GIFTED ADOLESCENT WELLBEING:

AN AUSTRALIAN CASE STUDY

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Submitted in fulfilment of the requirement of the degree of

Doctor of Philosophy

Thesis by Monograph

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2018

Keywords

Accelerated learning, adolescent, affective domain, asynchrony, creative, curious, diversity, gifted, grade-skipping, health promoting school, inclusive education, historical case study, inherited potential, qualitative, self-determination, social-emotional, sustainable program, systemic approach, talent, wellbeing.

Abstract

Gifted students inherit a potential for advanced intellect that accelerates learning from an early age. By adolescence, developmental asynchrony reveals an intellectual gap between students that can influence socialisation. To avoid unrealistic expectation and forced choice dilemmas, many gifted adolescents seek anonymity by masking traits of giftedness (Jung, McCormick, & Gross, 2012). Avoiding identification limits academic extension and risks social disengagement. Such challenges of inner turmoil can go unnoticed, with dire consequence for engagement with learning and personal wellbeing. Students fail to achieve their potential.

Schools face the problem of delivering inclusive programs that balance physical, social-emotional growth and intellectual development of gifted adolescents. Traditional gifted education focussed on academic achievement, neglects adolescent social-emotional motivation, thus revealing a gap in understanding. This study uses a case study approach to explore the wellbeing of gifted students in an existing school. The class intervention sought to balance cognitive and social-emotional development by compacting three years schooling into two. Embedding the program into an existing school system required structural change and school support.

Research was conducted in two phases. The first phase documented guiding principles to inform the intervention's evolution. The second phase provided participant voice from six consecutive cohorts (n=44 staff and students). Triangulating data sources contributed rigour and quality assurance to the historical case study (Yin, 2014). Bronfenbrenner's Bioecological model (2006) invited an exploration of networks influencing student wellbeing.

Data revealed Deci and Ryan's (2008) self-determination constructs of competence, autonomy and friendship as key motivators for gifted adolescents to engage in the school setting. The study found that although the needs of gifted students were satisfied during the intervention, social challenges beyond the program persisted. Participants suggested that challenges were fuelled by perpetuated myths of gifted students being fortunate and able to cope unassisted. Lack of systemic support therefore presented the greatest challenge to student wellbeing and program sustainability. Recommendations based on evidence offer direction for the future of gifted education using a Health Promoting School framework (WHO, 2013).

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Abbreviations and Acronyms

ACARA	Australian Curriculum and Reporting Authority	VIA	Values in Action (Personality Strengths)
IEP	Individual Education Plan	OECD	Organisation for Economic Co-operation and Development
HPS	Health Promoting School	BDI	Beck Depression Inventory
IQ	Intelligence quotient		
LLI	Low latent inhibition	SWLS	Satisfaction with Life Scale
OE	Over-excitability	WHO	World Health Organisation
BFLP	Big-Fish-Little-Pond hypothesis	UNESCO	United Nations Educational, Scientific and Cultural Organisation
SD	Self-determination theory	UK	United Kingdom
e.g.	For example	USA	United States of America
n=20	Total number of participants in a research study is twenty.	WISC-IV	Wechsler intelligence scale for children
NAGC	National Association for Gifted Children	WISC-R	Wechsler test for individual intelligence
2e	Twice Exceptional	ACWP	Australian Child Wellbeing Project
IUHPE	International union for health promotion and education	IAS	Iowa Acceleration Scale

Glossary of terms

Ability grouping	Students of similar ability work together at the same pace for ease for academically matched delivery.	Rosengrave (2013)
Acceleration	Content is presented at a fast pace to match the speed at which gifted students learn.	VanTassel-Baska (2010)
Assimilation	The process of a student seeking acceptance as they integrate into a new group.	VanTassel-Baska & Brown (2007)
Asynchronous Development	Cognitive development progresses at a faster rate than social- emotional development- associated with over-excitability and hyper-sensitivity as characteristic traits of giftedness.	Dabrowski (1994); Delisle & Galbraith (2002)
Co-curricular	Regular activities, skills or clubs practiced outside the classroom program.	ACARA (2016)
Compaction	Accelerating instruction without repetition of basic knowledge.	Rogers, et al. (2015)
Differentiation	Curriculum development is modified by content, process, product and learning environment.	Maker (2005)
Epigenetics	Epigenetics is the biological study of genetic traits that literally means 'outside of genes'	Wolffe & Matzke (1999)
Epistemology	metaphysics that explores how we obtain valid knowledge and how we come to know.	Creswell (2012)
Eudemonia	Psychological processes beyond reflective evaluation and emotional state, to the realisation of a person's potential.	OECD (2012)
Flourishing	Ability to learn from positive and negative experiences; to experience authentic happiness, love, gratitude and accomplishment catalysed by positive emotion, engagement, healthy relationships, meaning and purpose.	Seligman (2011)

Flow	The immense satisfaction experienced by following interests to complete complex tasks.	Csikszentmihalyi (1997)
Forced-choice Dilemma	Preference made by gifted students, to under-achieve and avoid being identified as gifted	Jung, McCormick & Gross (2012)
Inclusive education	Harmonious acceptance of diversity to assimilate students into a collective group.	ACARA (2016)
Gifted adolescent	A gifted adolescent is curious with keen observation skills, enjoys intellectual activity with minimal repetition, and has an exceptional speed of cognitive processing that allow them to solve complex convoluted problems from an early age.	Gabrielle Baker (2017) from: Javits (2002), Neville, Piechowski & Tolan (2013)
Hermeneutics	Prior understanding and prejudice that can shape interpretation.	Denzin & Lincoln (1994)
Interpretivism	Derives meaning from data 'reality' to generate observable outcomes.	(Bazeley, 2015)
Hyper-sensitivity	Maximum emotions displayed as an irrational reaction to situations.	Dabrowski (1994)
Intrinsic Motivation	The desire to satisfy natural needs and interests, which includes a desire to understand and make sense of the world	Ryan & Deci (2000)
Low latent inhibition	LLI is a neurological condition whereby a student has difficulty ignoring irrelevant messages that can overstimulate the brain.	Cromie (2003)
Neural Efficiency Hypothesis	NEH uses brain stimulation in enriched environments to identify student potential.	Grabner, Neubauer, & Stern, (2006)
Ontology	Reflects how you see the world	(Schwandt, 2007)
Over-excitability	Excessive response to psychomotor, sensual, intellectual, imaginational and emotional ideas.	Dabrowski (1994)
Pedagogy	Process of teacher practice leading to student outcomes.	Lingard (2000)

Peer Group	Group that an individual identifies with as equal; often associated with age.	ACARA (2016)
Priori	Latin philosophy that refers to reasoning from prior knowledge, to draw conclusions for posteriori justification.	Chadwick & Cazeaux (1992)
Psychometrics	Quantitative tools used to measure intelligence, for example, IQ (intelligence quotient).	Terman (1959)
Risk Factors	Constructs that pose an adverse threat to wellbeing.	Cross (2010)
Scaffolded learning	Well-guided tasks for challenging curriculum and learning new skills.	ACARA (2016) Gutman & Schindler (2007)
Self-determination	A motivation theory that describes development in a social context: autonomy, competence and connectedness.	Deci & Ryan (2008)
Self-Efficacy	An individual is aware of their potential, belief in own capability, and can self-manage emotional intelligence.	Bandura (1986) Goleman (2012)
Talent	Potential and ability transformed into exemplary action.	Ziegler (2010)
Test Battery	Multiple tests used to assess functioning in a range of domains, particularly cognitive and affective.	Tannenbaum (1995) Kaufman (2009)
Verstehen	Interpreted from German as 'sensitive understanding'.	Corbin & Strauss (2008)
Wellbeing	Wellbeing is achieved by the physical, social and psychological satisfaction of need.	Huppert & So (2013) Seligman, 2011

Statement of Original Authorship

To the best of my knowledge and belief, this thesis:

(i)   does not in whole or in part meet requirements for an application for any other degree or qualification at the Queensland University of Technology or any other educational institution;

(ii)   does not contain any material previously published or written by another person except where appropriate acknowledgement is made in the text; or

(iii)   does not contain defamatory material.

The following refereed papers were presented by the researcher during candidature:

QUT Higher Degree Research conferences 2014, 2015 and 2017 "Gifted adolescent wellbeing". Excerpts from the research were presented at the 'Adolescent Success' conference in 2015 as "Joining the Dots"; BNU-QUT-UC doctoral forum in Canada May 2016; AARE middle years of schooling Roundtable: 2017 International Adolescent Success conference. QUT sessional roles since 2016 have provided valuable opportunities to share professional conversations about inclusive education practice, including: delivery of a "Differentiation for gifted students" Unit to Pre-service teachers, and research for an AARE funded project about "Teacher agency in the provision of curriculum to students experiencing trauma".

