory, which posits that pursuing prestige is an important part of career-related decision-making, these participants did not discuss valuing prestige. However, it is possible that considerations of prestige and social acceptance will become more pronounced as participants leave school and enter further studies and the workplace.

Several other aspects of Gottfredson's (2002a) theory of circumscription, compromise, and self-creation are opened up for possible further development based on the findings of this current study. Family culture and socioeconomic status were not identity categories in Gottfredson's (2002a) theory, but several participants discussed the impact these identity categories had on their own career-related development. This could be considered an underdeveloped aspect of her theory. As discussed earlier in this chapter, another element worth investigating is Gottfredson's proposed fifth stage.

Many findings reinforce Savickas' (2002) theory of career development in its application to the career-related values, decision-making processes, and goals of adolescent gifted girls. For

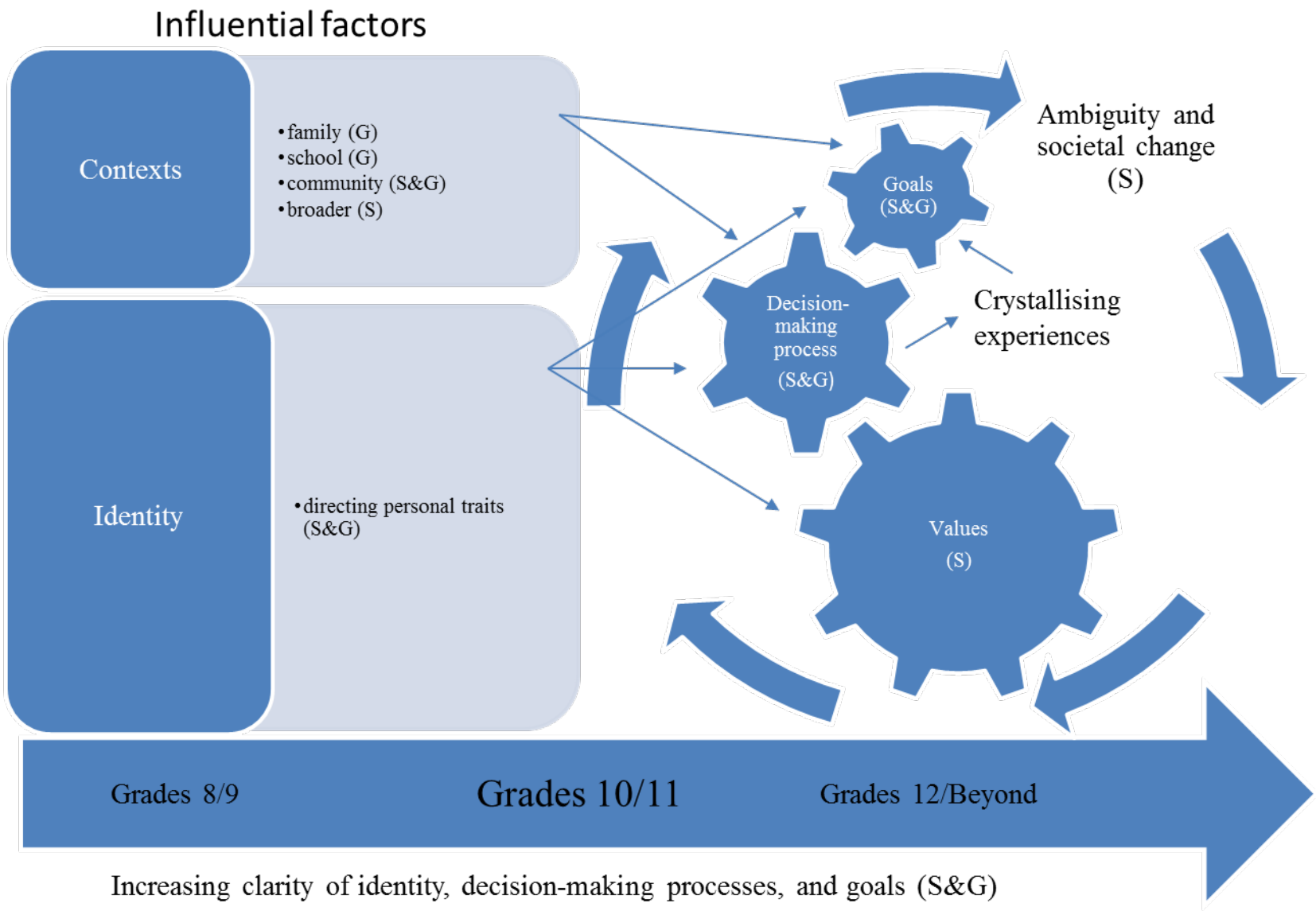

Figure 8. The Psychosocial Theoretical Model of Gifted Adolescent Girls' Career Development

instance, Savickas' (2002) work on decision-making processes more closely aligns both to participants' ages and the overall findings. Lifetime goals of Growth and Exploration as defined by Savickas (2002) link with this project's conception of decision-making processes participants are experiencing during these ages. Several of Savickas' ideological presuppositions such as dynamic processes, non-linear progression, and contextual possibilities, as defined and summarised by the concepts of ambiguity and societal change, are supported by these finding. The strongest contribution his theory made to this project is in the recognition of individual career-related life narratives exist. A core narrative in this study is that many gifted adolescent girls, at least in this setting, identify themselves as being capable and committed to making a difference in peoples' lives, and as a result choose to enact the career-related value of altruism in a wide range of fields.

Summary

This chapter showed the interconnectedness of career-related values, decision-making processes, and goals, as well as the important influences on these constructs for gifted adolescent girls in these specialised settings. The ways career-related values underpin all career-related decision-making process and goals were laid out. This chapter illustrated the differences between participants who gradually decided on their primary career-related goal, and those who crystallised it at one main point in time. Influences that broaden and narrow career aspirations for gifted adolescent girls were presented. The pivotal way high levels of career-related confidence influences the decision-making processes of gifted adolescent girls in specialised school settings were discussed.

This chapter has highlighted the crucial role identity played in informing career-related values for gifted adolescent girls in these specialised school programs. It established participants'

views of themselves as being committed and capable of making a difference in others' lives as driving their life narratives. The significant roles their strengths and interests played in career-related decision-making processes and goals were discussed, and the priorities they placed on future career-related leadership positions and wellbeing were presented. The ways gender can have a narrowing impact on career aspirations, as well as create unpredictable issues for these girls were discussed. The enabling impact of being gifted students enrolled in selective school programs was emphasised.

This chapter has also highlighted the important role contexts play in the career trajectories of gifted adolescent girls. It illustrated contexts these gifted adolescent girls reported as having enabling impacts, such as families and communities, as well as those that created tensions, such as schools and broader contexts. In particular, the lack of school-based career supports and information were mentioned by these study participants, and the enabling opportunities within community settings such as work placements and volunteer roles were discussed. This chapter foregrounded the profound career-related impact that mentoring relationships in areas of interest and strength had on these gifted adolescent girls' career development. The tensions these gifted adolescent girls experienced from others to pursue high career-related achievements were also discussed. Ongoing tensions experienced with external career-related ambiguity and societal change were also presented.