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Lodgement of thesis for external examination: 11.11.2017
Completion of final thesis for publication: 01.05.2018

Acknowledgments

> Kind words can be short and easy to speak
> but their echoes are truly endless (Mother Teresa)

The journey to completion of this research as a part-time student has been long and convoluted. I gratefully acknowledge the encouragement and endorsement for my study shown by many along the way. Profound gratitude, admiration and respect are extended to my exceptional mentors from the Queensland University of Technology Faculty of Education, School of Learning and Professional Studies, for their wisdom and inspiration. Their patience sustained my passion and quest for answers. They provided invaluable advice about research, academia and the art of writing.

Keeping sight of the gifted students in my place of work kept me true to my original purpose. It was a privilege to interview participants who were so generous with their time and open to sharing their experience. It is my hope that the legacy of this research may make a difference to the school experience of many, especially Charlotte and Claudia who showed such a passion for learning. I wish graduates of the program every success in fulfilling their true potential.

Learning from fellow researchers has been a privilege that I have come to cherish. The greatest learning however, has come through my family. They have shown me that the balance I was exploring in my research was the essence of fulfilment in all aspects of life. I am deeply grateful to my patient husband Peter for his continued support and to Zoe, Isaak, Roselle, Julie and Peter for their encouragement as I pursued my dream. My writing is dedicated to my wise father who was so supportive but unable to read the completed manuscript. I have been enriched by wisdom from my extended family, who spontaneously shared thought-provoking insight when least expected.

With sincere gratitude,

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Gabrielle A. Baker

Chapter 1: **Introduction to the Study**

The wellbeing of gifted adolescents lies at the heart of this study. Adolescence is a time of rapid change that presents an array of developmental challenges and an interest in social positioning and acceptance. Increased cognitive functioning from an early age presents additional challenges for gifted students as they transition adolescence.

Studies have identified gifted adolescents disguising talent to conform and gain acceptance into social groups. Jung, McCormick and Gross (2012) found that the adoption of group norms at the expense of personal identity created inner conflict that challenged wellbeing. The social-emotional wellbeing of gifted students was therefore identified as a gap in research. This research explores six sequential class cohorts from a gifted intervention between 2005 and 2010. The historical case study of an existing school program was developed to document the wellbeing of gifted adolescents.

Knott School is the pseudonym used throughout this document for the Australian site of a gifted program, referred to as ZEST. Students start at Knott School at Preparatory (Prep) level (age four) and graduate in Year twelve at eighteen years old. ZEST was an addition to the middle year's program in 2005, for students aged between age nine and eleven. The theoretical foundation detailed in Section 4.2 offers a justification for balancing the academic and social-emotional development of gifted students in the middle years. The use of accelerated curriculum at Knott School enabled an ability-grouped ZEST class to complete three years study in two.

This qualitative study of ZEST commenced in 2011. A wellbeing lens explored archival data to reveal program details and perceptions of staff and students who had shared the ZEST experience. The lens provides insight into student wellbeing beyond academic progress and program reviews. The problem outlined in Section 1.1 frames the purpose and significance of the study (Section 1.2). A rationale (Section 1.3) supports the aim and research questions (Section 1.4) designed for a school setting context (Section 1.5). Section 1.6 introduces the notion of insider status that is revisited in Chapter three and Chapter six to support discussions of quality assurance. Section 1.7 provides key definitions to give insight

into key concepts. The background at the close of this chapter (Section 1.8) provides historical context behind a relationship between wellbeing and gifted education that invites educational change.

1.1 PROBLEM

Neuroscience confirms a long-held belief that intellectual development is accelerated for gifted children from an early age (refer to Section 2.3.4). Excellence often applauded by others through the early years of schooling is viewed differently however, at adolescence. This change in attitude challenges gifted students because:

- the intellectual gap between gifted adolescents and age peers has widened (Makel, Wai, Putallaz, & Malone, 2015);
- eloquent language and complex ideas invite social challenge (Chipuer, 2004);
- perpetual myths fuel misconceptions of giftedness (Clark, 1997; Sak, 2011);
- others impose unrealistic expectations (Matthews & Kitchen, 2007);
- students mask talent and personal identity to gain the acceptance of friendship groups and teachers (Jung, McCormick, & Gross, 2012);
- inner turmoil affects wellbeing that often goes unnoticed (Sawyer, Miller-Lewis, & Clark, 2007); and
- the development of gifted potential and identity is slowed (Robinson & Barrett, 2009).

Gifted adolescents have been consistently identified over the past twenty years, as a group at high risk of disengagement facing social isolation, under-achievement and early departure from school (Renzulli, Baum, Hebert, & McCluskey, 1999). Concern over school satisfaction and progress, prompted Knott School to initiate ZEST as an accelerated program to meet perceived academic and social-emotional concerns.

1.2 PURPOSE AND SIGNIFICANCE

The purpose of the study was to explore the influence of ZEST on the wellbeing of gifted adolescents at Knott School. The ZEST model outlined in Section 4.1.4 and Appendix C (a) provided an opportunity to use Yin's (2014) approach to study a bounded group as a single case. The study was founded on the perception that:

1. aspects of ZEST's balanced model might contribute to a practical sustainable and transferrable solution for schools catering to gifted adolescents; and

2. limitations may offer insight into a revised ZEST model.

Using a wellbeing lens therefore satisfies a gap in gifted education research, by informing educators about balanced, more sustainable gifted programs.

Knott School's program differed from many traditional models that have focussed on academic progress. ZEST sought to balance the academic and social-emotional development of the ability-grouped class. Initial evidence sought from archives clarified a time line and principles behind the ZEST innovation. In a second phase, staff and student voices expressed perceptions of their experience with the ZEST model.

The original contribution of this study lies in the theorised analysis of six consecutive years of the ZEST model established in 2005. The study uses positive psychology from Seligman (2011) to address a criticism that gifted adolescent research has historically focussed on symptomatic statistics of psychopathology, mental illness, physical illness and morbidity.

The significance of the research lies in evidence from participant voices that offered rich insight into program effectiveness and influences on wellbeing and school engagement. The study reveals a focus on competence, autonomy and socialised networking as aspects influencing self-determination, as defined by Deci and Ryan (2008). Findings supported the grouping of gifted students to accelerate learning, increase autonomy and provide a sense of belonging. Conclusions about the enhancement of student wellbeing during the program, but continued challenges for students beyond ZEST lead to recommendations for a revised ZEST model that incorporates a broader whole-of-school approach, in Chapter six. Additional significance lies in the methodological, theoretical and practical contribution this study makes to research. In particular, findings challenge Maslow's (1999) hierarchy of needs introduced in Section 2.3.2. The discussion in Section 6.8 expands the notion that gifted adolescents face additional challenges to their peers. Finally, evidence from this study offers authentic Australian data to a growing body of international research on gifted education with practical recommendations for global application.

1.3 **RATIONALE**

The initial reason for undertaking this study was out of concern for gifted students. This notion supported Knott School's perception that gifted adolescents faced additional challenges to their adolescent peers, and research studies by VanTassel-Baska and Stambaugh (2010) that revealed students experiencing complex peer relationships, loneliness and under-achievement. The rationale was influenced by Silverman's (2013) analogy of gifted students in mainstream classes, as left-handers being expected to cope in a right-handed world. Further quantitative support showing statistical trends of under-achievement and high school drop-out rates in gifted populations highlighted a need to raise awareness of wasted potential and threats to the personal wellbeing of gifted adolescents (Landis & Reschly, 2013). Adoption of the wellbeing focus was based on a premise that the wellbeing of a gifted adolescent influenced identity, potential and outcomes at school.

Preliminary conversations with staff, students and parents from Knott School revealed mixed opinions about giftedness and the ZEST program vision. Of concern was a warning that misinformed beliefs were precursors to poor educational practice: "the myth that children are born gifted and therefore can make it on their own is the belief that most affects the perceptions of the public regarding gifted students, and too often, the action of educators" (Clark, 1997, p. 81). Myths appeared to be responsible for a culture of belief that hindered the inclusion of gifted students and ultimately, progress in gifted education. Myths in the literature suggested that gifted students: were like cream that naturally floated to the top (of the class), learned without assistance, rarely felt stressed, were popular, good at everything and always happy.