These findings open doors for further refinement of career development theories. They point to the possibility of a fifth stage of Gottfredson's (2002a) theory being developed, as well as confirm the use of Savickas' (2002) theory in understanding gifted adolescent girls in this particular setting. Influential factors in the career-related values, decision-making processes and goals explored in this study provide a foundation for all recommendations in the following chapter.

CHAPTER 7: CONCLUSION

This research I have undertaken carries a range of implications for how career support for gifted adolescent girls can be optimised, and also carries implications for future research. These girls have the potential for high-level contributions in many career fields. The research findings, presented and discussed in the previous two chapters, reflect the most important influential factors for gifted adolescent girls in their career trajectories. Understanding these influences has strategic consequences and implications for practice, policy, and future research. These gifted adolescent girls report feeling well positioned with the confidence and abilities needed to be leaders in 'making a difference' in peoples' lives. However, as they enter the constantly changing career environment where gender discrepancies in career outcomes remain, they may face many unanticipated barriers in reaching their primary career aspirations. Females are under-represented in some fields of study and employment, as well as eminent levels in many careers. It is important to have a better understanding of gifted adolescent girls' career development from their own perspectives, from the early adolescent years when they are making some of their most formative career-related decisions. Understanding their viewpoints can help inform stakeholders on how to more effectively support these girls.

This chapter presents nine principles, based on these research findings, to guide policies and practices supporting the career development of gifted adolescent girls. In the following section, each of these principles is discussed in terms of its potential implications for policymakers and practitioners. This is followed by a discussion of the limitations of this research. Finally, recommendations for future research are offered.

Principle One: Career Support Should Help Gifted Adolescent Girls Harness Their Desires to Make a Difference

A core narrative of these gifted adolescent girls in selective school programs is that they consider how to harness their desires to make a difference when planning their future career pathways. They see themselves as capable and committed to making a difference in others' lives. It is likely this confidence in their capabilities is partially due to their supportive family backgrounds, and their selective school placements. They seek to enact their own individual strengths and interests in a wide range of future career roles. Regardless of their planned career trajectories, making a difference in the lives of people is what drives them. The gifted girls in this cohort view this drive as enabling in their career trajectories. It is possible that some participants voiced these drives as they are viewed as more socially acceptable for females to focus on prestige or high salary. According to Savickas (2012b) and his conception of an identity narrative, these career goals indicate that these gifted adolescent girls are adaptive and focused on making meaning in their career trajectories. Therefore, a significant life narrative is already emerging in the adolescent years. It could be argued that this also indicates advanced development.

The desire to make a difference in others' lives in future career-related contexts has important implications for policy and practice in a range of settings. None of these participants spoke of pursuing traditional social justice causes such as feminism or not-for-profit medical work in third world countries. It is possible that as there are so many career opportunities now available to females, these girls are using similar drives to make a difference in a wide range of ways through more formal career pathways. However, it should be acknowledged that this study included 18 participants, and similar future studies may include participants with interests in these areas. Nevertheless, it has been suggested that gifted adolescent girls are likely to have a strong social

justice orientation, and this can impact their career trajectories (Eccles, 1994; Greene, 2006; Ozcan, 2017; Reis, 2005).

As a result of their focus on making a difference, policy makers and stakeholders are encouraged to ensure gifted adolescent girls have a solid exposure to high impact roles within a range of fields. Families, schools, and community-based programs could consider providing work placement opportunities with high impact organisations and individuals focused on making a difference in people's lives. Depending on the contexts of gifted adolescent girls' communities, these opportunities may be more difficult to access in some settings than others. Schools and families could provide information comparing different roles within the fields of medicine or education in terms of which positions are likely to make a difference, with 'difference' defined in a range of ways. In addition, it might be beneficial for some gifted adolescent girls to be encouraged by families and schools to read or view biographies of highly able individuals who made a substantial impact in their occupations (Greene, 2006). Community organisations and other global employers could highlight potential high impact roles in order to attract this gifted population. Gifted adolescent girls would greatly benefit from deeper understandings, experience, and knowledge about how to best harness their desires to make a difference in the world.

Principle Two: Career Support Should Provide Gifted Adolescent Girls with Experiences that Help to Both Broaden and Narrow their Career-related Decisions

Principle Two addresses the important role both broadening and narrowing influences play in crystallising career goals. Stakeholders such as schools, families, universities, and potential employers are encouraged to intentionally provide gifted adolescent girls with much more expansive information on wider career options. Consistent with previous research into career trajectories and talent development, and with career development theories, these findings also

emphasise the important role narrowing processes plays in career development (Gottfredson, 2002a; Holland, 1997; Parsons, 1909; Savickas, 2002). However, broadening career-related experiences are needed so that adolescents can make more informed decisions when narrowing their options.

Participants' career decisions were strongly based on their own school subject areas of interest and strength. Career-related choices were made differently depending on whether participants were interested in science and mathematics or the arts and English. This is possibly due to the nature of entry points into these careers being different in terms of required secondary school classes for university entrance. Individuals in this current study with interests in mathematics and sciences have tended to maintain their primary career goals over long periods of time and have firm plans for university pathways. In contrast, participants with strengths in the arts and humanities tend to have more open and frequently changing future career goals, as well as more uncertain post-secondary school career plans. Several participants compromised on following their main career aspiration in the arts due to field-specific competition. Gifted adolescent girls with high arts abilities may need additional guidance weighing up the risks versus the opportunities in pursuing career pathways as professional artists. They also could need additional career-related support if they choose to pursue careers as professional artists. Schools could provide information earlier than Grades 10/11 on mathematics-based careers as firm decisions on these pathways are made earlier. These findings support literature asserting stakeholders could consider providing differentiated career-related school policies and practices according to gifted adolescent girls' strengths and interests (Casey & Shore, 2000).

All three cohorts believed that having high career-related confidence for future success due to being identified gifted students both broadened and strengthened their future options. Therefore,

policy makers are advised to continue to support and expand future funding for these school programs. Families might be encouraged to continue to consider these specialised school opportunities for their gifted adolescent daughters, at least for the participants in this research, as they contribute to promoting high career-related confidence for future success in many fields. These findings indicate that, at least in this context and for this cohort, specialised school program options should be viewed by stakeholders as important enabling career-related influences for gifted adolescent girls, despite the debate in the literature about the benefits of these programs (Craven et al., 2000; Ludtke et al., 2005; Marsh & Hau, 2003; Marsh et al., 2007; Neihart & Yeo, 2018; Paul & Seward, 2016; Robertson, 2013; Subotnik et al., 2011; Vialle et al., 2007).

These participants asserted that broader exposure to people, experiences, and settings that further enabled and broadened their career-related decisions enabled their career trajectories. This aligns with existing career development theories (Gottfredson, 2002a; Savickas, 2002; Super, 1990). Therefore, it is recommended that stakeholders help gifted adolescent girls, intentionally and formally, to access a wide range of work-related contexts and relationships overt time to continually broaden their perceived career options. A number of participants discussed sensing a good fit with university, military, or arts communities; therefore, formally organised exposure to these settings by stakeholders is likely to help girls with their career-related decisions. Of note, families play a particularly important role in providing support and experiences that help broaden their career-related decisions. Parents can be encouraged to keep seeking out broadening experiences for their daughters. Schools may take on an especially important role in providing broadening experiences for gifted adolescent girls, and this may be especially the case for girls from low socioeconomic backgrounds as their families might have limited financial resources for accessing additional career-related opportunities.

These findings suggest gifted adolescent girls may benefit from being exposed to career-related experiences or relationships likely to crystallise their main career goal. They mentioned both mentors and mentoring in areas of interests and strengths as sometimes leading to crystallising experiences. This implies gifted adolescent girls could benefit from being exposed to a range of mentors, mentoring, and community settings to help both broaden their perceived career options, as well as narrow their career-related goals.

Gender-based issues experienced by these gifted adolescent girls in their career trajectories have implications for both primary and secondary school settings. It is therefore strongly recommended that primary school policies require stakeholders to provide gifted girls with explicit information about future STEM field career options and gender-related career issues starting during primary school grades. This could help with issues such as stereotype threat and lower levels of self-efficacy in STEM fields experienced by some females (Cadaret et al., 2017; Deemer et al., 2014; Woodcock et al., 2016). Stakeholders such as schools and families would also be advised to provide strategies on navigating any future gender-related career issues during secondary school years in order to help gifted adolescent girls keep their career options open. For instance, some mothers may be well-placed to discuss with their daughters the specific career-related barriers they experienced or overcame. It would be beneficial for secondary schools to include gender issues as a theme in their career development supports and other related curriculum areas. Community employment sites aiming to attract gifted adolescent girls from selective school programs could provide gender-based career guidance and support services. There is debate in the literature about when gender becomes an influential factor in career development. While the literature indicates females often narrow their career aspirations as they progress through the final years of secondary school, much of the literature does not indicate this could begin in primary

school years (e.g., Furlong & Biggart, 1999; Holland, 1997; Meinster & Rose, 2001; Patton & Creed, 2007a). Nevertheless, in her career theory Gottfredson (2002a) does indicate gender plays a narrowing role during childhood years.

These findings suggest that stakeholders could focus on intentionally supporting gifted adolescent girls in further building deep understandings of their own individual strengths and interests to help narrow their career trajectories. Essentially, real world experiences such as part-time jobs and community volunteering that include meaningful relationships in their areas of interest and strength appear to support a more developed sense of identity. All stakeholders, including gifted girls themselves, play important roles in initiating and developing these opportunities. Some of these opportunities could be challenging to facilitate depending on girls' interest areas and location. Families and schools in particular could help organise further opportunities, such as volunteer roles and mentorships to further develop field-specific interests and strengths. Most models of talent development and gifted education highlight the critical need for students to work in areas of interest and strength in meaningful and targeted ways (Csikszentmihalyi et al., 1997; Gagné, 2003; Subotnik et al., 2011). Interestingly, some of the girls in this study suggest that participating in the interviews helped shape the way they thought about their career pathways, so opportunities for similar discussions on topics covered in the interviews (Appendix C) are also recommended.

Some of the middle and oldest participants believed they could face community, career-related age-related prejudice barriers in hiring practices and university opportunities due to early secondary school graduation. It is also possible that due to their advanced abilities these gifted adolescent girls seeks out advanced community-based opportunities such as retail management positions at a young age. They believe these issues of community bias may narrow or limit their

career trajectories. These barriers could be removed through changes in government policy and regulations. Employers and community leaders would benefit from being further educated about the needs and abilities of gifted adolescent girls.

Principle Three: Career Support Should Help Gifted Adolescent Girls Access Mentors and Become Mentors in Areas of Interest and Strength

Results from this study speak to a need for more field-specific mentors for gifted girls like the ones girls referred to in this study. The findings suggest that both short and long-term mentors could be better sourced and facilitated to provide advice for gifted adolescent girls during their secondary schooling and future post-secondary schooling years. Family, school, and community-based mentors were valued among all three cohorts, with the middle and oldest cohort particularly appreciating community-based mentorships opportunities. Stakeholders are advised to prioritise the sourcing of appropriate, community-based mentors for gifted adolescent girls in their fields of interests and strengths. These mentoring relationships could be facilitated through collaborations between schools, families, and community organisations. This may be particularly important for gifted adolescent girls from low socioeconomic or cultural minority backgrounds, or those planning to enter fields traditionally dominated by males due to the additional career barriers they may face. The literature highlights the important role career-related mentorships, both formal and informal, play in gifted adolescent girls' career trajectories (Beck, 1989; Freeman, 2004; Kenny et al., 2019; Kerr & Gahm, 2018; Kerr & Kurpius, 2004; Kronborg, 2010; Little et al., 2010; Neihart & Yeo, 2018; Rimm et al., 1999; Schlosser, 2001; Thompson, 2016; Towman, 2008).

Positive and supportive career-related mentorship relationships between family members should be encouraged, as they were highly valued by participants in this study. In particular, the role of mothers as mentors in career-related decision-making processes should be acknowledged

(Fiebig & Beauregard, 2010). This may occur through exposing their daughters to real life experiences in areas of strength and interest, fostering positive and close relationships, and/or exposing girls to their workplaces and colleagues. Participants in this study reported they usually had positive relationships with their mothers, and that information on their mothers' working lives was helpful. This could have partially been due to the nature of the selective admissions process of these programs, which is likely to attract supportive families. Additional mother and daughter opportunities to discuss career-related successes and failures would likely help enable girls' career-related choices if they have a positive relationship. However, the impact of these discussions depends on the type of relationship they have, as well as the kind of education and work history of the mother. Participants reported that fathers also played an important role of providing general support, exposure to their own workplaces, and guidance on career-related financial literacy. Fathers' contributions could continue to be intentionally strengthened. Several participants cited older brothers as being their primary role models and source of university-related information, and these sibling contributions should be explicitly valued within families. While this research reinforces the prominent theme of mentors in talent development (Csikszentmihalyi et al., 1997; Gagné, 2003; Subotnik et al., 2011), mentoring within families has not often been addressed through research.

The findings imply that stakeholders can help coordinate both formal and informal family, school, and community-based opportunities for gifted adolescent girls to work with their peers and younger children in areas of interest and strength. These opportunities could be integrated into existing formal in-school career support programs, and specialised community programs in their areas of interest, such as in the sciences or the arts. As the findings have indicated, mentoring peers or younger children is particularly important for those gifted adolescent girls considering future

occupations involving working with children, such as teaching, medicine, and music. The findings of this current research reinforce that mentoring peers and younger children have important career-related impacts for gifted adolescents (Besnoy & McDaniel, 2016; Gonsoulin et al., 2006; Manning, 2005).