The persistence of myths was confirmed by Jung (2014) in a study of Australian preservice teachers (n=241). Teachers expressed concern over teaching classes with increasingly diverse needs and furthermore, a specific concern over knowing how much differentiation was required to satisfy the needs of gifted students. It became increasingly apparent that myths had remained unchanged for decades. The void of knowledge about giftedness appeared to have clouded perceptions at Knott School, raising concerns over unrealistic academic expectations being placed on gifted students. An extension to the research aim and rationale was

therefore to provide evidence to challenge perpetual myths and advance beliefs about gifted education.

1.4 STUDY AIM AND RESEARCH QUESTIONS

The aim of the study was to investigate the influence of ZEST on the wellbeing of gifted students in the middle years of schooling at Knott School. Existing studies were consulted to advance understanding and inform two research questions:

1. What guiding principles informed the development of a program for gifted adolescents?
2. In what way did the program influence gifted adolescent wellbeing?

Data collected to address the questions originated from two sources. In Phase I archival documents provided insight into principles that informed the establishment and delivery of ZEST. Phase II interviews with staff and students offered evidence of the lived experience.

1.5 STUDY CONTEXT AND SCOPE

Knott School is a large Australian Prep to Year twelve school that caters to students aged four to eighteen. In 2002 the school perceived a need to expand learning for academically advanced students beyond an existing model that withdrew students to small enrichment groups. The new ZEST class model was to cover existing curriculum using an integrated model that extended thinking skills using themes of philosophy, problem-solving and meta-analysis. The first ZEST class of Year six students started in 2005 and left the middle school immersion at the end of 2006. Curriculum was accelerated to cover three years mandated work in two years. Students stayed with one Home-room teacher trained in gifted education for two years. This meant that students skipped a grade to re-assimilate into a cohort one-year older than their chronological age. The time line in Appendix A shows this cohort graduating in 2010. The decision for this study, to gather data from students who had attended six consecutive ZEST classes 2005-2010, clearly established the research boundary.

This study explored the aim of the ZEST model: to balance the academic and social-emotional needs of gifted students in the middle years. Students were deemed as gifted, based on the rigorous battery of tests used for identification. Broad tests were designed by the school to reveal intelligence quotient (IQ+135) and coping

skills for the increased demands of accelerated curriculum. Further details of the program are described in Section 4.2.3. This study commenced in 2011 as an exploration of program archives followed by participant interviews, thus classifying all data as retrospective. Yin's (2014) historic case study approach guided methodological decisions to shape the study design.

1.6 INSIDER STATUS

This study was inspired by experience from two perspectives: initially as the parent of a student in the first 2005 ZEST cohort and subsequently from 2006 to the present, as a fulltime secondary school teacher at Knott School. My role teaching Home Economics continues to instil a keen interest in adolescent wellbeing due to teaching units related to wellbeing including: nutrition, self-image and socialisation for group dynamics. Research for this study commenced in 2011. It can therefore be argued that I hold what Yin (2014) has referred to as insider status, having been involved in the ZEST program as a parent, member of the wider school community, teacher and sole researcher. Awareness of insider status from the outset prompted caution toward bias and the ethical conduct of data handling, expanded in the study design methodology of Section 3.1.1 and quality assurance in Chapter six.

1.7 DEFINITIONS

At the outset of the study it was evident that misconceptions relating to the nebulous concepts of *giftedness* and *wellbeing* needed to be resolved. Definitions are also offered in this section, for *adolescence* and the *middle years* of schooling in an Australian context. Definitions are written in italics throughout the document to provide clarity for the reader.

The definition for wellbeing evolved with the study. It reflects the combined ethics of Confucius, Mencius, Aristotle and contemporary theories of positive psychology and gifted adolescent development. W*ellbeing for a gifted adolescent has been defined in Section 2.2 as a comfortable state of physical and mental health that satisfies needs by balancing self-determination*. The closing phrase acknowledges Deci and Ryan's (2008) Self-determination theory gained importance as patterns emerged during the analysis stage of research (expanded in Section 2.5.2). Using this definition, this study posits that gifted adolescent wellbeing is reliant on

the satisfaction of academic and social-emotional needs that differ from their age peers.

The ZEST class began at early adolescence in the middle years of schooling. *Adolescence is defined as spanning puberty between the age of nine and nineteen,* as a time of rapid development when needs related to friendship gain parity with the basic physical needs of safety and shelter. The *middle years includes adolescents from aged nine, in Year five and Year six* (Australian Curriculum Assessment and Reporting Authority, 2016). At the time of ZEST's initiation in 2005 however, middle school also included Year seven. The philosophy behind middle years programming caters specifically to the intellectual and social-emotional needs of this age group. Research suggests that students begin searching for an adult identity in their middle years at school. As the search for identity continues through adolescence social attitudes influence engagement.

Adolescent attitudes toward learning are deemed to be influenced by heredity, life experiences and opportunity. The additional influence of intense curiosity for gifted students from an early age led to the definition of *a gifted adolescent* as: *curious with keen observation skills, enjoys intellectual activity with minimal repetition, and has an exceptional speed of cognitive processing for complex problems.* Defining giftedness for an adolescent was complex due to the expanding difference in the personal traits by adolescence. The definition implies similarities in physical development, but additional intellectual needs that influence social-emotional development and gifted adolescent wellbeing.

1.8   BACKGROUND

Many children progress developmentally at a steady rate. However, gifted students meet intellectual milestones at a faster rate from an early age. Studies suggest that that the rapid development of gifted students at adolescence accentuates asynchronous development between intellectual, physical and social-emotional development. Additional challenges place gifted adolescents at risk of loneliness, under-achievement and poor wellbeing (Blass, 2014; Neville, Piechowski, & Tolan, 2013). The information in this section situates this study on wellbeing and the education of gifted students in the middle years of schooling.

Wellbeing was explored by Dabrowski (1966) five decades ago when he posited that students learned from a series of life and crisis experiences, affecting behaviour and emotion. His theory of Positive Disintegration identified a complex asynchrony between intellectual and social development in gifted students, as over-excitabilities (OE). OE translated from Polish literally 'super-stimulate-abilities' as a combination of hyper-activity and hyper-sensitivity. An example of a person exhibiting OE or acting irrationally can be likened to the emotional excitement exhibited by a performer like Michael Jackson on-stage. OE managed poorly in a social or school context, limit communication and the opportunity to relay messages or learn. Galbraith and Delisle (1996) suggested that limited communication culminated in a troubled existence of rejection, frustration and inner turmoil that threatens wellbeing. Chipuer (2004) suggested that characteristic behaviours of gifted students such as the eloquent use of language or excitement with abstract ideas carried a social consequence of loneliness.

At primary school students spend much of their day in one class, providing an opportunity for the teacher to develop an intimate knowledge of individual strengths and weakness (Huitt & Dawson, 2011). The middle years of schooling hone academic focus, but according to the Australian Child Wellbeing Project (ACWP) offer limited support for psychosocial development (Redmond, et al., 2016). Challenges associated with developmental change and transition to secondary school are therefore left to chance. In secondary school, student movement to different subject classes complicates the monitoring of social-emotional challenges, with a consequence of personal struggles going unnoticed (Rogers, et al., 2015). Jung, McCormick and Gross (2012) identified many gifted adolescents as experiencing what they termed 'forced-choice dilemma'. Their studies reported gifted students experiencing personal challenges that led them to wilfully under-achieve in exchange for acceptance into social groups.

Gifted education research has reported extensively on the qualitatively different inner experience that sets gifted adolescents apart from age peers (Rogers, et al., 2015; VanTassell-Baska & Wood, 2010). Over seventy years ago Hollingworth (1942) reported that highly gifted children (IQ+180) experienced higher levels of social isolation than low-ability children (IQ 70). A behavioural study of socialisation and inner experience by Dabrowski, Kawczak and Sochanska

(1973) concluded that "social development is slower when students are alienated for any point of difference, or when they choose not to participate" (p. 71). Their reference to gifted adolescents avoiding social group participation was echoed in later studies, as being detrimental to social-emotional development (Dabrowski & Piechowski, 1977). Therefore, at a time when sameness is valued, everyday conversations expose differences between gifted adolescents and their age peers (Goleman, 2013). Reducing social opportunities limits experiential learning.

Contemporary studies build on Terman's original 1916 longitudinal study of genius (n=1528 gifted students) that identified genius in students aged seven with an IQ+155. Gladwell (2008) argued however, that luminaires like Rembrandt, Martin Luther-King, Bach, Isaac Newton, and Leonardo da Vinci did not exhibit signs of giftedness in their early years. The value of IQ testing and early labelling of students as prodigy was therefore in question, leading to speculation over a definition for giftedness. Despite global inconsistencies that place gifted students between 5%-20% of a population, testing for IQ is still a popular method for predicting intelligence and academic performance.