Local funding to support and coordinate community-based mentor and mentoring opportunities, in cooperation with families and schools, would be valuable. Community organisations could further target existing adolescent mentorship programs to meet gifted adolescent girls' mentorship needs, as well as teaching them strategies for maintaining long-term mentorship relationships. Mentorship opportunities provide an ideal context for gifted adolescent girls to build meaningful relationships with those high impact individuals in leadership roles who effectively manage their own personal wellbeing. Given the interests of some girls in the study in starting a small business, community mentors could also help gifted adolescent girls develop entrepreneurial skills and understandings in real world settings.

Principle Four: Career Support Should Provide Gifted Adolescent Girls with Opportunities for Challenging Leadership in Areas of Interest and Strength

This study's findings indicate that all three cohorts of these gifted adolescent girls are seeking challenging future leadership opportunities. The oldest cohort stood out as indicating their compelling interest in future entrepreneurial leadership roles such as small business ownership. This interest in entrepreneurship was coupled with a sense of lacking knowledge about how to follow this option. Pursuing careers that provided a blend of leadership opportunities and time working alone was the most common preference. Although research indicates that leadership ability is a common characteristic of gifted individuals (Borland, 2009; Callahan, 2017; Ganzach & Fried, 2012; Hebert, 2019; Mendez & Crawford, 2002; Renzulli, 1982), what has not been

discussed in the research literature to date is the important role that a drive for future leadership opportunities plays in the career-related decisions of gifted adolescent girls.

The desire for challenging leadership opportunities in a future career has important practice and policy implications. Strategic planning for future career advancement could be part of career education for gifted adolescent girls in specialised school contexts. Additional leadership roles could be sourced in order to strengthen gifted girls' confidence and interest in such future roles. School and community policies could ensure that adolescent girls continue to be offered a wide range of leadership roles such as coaching peers and younger children in different settings. However, these opportunities may need to be marketed to gifted adolescent girls in different ways depending on the nature of the communities themselves. Community groups and settings would be advised to encourage connections between like-minded gifted adolescent girls. For instance, workshops for emerging adolescent community leaders may help support this type of connection. Work placements in small business ownership and management settings would also likely benefit gifted adolescent girls. Exposure to entrepreneurial knowledge and skills could begin early during secondary school years for these girls.

Principle Five: Career Support for Gifted Adolescent Girls in Selective Secondary School Programs Should be Integrated into Curriculum, Pedagogy, and Assessment Practices

Findings from this study point to a need for many more career-related supports for gifted adolescent girls at school. Debate continues in the literature about both the affordances and constraints of specialised school programs for gifted students (Craven et al., 2000; Ludtke et al., 2005; Marsh & Hau, 2003; Marsh et al., 2007; Neihart & Yeo, 2018; Paul & Seward, 2016; Robertson, 2013; Subotnik et al., 2011; Vialle et al., 2007). Gifted adolescent girls would greatly benefit from having a leadership team who would facilitate a school staff member to coordinate

career guidance in these selective programs. Grades 10/11 tend to be the focus of strong career guidance in South Australia. Due to their advanced development; however, gifted adolescent girls in selective school programs would profit from in-school career provisions that were focused in Grades 8-9, as well as in the primary school years.

Curriculum. Career-related information could be dispersed into every curriculum area as each school subject links to many different related career pathways. For instance, secondary science classes could include information on a wide range of science careers. It is recommended, based on this research, that the curriculum for the Personal Learning Plan subject be differentiated to further address career-related issues specific to these girls. Several participants referenced directed research projects they had completed on feminist topics such as the history of women's rights and women in the workplace as empowering them to consider broader career choices. Options for these projects could be explicitly included in the curriculum.

The general curriculum could be better developed to meet the specific needs of gifted adolescent girls in selective school programs. Participants' need for information on STEM fields at younger ages as well as future entrepreneurial pathways could be addressed in the curriculum. Information on necessary entrepreneurial skills, knowledge, and networks facilitating small business ownership could be included throughout secondary school. Practical knowledge and skills on how to pursue entrepreneurial pathways such as opening a small business could be included in school subjects such as mathematics and the Personal Learning Plan class. Schools could also support students in exploring small business ownership as a legitimate post-secondary career pathway through work experience placements or other volunteer roles. Gender-based wellbeing concerns could be addressed in existing subject areas such as Health and the Personal Learning Plan subject. Information technology classes could address technology skills most pressing for

modern working environments, as well as how to best plan for changes in technology skills required in the future. Critical media literacy skills relating to high achieving females could be developed in English classes. Of course, many of these recommendations would improve career-related support for all secondary students and not only gifted girls.

Pedagogy. A number of considerations relating to program design could be taken into account to best support gifted adolescent girls' career development, and these relate to the effective delivery of career-related knowledge, skills, and understandings. Staff coordinating specialised programs for gifted students have an important role to play in intentionally planning career-related learning experiences that broaden students' horizons. Findings from this study suggest that more appropriate work placement opportunities and career days may need to be made available to gifted adolescent girls (and probably other students) in their areas of field-specific strengths and interests. Gifted adolescent girls' prominent career-related values and priorities need to be foregrounded as integral in career guidance programs.

These findings have implications for options offered to gifted adolescent girls in selective school programs for connecting with their teachers. Specifically, participants in this study highlighted the less formal one-one-one time spent with special teachers discussing their career pathways as having a significant influence on their career trajectories. When planning school timetabling, it is recommended that schools enable regular opportunities for gifted adolescent girls to discuss their career plans with key teachers. For instance, Personal Learning Plan teachers and IGNITE coordinators were mentioned most often as having high impact in one-on-one conversations, so extra time with these teachers may be helpful. Both teacher traits and teacher-student relationships in the specialised programs within this research had a strong, career-related

impact on students (Hertzog, 2003; Russell, 2018; Schmitt & Goebel, 2015; Tischler, 2006; Vogl & Preckel, 2014; Watters, 2010).

It might be that the cluster grouping of gifted students for all five secondary school years, rather than just for the first three years of secondary school (as in these programs) could be beneficial for more on-going solidarity with their IGNITE peers. This would require further consideration. Given participants' feedback on the positive career-related impact of being grouped with their IGNITE peers, similar groupings could be encouraged in community settings such as gifted association activities or interest-based clubs. Despite the debate that continues in the literature about the impact of being enrolled with like ability peers in specialised programs (Marsh & Hau, 2003; Marsh et al., 2007; Robertson, 2013), this study indicates that specialised programs enable strong peer relationships, and a feeling of solidarity and acceptance.

In addition to wellbeing curriculum initiatives, further support for student wellbeing could be considered at the program level. Career supports might include a focus on effectively harnessing some common characteristics of gifted girls, such as perfectionism and sensitivity that, as the literature indicates, could make career development more challenging (Seward & Gaesser, 2018). In-school professionals such as school counsellors or other health-related professionals would be required to facilitate additional wellbeing programs, while a focus on wellbeing could also be integrated into existing formal career support programs such as work placements and university career fair days. A focus on wellbeing may be especially important in the earlier years of secondary schooling for gifted adolescent girls in these settings.

It is recommended that school staff build strong relationships with parents in order to collaboratively support the career-related development of their gifted daughters. For instance, schools could hold career open nights that provide career information catering to these girls for

parents and students alike. These evenings could include information on important career-related topics for family discussions, and ideas on how to provide and communicate unconditional career-related support for their gifted adolescent daughters. This could also be a positive setting for collaboration on work placements and mentorship opportunities.

Assessment practices. In order to effectively plan to meet the career-related needs of gifted adolescent girls within school settings, their existing career-related knowledge, skills, and understandings could be validated through authentic, culturally appropriate assessments. Focus areas for potential assessment to optimise career-related curriculum and programming include career-related wellbeing, leadership, interests, strengths, and gender-based concerns. General career-related knowledge on a wide range of fields could also be assessed. Forums such as online surveys could be used for gifted adolescent girls to voice their career-related needs at different points in time, and their responses could form the basis for structured career planning conversations. Intentional, in-school assessment strategies may help to build a foundation for effective career-related curriculum and pedagogy for gifted adolescent girls.

Principle Six: Career Support for Gifted Adolescent Girls in Selective School Programs Should Acknowledge Their Robust Confidence

Principle Six highlights the ways robust confidence influences gifted adolescent girls' career development. This has important policy and practice implications. For instance, schools and future employers may not need to invest time in raising the confidence of these girls to achieve their career aspirations. Rather, stakeholders' time could be better invested in helping girls make concrete plans for achieving their individual career goals. Of course, this robust confidence could be partially explained by the supportive family and school contexts of these participants, and cannot be assumed for all gifted adolescent girls in all settings. Although some research indicates

high levels of career-related self-efficacy in gifted adolescents (e.g., Perrone, Tschopp, et al., 2010), the high levels of career-related confidence of gifted adolescent girls in selective school programs evidenced in this study has not been widely reported in the literature.

Principle Seven: Career Support Should Help Gifted Adolescent Girls Plan for Effective Future Career-related Wellbeing

Principle Seven adds important new knowledge about the primacy of personal wellbeing for gifted adolescent girls in selective school programs. Stakeholders such as families, schools, and employers can use a range of strategies to highlight specific roles within a wide range of career fields that are most likely to promote wellbeing for specific individuals. A significant career-related barrier for the gifted adolescent girls in these selective school programs was mental health difficulties. Previous research has not highlighted the need to manage mental health difficulties as a prominent career-related consideration for gifted adolescent girls. Several participants discussed the important roles their mental health counsellors had in helping crystallise their career goals. Researchers have suggested that additional training in the nature and needs of gifted students should be provided for counsellors and mental health professionals (Vialle & Hedrick, 2012), and this could include additional training in career guidance for gifted adolescent girls. This is an issue to bring to the forefront of discussion and support among all stakeholders.

School funding and policies could ensure that appropriate mental health preventions, supports, and interventions are provided to help these girls (and others) maintain wellbeing and therefore to support their career planning and development. Gifted girls can also be encouraged to build positive, preventative mental and physical health strategies themselves at a young age. As mentioned earlier, schools can integrate wellbeing curriculum into mainstream subject areas and targeted programs.

Gender-based tensions expressed by gifted adolescent girls in selective school programs have important practical implications for stakeholders. Meaningful relationships with female career-related role models and mentors who have high levels of wellbeing could be sourced and facilitated for gifted adolescent girls. The gender of these mentors seems to matter. These girls sometimes referenced a range of female role models and mentors helping them decide on how best to plan for future career-related wellbeing, which is also supported in the literature (Beck, 1989). Additional guidance from families, schools, and career-related mentors and role models in a range of settings on effectively forward planning for future work/life balance would benefit these girls.

Principle Eight: Career Support Should Help Gifted Adolescent Girls in Selective School Programs Effectively Manage Living and Learning with High Expectations

Principle Eight highlights gifted adolescent girls need career development support that helps them manage high expectations from themselves and others. Both parents and teachers would benefit from learning the value of their unconditional support for gifted adolescent girls' primary career aspiration, as well as how to communicate this. This has implications for school leaders ensuring that their staff are trained and able to provide this kind of support. It also raises questions about how parents can best gain these skills. These findings align with the literature that asserts gifted adolescent girls navigate both high external and internal expectations for their future career achievement (Fiebig & Beauregard, 2010; Greene, 2006; Kerr, 1994; Perrone et al., 2006). Questions remain on how best to support gifted adolescent girls navigate these pressures.

Principle Nine: Career Support Should Help Gifted Adolescent Girls Effectively Manage Ambiguity and Societal Change

Families, schools, and communities are encouraged to be proactive in acknowledging changing work patterns so that contemporary employment options are addressed. Gifted

adolescent girls would likely benefit from being encouraged to make clear plans on how they will address newly emerging and changing technologies in their career trajectories. It is encouraged that stakeholders help gifted adolescent girls building skills for addressing career-related ambiguity. As Savickas (2001) highlighted, career adaptability is a marker for advanced career development. Gifted adolescent girls in selective school programs could be well positioned to develop their adaptability to newly emerging technologies in keeping with other indications of their sophisticated career development.

Limitations

The time constraints of a doctoral program did not allow for this project to be longitudinal, and therefore the individual career-related outcomes of participants over a long period of time could not be investigated. The cross-sectional design did enable for the emergence of important perspectives on adolescent career development. However, an ideal way to study the career development of gifted adolescent girls, and therefore to test and potentially strengthen these findings, would be through a longitudinal study where individual changes over a long period of time could be examined. This would also allow for researching the way certain career-related influences may encourage specific career outcomes.

Another limitation of this study was that it took place in a South Australian schooling sector that did not have selective secondary schooling programs for gifted students in regional or rural locations. Therefore, the voices of students from these locations is missing from this study. Future studies could take place in other Australian states or territories with similar schools located in regional or rural areas. This could include school settings that may be less well resourced than the ones in this study, and issues about resourcing in these settings would also be worth further

investigation. Nevertheless, it is unlikely these schools exist in rural Australian locations so other research designs may be needed in those situations.

It is acknowledged that a limitation of this research comes from a lack of diversity within this sample, which prevents conclusions being generalised. Specifically, certain limitations are inherent in this project related to the absence of participants representing a range of identity categories and cultural experiences. Due to the catchment areas of the three IGNITE schools, this research included participants from a relatively narrow range of socioeconomic and cultural backgrounds. Therefore, the cultural and socioeconomic perspectives of gifted adolescent girls do not come through strongly in the results.