Programs about genius children based on IQ and skill assessment dominated fifty years of research by Lubinski (2016). His review of gifted research from (1916-1966) described the evolving role of gifted programs as "an extraordinary source of human capital, and the kind of learning opportunities needed to facilitate exceptional accomplishments, life satisfaction, and positive growth" (p. 901). He measured the success of gifted programs using a product-perspective, involving achievement certificates, University entry, high income and prestige. Notably, Lubinski made a poignant distinction between innate giftedness and children mimicking adult behaviour for extrinsic motivation identifying:

a. Genius children by following achievements into adulthood; and

b. Genius adults by reflecting on influences that led to achievement.

Dai, Swanson and Cheng's (2011) review of empirical gifted education concurred, calling for a change in focus. The latter fifty years of Lubinski's study from 1967 saw a concentration of studies about genius in adult populations, as retrospective views of accomplishment and contribution to society. The review of gifted programs for this study acknowledges Lubinski's shift in emphasis from concrete psychometric measurement of inherited traits and IQ, to subjective assessments of environmental

influence for adolescent populations. To this end, definitions for giftedness include multiplicity of intelligence (Gardner, 1983), assessment of potential (Sternberg & Davidson, 2005), Robinson's focus on creativity (2012) and the influence of wellbeing on development of potential (Diener, Kanazawa, Suh, & Oishi, 2015). One explanation for shifts in focus relate to constantly changing conceptions of giftedness explored further in Section 2.4.

Simonton (2009) however, argues that IQ and learned skills of excellence in childhood, could not be considered as accurate indicators of giftedness or wellbeing in adulthood. One longitudinal study to support this view tested the influence of environmental factors on cognitive ability and wellbeing in twelve-year-olds; then again fifty years on (Chmeil, et al., 2012). No relationship was found between self-reported IQ and wellbeing therefore, early cognitive testing was not deemed to be an accurate long-term predictor for health or performance.

More recently, predictors for wellbeing and potential in adulthood have focussed on the environmental influence of school rather than cognitive ability. Gladwell (2013) identified the qualities of curiosity, determination and tenacity, as reliable predictors for wellbeing in gifted adults. Examples include studies by Duckworth and Yeager (2015) that assessed a students' willingness to explore opportunity, self-discipline and attitude. As a general observation, program reviews highlighted value in identifying and motivating gifted students through adolescence to support the development of potential and develop skills for adulthood.

Historically studies of under-achievement in gifted populations have been used to raise public awareness about poor wellbeing. Marland's (1972) report to the United States Congress indicated that 3.5% of the 17-20% students leaving school early in the United States had an IQ above 120. Drop-out rates for academically-capable students were published as 18-25% (Robertson, 1991) and up to 40% in a study of engagement by Landis and Reschly (2013). The study indicated that although gifted students were identified as performing well in their early school years, academic, behavioural and engagement diminished by adolescence. Their assessment of giftedness was based on Renzulli and Park's (2000) aptitude test scores being at or above the 95th percentile. A review of studies about under-achievement revealed boredom as a prominent cause for absenteeism, disengagement and disruptive behaviour (Renzulli, Baum, Hebert, & McCluskey, 1999).

Enrichment, differentiation and opportunities for gifted students to develop new skills were the most common recommendations to kerb concerns. Siegle and McCoach (2008) referred to concerning outcomes and a poor sense of belonging as chronic issues for gifted populations.

In response to concerns over under-achievement, the United Kingdom took steps unify gifted communities with the formation of a World Council at a conference for gifted and talented children in 1975 (Karnes & Nugent, 2004). Gifted education was placed on the international agenda. The development of school programs as a hasty response was referred to in a paper by Renzulli and Reis (1991) titled "reform movement and the quiet crisis in gifted education". A global study of happiness across the lifespan by Demir (2015) reconfirmed gifted adolescents as the group at most risk.

In Australia, the 1988 Senate Select Committee reported similar trends of under-achievement and early departure from school (Collins, 2001). Gifted students were named as an educationally disadvantaged group alongside Indigenous students, girls, the disabled and migrants. By 1999 a Senate report identified 75% of gifted students as under-achieving and 40% of this group being disengaged enough to leave school before completion (Geake, 1999). Watters and Diezmann's (2001) submission to the Australian Senate recommended urgent reform to address policy change and resourcing. The report led to the development of a professional development package by Gross, et al. (2005) for teachers. Periodic reviews of the resource have reported improved staff engagement in gifted education using a differentiated staged-approach (Watters & Diezmann, 2013). Such research illustrates the benefit of professional development to assist teachers with differentiation, inclusive practice and encouraging gifted students to stay at school.

Early departure from Australian secondary schools decreased from 29% in 2001, to 22% by 2010, and to 7% in 2014 (Australian Bureau of Statistics, 2015). It was noted however, that although separate figures were offered for several minority groups by name in early reports, the more recent statistics no longer quoted figures for the early departure of gifted students. Such evidence suggests further calls to recognise gifted adolescents as a minority group with special needs (Lamb, Jackson, Walstab, & Huo, 2015). In this instance, minority group refers to a small group of population that share special needs. Australian curriculum (2016) mentions student

wellbeing in a broad inclusive education context however a more detailed reference is perhaps needed to highlight gifted adolescents as a group at risk. As a minority group who experience complex inner challenges, gifted adolescents are vulnerable.

In summary, interest in the wellbeing of students and inclusive practice has gained momentum. History suggests that evidence-based practical action has the capacity to influence change at an individual level (Seligman, 1995; 2011). Defining giftedness and acknowledging gifted adolescents as a group at risk appears to stand as a barrier to progress in gifted education. Tailoring programs requires clarity and direction. Studies cited in this section have been selected to illustrate the value in recognising academic and social-emotional needs for gifted adolescents. As a historical case study this research provides insight into ZEST as an intervention at Knott School for groups of gifted adolescents.

1.9 THESIS SUMMARY

The overview in Chapter one has provided a foundation for the development of key definitions to provide clarity. Knott School initiated ZEST in 2005 to fulfil a perceived need to enhance the development of gifted adolescents, using the ZEST model as a tailored gifted education program. Literature from 2000 that guided program development is as relevant to the literature review in Chapter two, as contemporary studies. The association made between gifted adolescent development, wellbeing and learning led to the development of conceptual and theoretical frameworks presented in Chapter two. Appendix A (a) offers a detailed time line to place the ZEST program and research study into context while Appendix A (b) maps the direction of the literature review.

Boundaries for the research design in Chapter three were clearly delineated when the ZEST program at Knott School was chosen as the focal case study. Research was clearly divided into two phases represented as archival data in Chapter four and contemporary interview data in Chapter five. Evidence sources are triangulated between archival data, staff interviews and student focus groups for the discussion in Chapter six. The final chapter briefly summarises methodological, theoretical and practical contributions made by the study with recommendations for an improved ZEST model. Unanswered questions revealed through the course of the study are framed as opportunities for further research. The study supports a holistic

approach to gifted education, hypothesising that adolescent wellbeing is enhanced through greater understanding of giftedness across the school community, and by helping students to balance self-determination. An argument for an inclusive systemic approach is framed around the benefits to gifted adolescent wellbeing.

The theoretical framework presented in the next chapter frames the study to reveal a paradox in the words of the title: gifted adolescent wellbeing. This study explores key concepts that influence the wellbeing of gifted adolescents as they learn at school.

Chapter 2:   **Literature Review**

Schools worldwide share the challenge of catering to increasingly diverse classes (Ayala, 2015). Gifted students are a minority group found across all cultures and school populations (National Association for Gifted Children, 2011). Catering to the needs of gifted students has included strategies for differentiation and inclusive practice explored in this chapter. Despite documented benefits of implementing gifted education strategies, statistics reveal consistently high under-achievement and early school departure for gifted populations (Rimm, 2010). Knott School integrated a range of strategies into an existing system to meet the perceived needs of gifted adolescents by balancing cognitive and social-emotional development. Aspects of gifted education models have been reviewed to compare influences on gifted adolescent wellbeing. Two research questions frame the study:

1. What guiding principles informed the development of a program for gifted adolescents?
2. In what way did the program influence gifted adolescent wellbeing?

Literature of the time of ZEST's initiation is relevant to this review in combination with contemporary references that provide new insight. Appendix A (b) maps the literature as reviewed for the study.

2.1   **INTRODUCTION TO LITERATURE**

This study has been framed using theories related to wellbeing, adolescence, giftedness, and learning in gifted education programs. Wellbeing is conceptualised (Section 2.2) followed by a rationale for the focus on adolescents (Section 2.3) and giftedness (Section 2.4). Challenges influence gifted adolescent learning (Section 2.5), so Section 2.6 outlines strategic approaches and a need for professional development (Section 2.7) within the school setting. Section 2.8 takes a broader view of systemic models that have influenced by psychosocial rather than psycho-analytical theory. First, Bronfenbrenner's (2005) holistic Bioecological model exposed broad social and cultural influences on the dynamics of a gifted adolescent's life at school. A second systemic model developed by the Ottawa Charter in 1996 (World Health Organisation, 2013) unites education using a Health Promoting

School framework. The final section introduces the Program Logic Model (Section 2.9) and Paradigmatic Model (Section 2.10) as organisational frameworks that inform the study. The chapter finishes with a reflection on literature as Section 2.11.

The literature review includes studies that have been published in English, apply to a school context, reference wellbeing, giftedness, adolescence and where possible, illustrate a systemic approach. Narrowing the lens to the wellbeing of gifted adolescents considerably reduces the bank of comparative studies. Research from the United States dominated the literature however studies have been cited from Asia, Australia, Canada, Germany, New Zealand, Middle East, Scandinavia and the United Kingdom. In addition, grey literature not identified through standard database searches has been used from published parliamentary reports, school websites, statistical data, and to a minor degree, trending topics from interest group websites and blogs.

2.1.1 Conceptual Framework

The Conceptual framework for this study (Figure 2.1) differs from existing traditional gifted education research. Its broad systemic orientation shows a range of influences on the wellbeing of gifted students.
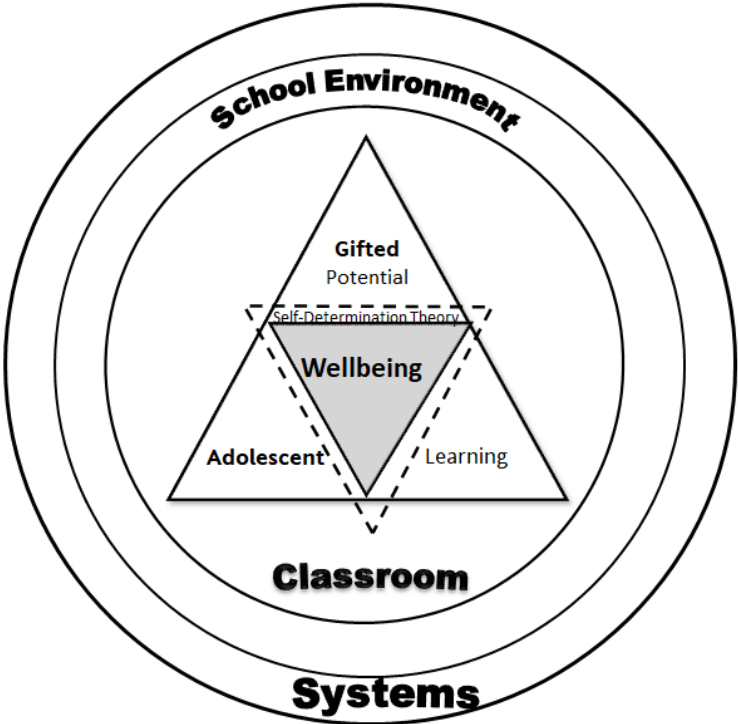
Figure 2.1. Conceptual Framework

The concentric circles surrounding the central triangles depict broad systemic influences on wellbeing. Triangles in the conceptual model illustrate the relationship between wellbeing and key concepts.

Systems in the outer circle include the education department, groups of policy makers and digital connectivity. School environment encompasses ethos and procedures that govern strategies and determine how a school might respond to student needs. The classroom in the innermost circle is a place of challenging differentiated curriculum and social-emotional development. The halo triangle with a broken line was added at the analysis stage of this study, to represent value placed on self-determination as defined by Deci and Ryan (2008). Autonomy, competence and friendship connections were revealed as important motivators that contributed to a students' development and learning potential. This study argues that gifted programs are more likely to be sustainable, when they acknowledge their place within existing systems. Furthermore, this study posits that a gifted program that develops self-determination enhances student wellbeing. The key constructs of the Conceptual framework organise the chapter.

2.1.2 Theoretical Framework

This section acknowledges the importance Green (2014) placed on the relationship between conceptual and theoretical frameworks in qualitative research. To this end, key constructs from the conceptual framework have been theorised using existing research then, expanded using new knowledge from the study. Broadly, the framework draws on theory related to systems, wellbeing and gifted adolescents.

Bronfenbrenner and Morris's Bioecological theory (2006) informed the initial search for influences on gifted adolescents in the school setting. As a psychosocial approach, an exploration of networks revealed insight into systemic influences on giftedness on adolescent development. The decision to explore ZEST as an existing program at Knott School shaped the historical study design. The inquiry sought to explore how ZEST influenced the engagement and overall wellbeing of gifted adolescents at school. The five ideas from the conceptual framework listed in Table 2.1 inform the theoretical framework. They are used to organise a review of literature in this chapter. Sections outline arguments and assumptions related to each main theory.

Table 2.1.

Theories informing the conceptual framework

Reference	Conceptual framework - ideas and key theories explored
Section 2.2	1. Wellbeing - combines objective and subjective assessments with a focus on *eudemonia (Seligman, 2011). Wellbeing should be assessed and promoted in context (Gruen & Spender, 2012).
Section 2.3	2. Adolescence - development is influenced by heredity but determined by the environment. Insight into adolescent needs is further informed by brain research (Blakemore, 2012).
Section 2.4	3. Giftedness – Asynchronous development (Dabrowski, 1966; Piechowski, 2008) and coping (Jung, McCormick, & Gross, The forced choice dilema: A model incorporating idiocentric, allocentric cultural orientation, 2012).
Section 2.5 Section 2.6 Section 2.7	4. Learning and self-determination to motivate (Deci & Ryan, 2008). Different teaching strategies and program development; Professional development for staff.
Section 2.8	5. Systemic models - Bronfenbrenner and Morris's Bioecological theory (2006). Health Promoting School framework is considered as a holistic model that incorporates wellbeing into a school context.

*Note: The term *eudemonia refers to a psychological process that goes beyond the emotions of belonging, satisfaction and happiness, to a realisation of potential* (Organisation for Economic Co-operation and Development, 2012).

This chapter outlines arguments related to each of the main ideas. Adolescent wellbeing is challenged due to rapid development and the search for identity associated with an adolescent's stage of development (Jackson & Goossens, 2013). Gifted adolescents face additional challenges of inner turmoil due to asynchrony between intellectual and social-emotional development. Turmoil may be hypothesised as an experience that replaces existing thought with behaviour, to satisfy needs. It is proposed that the provision of physical and psychosocial safety is a pre-requisite to a gifted student gaining an emotional sense of belonging. This proposed relationship may be hypothesised as the motivation required for a gifted adolescent to engage in learning and develop a social identity. Arguments therefore

make correlations between motivation, wellbeing and positive psychology as the science behind wellbeing (Seligman, 2011).

Using a wellbeing lens to view students broadened the view of networked influences on gifted adolescents. Bronfenbrenner's Bioecological model was not originally related to the school context, so the World Health Organisation's (1998) Health Promoting Schools framework (HPS) was explored. Table 2.2 shows the alignment between the two systemic models. Using terminology from each model: an *individual's* micro-system connects socially in the *school* meso-system and broader *community* exo-system and global macro-systems.

Table 2.2.

Bioecological model aligned to Health Promoting School framework

Influences on gifted adolescents.	Bioecological model	HPS model
Friends, classmates, teachers.	Micro-system	Individual
School environment, policy, co-curricular groups, music, sport, clubs and competitions.	Meso-system	School
Suburb, town, education department, local community, mentors.	Exo-system	Wider community
Culture, National pride, cyberspace, internet.	Macro-system	Wider community

Health Promoting School (HPS) frameworks have been used globally for school-based initiatives. It is argued that the use of a wellbeing lens acknowledges Resnicow, Cherry and Cross (1993) notion of schools being an ideal platform to address health issues.

2.2 WELLBEING

Exploring the wellbeing of gifted adolescents is central to this research. This section will focus on the development of a definition and assessment of wellbeing for gifted adolescents. Many reason that wellbeing is defined by complex networks of feelings, attitudes and traits (Bishop, 2012). Consequently, definitions vary greatly, represented in the literature from three points of view:

1) From a purely subjective Aristotelian view, wellbeing is viewed as eudemonia or happiness found in the pursuit of virtue. (Diener, Kanazawa,

Suh, & Oishi, 2015; Seligman, 2011). Adolescent wellbeing is expanded in Section 2.3.