Finally, it is acknowledged that this research was undertaken with a clear, in-depth focus on the experiences of gifted girls within specialised program settings; this enabled depth of understanding, but it is not possible to draw comparisons with the career development experiences of adolescent girls more broadly, with gifted girls in different educational settings, or with gifted boys. Such comparative studies could be the focus of future research.

Recommendations for Future Research

As noted above, the intention of this research was not to compare the experiences of gifted girls with gifted boys in the same settings, gifted girls in mainstream schools, or typically developing students. This study lends itself to follow-up research on gifted adolescent girls. As mentioned earlier, Jung's (2019) empirically verified career decision-making process models for gifted students could provide a strong theoretical model for future studies. While not longitudinal, this research lays the groundwork for follow-up with these participants to explore future career challenges and outcomes, and the extent to which they reach eminence or meet their own definitions of success in adulthood. A similar future study could be done, for instance, following

the same cohort of Year 8 students throughout secondary schooling and beyond. Future replication studies could include participants within similar specialised secondary school locations to investigate The Psychosocial Theoretical Model of Gifted Adolescent Girls' Career Development (Figure 9). These replication studies could evaluate whether some of these findings are specific to girls in these settings, or could be applied to other populations.

An important focus of future research could include comparative samples, such as gifted adolescent girls in mainstream schools, to examine the career-related affordances and constraints within different settings. These studies could highlight how different settings provide career-related support for these girls, as well as suggestions for stronger career supports in mainstream settings. Comparative studies could also include both gifted male and female adolescents, in order to assess any differences in their career support needs. Similar studies could be undertaken in rural or regional areas. Future research could explore gifted girls' career development in those from low socioeconomic and culturally diverse backgrounds, through purposefully sampling these girls from similar schooling contexts.

Future research in this area might examine which career-related values gifted girls prioritise at younger ages in order to better understand the ways these values develop over time and influence their adolescent career aspirations and adult career outcomes. Further research into the effectiveness of existing in-school provisions for these girls in selective programs is needed to improve their school career guidance support. Another question this research raises is the career-related impact of gender from early childhood through to adult years for gifted females. Further investigation of this aspect may inform more effective support from stakeholders for gender-related issues in gifted girls' career development. The short-and long-term impact of grade level condensing for gifted adolescent girls in selective school programs also needs to be further

examined to enable selective schools to make effective program design decisions, as well as to help provide these girls with appropriate guidance on post-secondary schooling plans. Gathering more research-based information on the career-related crystallising experiences of gifted adolescent girls could also prove to be important, as influences possibly leading to these occurrences could be potentially facilitated by stakeholders.

Results relating to school experiences from this study could be used in designing action research projects focused on better meeting the career-related needs of these girls. For instance, these results could form the basis for action research projects focused on supporting career-related wellbeing needs in selective school settings. Initiatives concentrated on curriculum modifications, or timetabling additional one-on-one time with special teachers, could also be the focus of future action research projects.

Several recommendations for further consideration can be made relating to Gottfredson's (2002a) theory of career development. These suggestions could open the door to further research and development of her theory. A fifth stage of her theory could be further contemplated to address the ways gifted adolescent girls exhibit an integrated world view of humanity based on their drives for making a difference in others' lives. The lack of interest in career prestige in these gifted adolescent girls in selective programs could be explored, as that is an essential element of Gottfredson's (2002a) theory, and may warrant further investigation. Although there were only a few participants who reported being from minority cultural or low socioeconomic backgrounds, these are identity categories that may be worth investigating in terms of their impact on circumscription. These results also do not align with the aspect of Gottfredson's (2002a) theory that asserts individuals seek a social niche as part of their career development. These gifted girls showed no interest in finding a social niche as part of their career-related decision-making

processes, and were committed to following their own independent career pathways. This raises the question of whether or not the same would be the case in a similar comparative study including gifted adolescent boys or gifted adolescent girls in mainstream school settings. It is possible that the sense of solidarity found with their selective school peers fulfilled their need for a social niche, and this influenced their more independent career-related decisions.

While many of the findings align with Savickas' (2002) career construction theory, additional considerations are indicated. For instance, additional attention could be given to the ways life narratives develop at young ages for gifted adolescent girls. Further understandings could also be cultivated on how individuals develop their career-related values at young ages. Savickas' (2001) suggestion that high levels of career-related adaptability are an indication of advanced career development may be worth further investigation relating to gifted adolescent girls to explore whether or not they exhibit these high levels.

Summary

Enabling gifted adolescent girls to effectively fulfil their own goals is vital to their own self-actualisation, and to the advancement of our society. This study indicates gifted adolescent girls in selective secondary school programs are influenced by their developing identities and external contexts as they form their career-related values, decision-making processes and goals. Their career-related values drive their career development.

Both The Psychosocial Theoretical Model of Gifted Adolescent Girls' Career Development and these nine principles of career support serve as springboards for better understanding how to meet these girls' career-related needs. They particularly highlight the affordances and constraints experienced by gifted adolescent girls in selective school programs .

These findings can help to inform gifted adolescent girls themselves as well as stakeholders about the most significant influential factors impacting their career trajectories.

This research contributes to a body of knowledge on how to optimise the career trajectories of gifted adolescent girls. Potential opportunities to further enhance girls' career development in family, school, and community settings are highlighted. Meaningful relationships formed in career-related contexts of interest and strength are vital to these girls, and should be considered a cornerstone of their career guidance supports. Gifted adolescent girls in specialised school settings place high worth on the unconditional support of others such as parents, teachers, and peers as they develop their primary career aspirations. Essentially, harnessing desires to make a difference in others' lives is the primary influential factor in these gifted adolescent girls' career-related values, decision-making processes, and goals. Despite their high confidence and abilities that enable their career trajectories, it is still vitally important for stakeholders to support their career development. Only time will tell how prepared gifted adolescent girls are for the barriers they may face as they step into the complex realities of the constantly changing career landscape.

Appendix A: Literature Search Terms

gifted or high ability or talented
adolescent or adolescence or teenager
talent or gift
gender or sex
female or girl
gender roles
gender specific guidance needs
cultural values
domestic responsibilities
egalitarianism
career or job or vocation
career guidance
aspirations or attitudes or goals
career advancement
vocational achievement levels
achievement
work/life balance
STEM retention
common gifted traits
mental health
perfectionism
curriculum
leadership
wellbeing
vulnerabilities
specialised or selective school
mentors
teachers
peers
curriculum
disadvantage
minorities
longitudinal study
ambiguity or uncertainty or change

Appendix B: Ethics Approval Forms

Flinders University Ethics Approval Notice.

FINAL APPROVAL NOTICE

Project No.:	**6172**
Project Title:	An investigation of the career development experience of gifted adolescent girls enrolled in selective entry gifted education high school programs in South Australia
Principal Researcher:	Ms Rebecca Lemke
Email:	rebecca.lemke@flinders.edu.au
Address:	School of Education Flinders University
Approval Date:	29 August 2013
Ethics Approval Expiry Date:	**30 December 2015**

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided.

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on the **29 August** (approval anniversary date) for the duration of the ethics approval using the annual / final report pro forma available from Annual / Final Reports SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your first report is due on **29 August 2014** or on completion of the project, whichever is the earliest.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such matters include:

- proposed changes to the research protocol;
- proposed changes to participant recruitment methods;
- amendments to participant documentation and/or research tools;
- change of project title;
- extension of ethics approval expiry date; and
- changes to the research team (addition, removals, supervisor changes).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form to the Executive Officer. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116

or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforseen event occurs that may affect the ethical acceptability of the project.

Mikaila Crotty

Ethics Officer and Joint Executive Officer

Social and Behavioural Research Ethics Committee

Department for Education and Child Development Ethics Approval Letter.

Government of South Australia
Department for Education and Child Development

Strategy and Performance

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DECD CS/13/193-2.5

12 September 2013

Mrs Rebecca Lemke
Flinders University School of Education
GPO BOX 2100
ADELAIDE SA 5001

Dear Mrs Lemke

Your project titled "An investigation of the career development experiences of gifted adolescent girls enrolled in selective entry gifted education high school programs in South Australia" has now been reviewed by a senior Department for Education and Child Development (DECD) consultant with respect to protection from harm, informed consent, confidentiality and suitability of arrangements. Accordingly, I am pleased to advise you that your project has been **approved** pending receipt of a police clearance.

The DECD Reviewer of this project is Susanne Owen. If you wish to clarify or discuss further please feel free to contact her on Ph: 8226 3677.

Please contact Ms Allison Cook, Project Officer - Research and Innovation on (08) 8226 4108 for any other matters you may wish to discuss regarding the general review/approval process.

Please supply the department with an electronic copy of the final report which will be circulated to interested staff and then made available to DECD educators for future reference.

I wish you well with your project.

Ben Temperly
HEAD OF STRATEGY AND PERFORMANCE

Appendix C: Interview Guides

Pilot Study One Interview Questions.

Get to know you

1. Can you tell me about yourself?

   (prompts: How old are you? What Grade are you at school?)
2. Can you tell me about your interests?
3. So what sorts of things are you good at?
4. How do you think your strengths compare to your school mates?

What

5. What sorts of ideas have you had about the kinds of careers you might be interested in once you leave school?
6. Have you thought about what sorts of careers you would definitely not be interested in once you leave school?
7. When did you start thinking about this?
8. Is there a certain career path that you have decided that you definitely want to follow?

Why

9. Why does this career interest you?
10. So what do you think is important for you to think about when you choose a career?
11. What do you think makes this a good fit for the kind of person you are?

Own ideas of influences

12. Who or what has influenced your career pathway so far?

Circles of influence

13. So what sorts of jobs do the people in your family have?

14. I am wondering how the experiences you have had with your family have helped you plan for a career?

15. I am wondering how your school experiences have helped you plan for a career?

16. I am wondering how life in your community has helped you plan for a career?

Support needed

17. What types of things are you planning to do to follow this career path?

18. Knowing some of the things ahead of you, how does this make you feel?

19. How confident are you that you will succeed at this career pathway?

20. What types of support do you think will be important along the way for your success?

Plans over time

21. What sorts of other important plans do you have for after you finish school?

22. I know this is looking very far forward into the future, but how do you see your career progressing over time?

Gender

23. How do you think boys and girls compare in the ways they follow career pathways?

24. What sorts of opinions do you have about the way career pathways could be seen differently for boys and girls?

25. Are there any ways that you've personally felt like you've been getting a particular message about which jobs or careers are most appropriate for you as a girl?

26. How do you think that these messages impact your own career plans?

Giftedness

27. So do you remember being told that you were a gifted child?

28. Can you remember how old you were?

29. What does it mean to you to be gifted?

30. How does being gifted make you different from your school mates?

31. How does it make you similar to your school mates?

32. Have you given any thought on how being gifted impacts your own career plans or other plans you have for once you leave school?

33. How would you describe your cultural background?

Round One Interview Questions.

Get to know you

1. Can you tell me about yourself?

   (prompts: How old are you? What Grade are you at school?)
2. Can you tell me about your interests?
3. So what sorts of things are you good at?
4. How do you think your strengths compare to your school mates?

What

5. What sorts of ideas have you had about the kinds of careers you might be interested in once you leave school?
6. Have you thought about what sorts of careers you would definitely not be interested in once you leave school?
7. When did you start thinking about this?
8. Is there a certain career path that you have decided that you definitely want to follow?

Why

9. Why does this career interest you?
10. So what do you think is important for you to think about when you choose a career?
11. How important is career success to you?
12. How would you describe what a successful career would look like for you personally?
13. What do you think makes this a good fit for the kind of person you are?

Own ideas of influences

14. Who or what has influenced your career pathway so far?

Circles of influence

15. Can you tell me about who is in your family?

16. So what sorts of jobs do the people in your family have?

17. I am wondering how the experiences you have had with your family have influenced your career-related decisions?

18. Of these influences, what have you found most helpful?

19. I am wondering how your school experiences have influenced your career-related decisions?

20. Of these influences, what have you found most helpful?

21. How has life outside of school influenced your career-related decisions?

22. Of these influences, what have you found most helpful?

Support needed

23. How much do you know about what is involved in following this career pathway?

24. How committed are you to following this career pathway?

25. How confident are you that you will succeed at this career pathway?

26. What types of support do you think will be important along the way for your success?

Plans over time

27. What sorts of other important plans do you have for after you finish school?

28. I know this is looking very far forward into the future, but how do you see your career progressing over time?

29. Have you thought about how this career will impact other areas of your life?

Gender

30. How do you think boys and girls compare in the ways they follow career pathways?

31. What sorts of opinions do you have about the way career pathways could be seen differently for boys and girls?

32. Are there any ways that you've personally felt like you've been getting a particular message about which jobs or careers are most appropriate for you as a girl?

33. How do you think that these messages impact your own career plans?

Giftedness

34. So do you remember being told that you were a gifted child?

35. Can you remember how old you were?

36. What does it mean to you to be gifted?

37. Does being gifted make you different from your school mates?

38. How?

39. Does being gifted make you similar to your school mates?

40. How?

41. Have you given any thought on how being gifted impacts your own career plans or other plans you have for once you leave school?

Cultural Background

42. How would you describe your cultural background?

43. Does your cultural background influence the way you plan for your career?

44. How?

Suburb

45. Can you please tell me the name of the suburb you live in?

Anything to add

46. Do you have anything else to add?

Pilot Study Two Interview Questions.