2) Meet unique intellectual and social-emotional need (Dabrowski, 1994). Wellbeing's relationship to giftedness expands in Section 2.4.

3) Learning influenced by physical and mental wellbeing. The context of wellbeing related to school teaching and learning strategies in Section 2.5 and Section 2.6 offer practical school examples of gifted education.

Specific examples for each view provide insight into how indicators were selected for the analytical framework developed for this study; presented in the Study Design Section 3.7.

Seligman's (2011) positive psychology best illustrates the first viewpoint, or Aristotelian view of wellbeing. Studies of happiness, eudemonia and flourishing reflect the philosophy of the World Happiness Report. The report found that happy people live longer (Helliwell, Layard, & Sachs, World happiness report 2016, 2016). A seminal longitudinal study of 180 nuns revealed that an enriched social life filled with virtue and engagement, increased happiness (Danner, Snowdon, & Friesen, 2001). Insight from the study informed theories of positive psychology and Seligman's interest in emotion, wellbeing and flourishing. Seligman (2011) believes that students work toward flourishing as they learn authentic happiness, love, gratitude and accomplishment catalysed by curiosity, engagement, healthy relationships, meaning and purpose, gained through both positive and negative experience of life. His findings led to the acronym PERMA as five subjective constructs that contribute to wellbeing: Positive emotions, Engagement, Relationships, Meaning and Accomplishment. In practice, their use reflects on past influences to explain present wellbeing and inform future action. Indicators relating to PERMA and emotional states informed the analysis of data for this study. Section 2.3 explores the adolescent desire to seek a state of physical and mental balance as students experience rapid development and explore identity.

The second viewpoint equates wellbeing with a satisfaction of needs, as "a combination of feeling good and functioning effectively" (Huppert & So, 2013, p. 837). Indicators for needs and emotional states were sought in Fredrickson (2004) and Seligman's (2011) studies of gratitude. Fredrickson (2004) believed that showing gratitude stimulated positive emotions of happiness, affection and excitement that

had a lasting effect on personal development. Her Broaden-and-Build theory provided empirical evidence from pulse rate and vital statistics taken at a time of stress. Stress was raised by suggesting that participants take one minute to prepare a three-minute recorded presentation. Participants who originally presented as positive were creative, productive and able to regain equilibrium faster than the control-group. Findings showed promoting positive emotional states supported a capacity to cope, stay focussed and learn. Seligman's 'three blessings' study asked participants to reflect on three events to be thankful for each day over a period of one month. Positive reflection led to a measurable improvement in wellbeing and a greater perception of ownership over personal goals.

The third view of wellbeing recognised that learning influenced holistic development. Australian schools follow a Western school philosophy that focusses on academic development, while Eastern cultures are more likely to follow a Confucian philosophy with a more holistic education for life view (Roeper, 2013).

Western approaches to gifted education reward academic and skill excellence. Gifted students who excel with little effort in their early years often miss learning study skills that are required as work intensity increases (Csikszentmihalyi, Rathunde, & Whalen, 1996). Rising expectations contribute to inner conflict and some gifted adolescents face failure for the first time. A report by Sawyer, Miller-Lewis and Clark (2007) illustrated how parents failed to recognise the pressure of high expectation on gifted students at school. Their large study (n=1490) reported that although 19% of a group of thirteen to seventeen-year old students worried about depression and mental health, only 13% of their parents were aware of these challenges to wellbeing. Likewise, an Australian study (n=65) of staff awareness by Vialle and Rogers (2009) reported that many teachers rated gifted students as unlikely candidates for emotional problems. Conversely, students had reported sadness, emotional upset, loneliness and stress related to fear and failure.

Many Eastern cultures subscribe to a notion of sustained learning with a Confucian philosophy. Schools place value on the development of qualities beyond academic excellence that include personal goals, self-belief and mentors for wise council. Mentors encourage risk and offer support through failure to strengthen learning. Contrasting the philosophy of Eastern and Western cultures highlights

physical and social-emotional states as important wellbeing indicators, since each has the capacity to limit or enhance goals.

Studies that defined wellbeing from different viewpoints highlight the influence of emotion on physical and mental wellbeing and value in assessing wellbeing in context (Gruen & Spender, 2012). Exploring viewpoints offered insight to likely indicators for an analytical framework. This thesis views *wellbeing for a gifted adolescent as a comfortable state of physical and mental health that satisfies needs by balancing self-determination*. Supporting evidence for reference to specific needs is expanded in Section 2.3.2 and self-determination in Section 2.5.2. Although empirical statistics related to the health of general populations were plentiful, few studies specifically addressed wellbeing for *gifted* adolescents in a school setting. The study of objective and subjective assessments outlined in the next section determined the use of constructs for this research.

2.2.1 Wellbeing Assessments

The global focus in this section explores large and small-scale assessments of wellbeing then narrows to an Australian context and gifted adolescents. On the broadest scale, the OECD (Organisation for Economic Co-operation and Development, 2012) provided information about large operational sectors like Education and Health across nations. Likewise, WHO (World Health Organisation, 2013) has reported that preventable diseases like obesity, depression, substance abuse (including alcohol) and psychoses placed an economic burden of at least 14% on communities. Studies of smoking, illicit drugs, diet and exercise provide health data about daily capability and ability to contribute to a community (Kahneman, 2011). This implies that studies of wellbeing place an economic value on the impact of health, related to Gross National Product (Jones, 2013; Martin, Burns, & Schonlau, 2010). Across large surveys, life satisfaction was the most frequent indicator for the dispersion of government funding and welfare (Davern, Cummins, & Stokes, 2007).

Popular tools used to assess wellbeing include the Satisfaction with Life Scale (SWLS) developed in 1985 (Diener, Eunook, Lucas, & Smith, 1999) and the Values in Action scale (Toner, Haslam, Robinson, & Williams, 2012) that lists twenty-four character strengths. Appendix B(a) offers examples of wellbeing assessments to

show some of the methods and constructs used. Appendix B (b) shows detail from the simple five-item SWLS that has since been adapted by Cummins and Lau (2005), to become a Personal Wellbeing Index (PWI). PWI (Tomyn & Cummins, 2011) is used in conjunction with the Children's Self-Concept Scale (Piers, 1986) as PWI-SC (school children). However, criticism was directed at wellbeing assessments that failed to report binary positive and negative experience (Pavot & Diener, 2008).

An adapted PWI-SC scale for adolescent *school satisfaction* was developed by Tomyn and Cummins (2011) for an Australian study (n =351) using four topics: teachers, behaviour, ability and safety. Self-reporting remains the most popular method for data collection to asses quality of life for students at school (Tay, Kuykendall, & Diener, 2015).

The Canadian Index of Wellbeing (CIW) first developed in 2002 has been updated and used extensively by the OECD (Michalos & Kahlke, 2010). A fifteen-year study by Muhajarine, Labonte and Winquist (2012) gave confidence in CIW's ability to inform strategies to address health issues. Participants self-reported about life satisfaction and emotional states. Canadians were found to be living longer but enjoying fewer years of optimal health due to stress-related lifestyle diseases.

Life satisfaction was a broader view of happiness used in many large-scale studies as a measurement for wellbeing. It was described by Brule and Veenhoven (2014) as "how well our life-as-it-is meets our standards" (p. 21). Camfield and Skevington (2008) assessed quality of life and PWI-SC using the broad categories of teachers, behaviour competence and safety; but included reference to broader friendships and connections reminiscent of Bronfenbrenner's (2005) networks. The extensive use of self-reporting and confidence gained in affective domain assessment was noted in contemporary studies. The Canadian Index of Wellbeing known as CIW (Michalos & Kahlke, 2010) recommended by OECD (2011) used in combination with self-esteem, signature strengths (Shryack, Steger, Krueger, & Kallie, 2010) and personality tests (Lucas & Donnellan, 2011) designed to monitor student progress.

In a different cultural context, wellbeing has been used as a health indicator for the nation of Bhutan since 1972 (Bates, 2009). The Government of Bhutan (2012) has reported on Gross National Happiness (GNH) using indicators for education, health, time use and psychological wellbeing (Helliwell, Layard, & Sachs, World happiness report 2016, 2016). The cross-cultural Happiness Index was developed

originally in 2000 to assess GNH as a sustainable economic factor for social and environmental health. Bhutan positions life satisfaction alongside freedom and autonomy in direct contrast with the economic value placed on gross national product in Western nations. Such holistic approaches of Asian origin that recognised social-emotional need were worthy of note but lay beyond the scope of this study.