Review of last interview, possible changes, and future direction

1. Last Grade we talked about the ways that who you are as a person and other outside influences have had an impact on your own personal career development. Do you have anything to add from our last discussion?
2. Can you please remind me what your main career goal was last Grade when we met? Has this changed? Is there anything else you'd like to say about this?
3. Can you tell me about a time when you were doing an activity that is as close as you can think of to the sorts of things that you think you will be doing in your future career? How did this make you feel?
4. Tell me about what sort of priority you think you might like to give to having a career in your future?

Leadership

5. Tell me about your thoughts about the possibility of being a leader in your future career field?

Initially I will probe participant initiated responses. However, if the participant struggles to discuss ways the world is changing, use the following springboard probes:

a. interested
b. confident
c. messages/pressures
d. opportunity

Risk

6. Tell me how prepared you are to take some personal risks in pursuing your career goals?

Initially I will probe participant initiated responses. However, if the participant struggles to discuss ways the world is changing, use the following springboard probes:

   a. general field itself
   b. daily realities of the workplace
   c. family history
   d. perceptions of others

Significant others

7. I am wondering if there are any significant other people that have an impact on your career-related decisions? Is there anything else that you'd like to say about that?

Impact of the changing world

8. As you know, we live in a constantly changing world. Are there any ways about how the world is changing that you are aware of that could impact on your career goals? Of these changes, what do you think will be most helpful as you plan for your career?

Initially I will probe participant initiated responses. However, if the participant struggles to discuss ways the world is changing, use the following springboard probes:

   a. politics
   b. changing economies

c. new jobs opening up/ old jobs becoming out of date

d. technology

e. population growth

f. environment

"We talked a lot last time about the sorts of things that have helped you in your career development. However, today, I would mainly like to talk about some of the things that you might see as making achieving your career goals more difficult."

<u>Influences</u>

9. Are there some things about the way that the world is changing that you are aware of that could make achieving your career goals difficult?
10. Have you experienced any other things that might make it more difficult to work toward reaching your career goals than you would like it to be?

Initially I will probe participant initiated responses. However, after probing the participant initiated responses, I will also probe the following:

g. life outside of school

h. school life

i. family life

j. opportunities (missed or not available)

k. other things

11. Tell me your thoughts on how you have managed or think you might overcome these things?
12. Do you have any personal characteristics/qualities that you think might make reaching your career goals more difficult than you would like it to be?
13. Tell me your thoughts on how you have managed or think you might overcome these things?

As you are aware, this research is on the career development of gifted girls. Some gifted girls in the past have talked about things they have found challenging as they have worked towards reaching their career goals. I would like to hear about some of your own ideas about these things.

<u>Common gifted traits that can impact career development</u>

14. What part does a desire or a hope to make a difference in the world play in your career goals? Can you tell me more about this?

15. Do you consider yourself a perfectionist? Do other people in your life consider you to be a perfectionist? If so, what role does this play in the way you plan for your career? How could this impact your career development?

16. What sorts of messages do you tend to get from others about what they think you should do for a career? What roles do these expectations play in the way you plan for your career? How could these messages impact your career development?

17. Do you tend to see yourself more as having lots of areas of work or just a few areas of work that you could succeed in for your future career? Can you tell me about this? How could these types of options impact your career development?

Anything else to add

Round Two Interview Questions.

Review of last interview, possible changes, and future direction

15. Last Grade we talked about the ways that who you are as a person and other outside influences have had an impact on your own personal career development. Do you have anything to add from our last discussion?
16. Can you please remind me what your main career goal was last Grade when we met? Has this changed? Is there anything else you'd like to say about this?
17. Can you please tell me more about what a _____ does exactly?
18. Can you tell me about a time when you were doing an activity that is as close as you can think of to the sorts of things that you think you will be doing in your future career? Do you remember how this activity made you feel at the time? Take your time. Can you tell me about this?
19. Tell me about what sort of priority you think you might like to give to having a career in your future?
    a. Why?
20. Have you had any significant work related experiences or made any significant work related choices since we last spoke that have had an impact on your career development?
21. Have you had any significant educational experiences or made any significant educational choices since we last spoke that have had an impact on your career development?

Leadership

22. Tell me about your thoughts about the possibility of being a leader in your future career field?

Initially I will probe participant initiated responses. I will then probe the following where they were not already covered by the participant initiated responses:

a. interested
b. confident
c. messages/pressures
d. opportunity

Risk

23. Tell me how prepared you are to take some personal risks in pursuing your own career goals?

Initially I will probe participant initiated responses. I will then probe the following where they were not already covered by the participant initiated responses:

a. general field itself
b. daily realities of the workplace
c. family history
d. perceptions of others

Significant others

24. I am wondering if there are any significant other people that have an impact on your career-related decisions? Is there anything else that you'd like to say about that?

Impact of the changing world

25. As you know, we live in a constantly changing world. Are there any ways about how the world is changing that you are aware of that could impact on your own personal career goals?

Initially I will probe participant initiated responses. I will then show the participant the following list and ask them to discuss a couple of these or other related ideas of their own:

a. politics
b. changing economies
c. new jobs opening up/ old jobs becoming out of date
d. technology
e. population growth
f. environment

26. Of these changes, what do you think will be most helpful as you plan for your own personal career?

"We talked a lot last time about the sorts of things that have helped you in your career development. However, today, I would mainly like to talk about some of the things that you might see as making achieving your career goals more difficult."

Influences

27. Are there some things about the way that the world is changing that you are aware of that could make achieving your career goals difficult or more difficult than you would like? (I will review their initial answers and show them the list from Question 9 as a discussion starter if needed.)

With each difficulty discussed, ask the following prompts immediately after for this entire section:

a. Is this something you think you will need to manage yourself in some way?
b. Tell me your thoughts on how you might manage these things?

28. In general, have you experienced any other things that might make it more difficult to work toward reaching your career goals than you would like it to be?

Initially I will probe participant initiated responses. I will then probe the following where they were not already covered by the participant initiated responses (also ask if a big list within the "sphere", what is the most difficult of these things):

a. life outside of school
b. school life
c. family life
d. opportunities (missed or not available)
e. other things as well
f. personal characteristics/qualities

"As you are aware, this research is on the career development of gifted girls. Some gifted girls in the past have talked about things they have found challenging as they have worked towards reaching their career goals. I would like to hear about some of your own ideas about these things."

Common gifted traits that can impact career development

29. What part does a desire or a hope to make a difference in the world play in your career goals? Can you tell me more about this?
    a. Why?
30. Do you consider yourself a perfectionist? Do other people in your life consider you to be a perfectionist? If so, what role does this play in the way you plan for your career? How could this impact your career development over time in the future?
31. What sorts of messages do you tend to get from others about what they think you should do for a career? What roles do these expectations play in the way you plan for your career? How could these messages impact your career development over time in the future?
32. Do you tend to see yourself more as having lots of areas of work or just a few areas of work that you could succeed in for your future career? Can you tell me about this? How could these types of options impact your career development choices over time in the future?

Anything else to add

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