Research offered in this section has illustrated the influence of large-scale population studies on small-scale community action. Health issues were reported as a responsibility for communities, suggesting the use of systemic approaches that unite education and health like the Health Promoting School framework discussed further in Section 2.8.3. The assessments of standards of living, health, achievement, relationships, safety, connectedness, and feelings about a secure future highlighted the use of eudemonic state to reflect life satisfaction, and motivation as indicators. Bazeley (2013) cautioned about the close-scrutiny that subjective indicators attract. Therefore, decisions were made to enable the triangulation of data sources for this thesis, so that subjective data could support objective evidence and strengthen rigor.

2.2.2 Wellbeing Indicators

Quantitative methods were used predominantly to report on wellbeing as a state of morbidity until ten years ago. At that time, statistics guided allocations of government funding and the design of targeted programs (Kelly & Gorecki, 2012). This section supports the philosophy behind positive psychology in its use of qualitative assessments of wellbeing. Research revealed a growing confidence in feedback from self-reporting and tools that combine objective and subjective data (Helliwell & Barrington-Leigh, 2010).

A number of assessment tools were considered for use in the analysis stage of the study. Eudemonic (positive functioning) elements featured predominantly, yet hedonic (positive feeling) items were also noted. Ideal elements for use in a school context were school satisfaction as a general overview, and eudemonia to indicate personal expressions of wellbeing. Both contribute to the analytical framework for this study. Diener and Chan (2011) conceptualised eudemonia as a component of happiness gained from internal and external motivation, while Seligman (2011) described eudemonia as a positive response to external influence. Eudemonia was often paired with life satisfaction by sociologists in large scale studies like the

Quality of Life Project (n=5151) used to track cases of physical and mental health in New Zealand (Neilsen Report, 2013). Gilbert (2006) inferred that an understanding of self helps in the pursuit of happiness, believing that "we have within us the capacity to manufacture the very quality we are constantly chasing" (p. 230).

2.2.3 Wellbeing Trends in Australia

In Australia, health-related data from the Australian Bureau of Statistics (ABS) informs Treasury's Wellbeing Framework and the Australian Institute of Health and Welfare (AIHW). Historically, figures of preventable morbidity have made up the majority of reports from the data. Independent groups however, periodically release reports that place mental health and student wellbeing high on the school agenda (National Australia Bank, 2017). Their study of ninety-one Independent schools highlighted adolescent concerns about peer pressure, popularity, friendships and feeling different, and the role a school environment plays in helping a student to reach potential. General data cited in this section for adolescents and minority groups gives a sense of wellbeing trends. Figures that show poor wellbeing support an argument for intervention in the school sector.

Reports based on data from AIHW (Australian Institute of Health and Welfare, 2011) specifically mentioned physical and mental health issues and increased stress at school. Findings mentioned eating disorders, clinical depression, self-harm, obesity and behaviour problems as preventable concerns. The 2010 report highlighted a need to focus on prevention in the early years of schooling, linking unresolved childhood problems to a lower quality of life through adolescence, while the 2011 report assessed the wellbeing of adolescent youth (Lewkowicz, 2016). Seventy-one indicators are used in the frameworks to show health status, determinants of health and health system performance.

In 2015 AIHW reported that although suicide accounted for less than two percent of deaths in Australia, one-third were alienated adolescents. A report by Redmond, et al. (2016) confirmed that marginalised and isolated groups were more susceptible to risky behaviour, substance use and suicidal ideation. The report noted that young people with small support networks had lower levels of wellbeing than those with larger networks. The report named mental health issues in adolescents as the greatest burden on Australian society.

The Australia 21 report (Eckersley, 2009) used three studies to present a strong case to address wellbeing using preventative intervention with adolescents. At the commencement of the study Eckersley, Wierenga and Wyn (2006) noted adverse trends in mental and physical health thus identifying a need to optimise adolescent wellbeing. The studies involved holistic preventative programs incorporating drama in a participatory approach, to bridge traditional age and expertise barriers. The third case study (Eckersley, 2008) reported 20% to 30% of young people suffering significant psychological distress, and minor health issues of headache and insomnia affecting learning for up to 50% students. The studies revealed greater mental health concerns for adolescents than any other demographic. Eckersley (2009) wrote:

> low social-emotional wellbeing represents a huge burden to the welfare system, the education system, and the childcare system… further impacting on the resilience and efficacy of systems in place. (p. 24)

Eckersley (2009) concluded that although affluence, diversity and multiculturalism created opportunities for youth in Australia, evidence revealed negative impacts of affluence, diversity and multiculturalism on social-emotional wellbeing. Mind-Matters were developed from the Australia 21 report to identify risk factors, build protective behaviours and unite community goals (Hazell, 2006; Scott, 2010).

2.3   ADOLESCENCE

For the purpose of this study, the age range for adolescence is bounded by physical, intellectual, social and emotional development at puberty between nine and nineteen years (Caskey & Anfara, 2014). Puberty accelerates gains in height and weight, with concurrent changes in sleep, eating habits, skin health and energy levels (Jackson & Goossens, 2013). By adolescence student attitudes, beliefs and behaviour have been influenced by cultural traditions, family values and social groups at school. As a sub-culture, adolescents have a distinct way of thinking and acting, driven by a strong desire for belonging, peer approval and a search for identity (Robinson & Barrett, 2009). Gifted adolescents however, share additional challenges associated with an inherited curiosity that accentuates asynchronous development, discussed in Section 2.3. In general terms, asynchrony is a malalignment between intellectual and social-emotional development. By adolescence, the intellectual gap with age peers has widened. Current neuroscience outlined at the end of this section provides an explanation for differences in attitude, autonomy and social behaviour.

2.3.1 **Inherited Intellect and Environmental Influence**

Evolutionary psychology suggests that inherited predisposition is a static concept that many say has been determined prenatally by nature and genetic factors (Sousa, 2015). The development of intelligence and skill however is dynamic and as Nielsen (2006) suggests, strongly influenced by personal motivation to access opportunity. The debate over the extent to which traits are inherited (nature) or developed (nurtured) remains contentious.

In their handbook of adolescent psychology, O'Donohue, Benuto and Tolle (2014) indicated two barriers to developmental progress. First, adolescent groups could be exceedingly intolerant and openly critical of difference thus influencing academic achievement, talent development and connection to co-curricular groups. Co-curricular groups in a school context include clubs, music and sport activities at school, but beyond scheduled class time.

Second, attitude influences an individual's motivation to engage. Conclusions from Li and Kanazawa's (2016) study of life satisfaction, referenced ancestral psychology, reporting that intelligence evolved as a quality for solving unique life problems. They posited that many intelligent people were happy to be alone, since issues could easily be solved on their own. The study implied that intelligent adolescents making a conscious preference to be alone, were not necessarily lonely. This notion supports Aristotle's belief that individuals require intent to act on friendship or strive toward personal excellence. Lyubomirsky (2008) tested this philosophy using elements of eudemonia and happiness as a gauge for wellbeing. His study of inherited and environmental influence on attitude portrayed happiness as fifty percent genetically pre-determined, and ten percent influenced by life circumstance. The implication was that attitude held the key to releasing the remaining forty percent of happiness. He concluded that inherited *aptitude* therefore provided potential but *attitude,* disposition, experiential learning and life events shaped its development. Although studies that use percentages for subjective assessment are contentious, Lyubomirsky's conclusion is supported an earlier landmark study by Osche (1990) that revealed 'attitude' as the major determinant for the development of creative genius in chess experts. In these studies of happiness and attitude toward engagement, positive psychology combines with evolutionary psychology to draw conclusions that link intelligence to life satisfaction.

Likewise, MacCann, Fogarty, Zeidner and Roberts (2011) asserted that fostering an inherently optimistic outlook toward problem-solving helped to improve engagement and autonomy. Optimism was tested in an eight-decade study (n=1528) by Friedman and Martin (2011) that confirmed both predisposition and exposure to a positive attitude, influenced the development of potential. The study revealed that pessimistic, hard-working people took fewer risks, resulting in less engagement and interestingly, a shorter lifetime than optimists. The environmental influence on the development of gifted potential is nevertheless uncontested, with much of the conclusive data collected from studies of twins raised separately. For example, a study of aptitude in adolescent twins raised in different environments revealed a wide variation in intellectual, creative, and sporting ability (Vinkhuyzen, VanDerSluis, Posthuma, & Boomsma, 2009). Gladwell (2008) argued that neither inheritance nor hard work was as important as the influence of culture, family and opportunities available in the environment for life experience.

There is equal support however, for similarity in the inherited predisposition of twins raised separately, evidenced in studies of genetic intelligence (Vinkhuyzen, VanDerSluis, Posthuma, & Boomsma, 2009) and Klingner's research on creativity (2016). This study therefore recognises the influence of genetic factors on inherited potential for eminence. It also acknowledges the vibrant living ecosystems within and beyond school, as influences on personal motivation, attitude, capability and wellbeing. Gagne (2013) recognised the value of rich socio-cultural influences on development, arguing that gifted students in the top ten percent capitalised on experiential learning, chance and opportunity to reach their potential. Lack of opportunity and a poor student attitude therefore offer a viable explanation for under-achievement in some gifted adolescents.

For convenience, early educational theorists posited that development was universal and sequential, advancing after mastery at a specific age (Piaget, 2000). Research now acknowledges that the pace of development is influenced by inherited ability and stage of development by gender. In support, Rimm's (2010) studies show the significant difference in conscious thought, communication and social behaviour of females who mature earlier than male age peers. High self-concepts in females studied by Johnson, Blum and Giedd (2009) were found however to diminish through puberty. Boys matured in reverse, gaining confidence through greater

experimentation with risk at adolescence. Differences in confidence could be attributed to two neuroscientific factors explored by Johnson and Adams (2011): female brains develop earlier than boys, and the brain is the last organ to mature meaning situational judgement takes longer to develop. The female desire to comply and belong to groups therefore starts earlier than for a male; and boys take greater risks. Studies cited in this section have suggested that *attitude* developed by adolescence, has a major influence on friendships and school outcomes.

2.3.2 **Additonal Challenges for Gifted Adolescents**

Gifted adolescents have additional needs to their age peers. Understanding the needs of a gifted adolescent gains importance if potentially high intellect and skills are to be realized (Betts & Neihart, 2010). An assertion follows, that greater wellbeing is likely when needs are understood and satisfied. Although schools have traditionally maintained an academic focus, Gladwell (2013) argues for the consideration of social-emotional experiences as an influence on a gifted adolescent's ability to learn.

It is widely accepted that a healthy adolescent is able to confidently reason that competence brings a sense of satisfaction, while failure is temporary and able to be transformed by persistent effort (Boniwell & Ryan, 2012). Competence for gifted students however, comes without persistent effort in the early years, so many with untrained study skills, experience failure for the first time when curriculum becomes complex in secondary school. Schoon (2006) proposed that experiencing success and failure at school offered valuable lessons of trust and confidence. Sousa (2015) highlighted the importance of trust, authentic relationships and social belonging for emotional stability and inner calm for gifted adolescents. In addition, Daniels and Piechowski (2009) noted that "facing risks and danger, tests of courage, and the necessity to persevere are important to development" (p. 19). Social challenges for gifted adolescents have been reported as a painful, integral but important part of healthy development.

Maslow's (1999) hierarchy of needs has provided a sound basis to understand need satisfaction. The universal application of the hierarchy was tested in a study of 123 countries (n=60,865) chosen to represent major regions of the world, conducted between 2005-2010 (Tay & Diener, 2011). Participants were questioned about needs relating to wellbeing using three of the measures outlined in Section 2.2.3: life

satisfaction (viewing life as a whole), positive feelings (daily instances of happiness), and negative feelings (daily experiences of sorrow, stress or anger) as binary examples of eudemonia. The study verified global relevance and acceptance of Maslow's hierarchy. A second extensive OECD study (2012) reported on basic needs worldwide using a series of lenses for life satisfaction. As a sub-group, school-aged students were asked to comment on school satisfaction based on the satisfaction of personal daily needs. Basic physical safety needs identified by Maslow were reported as uniform for all settings, with psychosocial needs showing links to personal safety.

Maslow (1999) maintained that physical and psychological safety needs at the bottom of his hierarchy had to be met before higher psychosocial needs such as belongingness or autonomy could be achieved. At the top of the hierarchy of needs, self-actualisation represented "an individual's expression of full potential and a desire for self-fulfilment" (Ivtzan, Gardner, Bernard, Sekhon, & Hart, 2013, p. 119). Self-actualisation represents fulfilment of an individual's highest needs to attain a heightened state of purpose exhibited by notables like Mother Teresa, Mahatma Gandhi or Nelson Mandela. Adolescents with a positive self-concept in their search for meaning can aspire to self-actualisation as a goal trajectory. Csikszentmihalyi (1997) referred to the similar notion of *flow* that individuals experience in every-day life. Klingner and Leavitt's (2014) interpretation of flow for gifted students reflects the immense satisfaction gained when personal interests were followed to complete complex abstract tasks in a creative way.

From an Aristotelian view of wellbeing, flow and self-actualisation have also been likened to Seligman's (2011) concept of *flourishing as a sustained feeling of authentic happiness, love, gratitude and accomplishment*. Conceptually, flow influences a sense of flourishing and eventual self-actualisation. Attaining flow becomes complex for gifted adolescents however, when they experience asynchrony between accelerated intellectual growth and social-emotional development. Asynchronous development was described by Meeker (1969) as an advanced intellect locked inside a physically younger body.

This section has noted that gifted adolescents face additional challenges to their age peers, emphasising the satisfaction of needs as a necessary component for wellbeing at school. Understanding the neuroscience behind traits of gifted students enhances the opportunity to provide appropriate support.

2.3.3 **Influences on Identity**

Greenfield (2015) maintains that the process of identity development and self-esteem is the sum of past and present stories providing a view to the future. She suggests that by adolescence, students have learned from an inner personal narrative influenced by the socio-cultural experiences of childhood. The heightened intellect of gifted students influences daily conversations and the strong characteristic adolescent desire to belong. Curiosity, intense sensitivity, over-excitability and strong feelings of moral reasoning and justice can lead to conversations that set gifted students apart socially.

Views expressed in this section offer broad support for Dabrowski's (1994) belief that asynchronous development influences the behaviour of gifted students. Dabrowski's (1966) theory of Positive Disintegration highlighted valuable lessons in daily positive and negative experiences. Level three of his theory was most pertinent to adolescents, exploring identity while learning about feelings of inferiority, shame, guilt and difference. Innate curiosity, accentuated sensitivity and over-excitability, prompts gifted adolescents to examine values and inner worlds of imagination at a deeper level of intensity. Although research suggests that all adolescents possess a strong desire to belong, research continues to show that gifted adolescents experience a greater incidence of social rejection, than age peers (Cross, Coleman, & Terhaar-Yonkers, 2014). Laycraft (2011) described a gifted adolescent's quest for inner mental balance as being "active agents in their own disintegration, responsible for their own lives" (p. 118). Coping mechanisms that build resilience therefore play an important role in identity development.

The coping mechanisms of two groups of students were compared in a study by MacCann, Fogarty and Ziedner's (2011). Comparing gifted students (n=374) with age peers (n=478) confirmed significant differences in sensitivity between the two groups. Jung, McCormick and Gross (2012) observed gifted students becoming socially isolated when others imposed high expectations or showed little interest in abstract conversation. They identified forced choice dilemmas faced by students daily due to points of difference identifying their intellectual ability. With this knowledge, it might therefore be assumed that gifted students would benefit from empathetic support to circumvent social challenges, misunderstandings or social

isolation of students. Without inclusive support, challenges led to changed behaviour whereby gifted students disguised talent and identity.

Bergold, Withwein, Rost and Steinmayr (2015) documented stress experienced by gifted adolescents experimenting with risky conversation, radical behaviour and creative clothing. A similar phenomenon was observed by Silverman (2013) in students showing an early interest in physical change, experimenting with sexuality, seeking isolation, mental health issues and disengagement.

Notions of appearance, acceptance and belonging are therefore prioritised above achievement by gifted adolescents (Vannatta, Gartsein, Zeller, & Noll, 2009). Steinberg (2008) and Sousa (2015) used brain-assessments to show how gifted students avoided new learning experiences and situations of risk that might identify them as exceptional. He posited that gifted students predicted unfavourable outcomes that might pose a threat to peer acceptance. This supported an earlier prediction by Abbott-Chapman, Denholm and Wyld (2008) that reported high-achieving students avoiding participation in sport due to the potential for criticism, danger or failure. Responses to the students refusing to participate split between empathy for the student's perceived fear of failure; and viewing the situation as an act of defiance toward authority and assertion to establish control. Through this research, it was evident that an acknowledgement and empathy for gifted traits could extend support.

Greenfield's (2015) insight through a neuroscientist lens provided a psychosocial view to identity development, that avoided the dogmatism of psychoanalytic theory (Ambrose, Sternberg, & Sriraman, 2012). The examples cited in this section, show the vulnerability of gifted adolescents, to peers, staff who do not understand needs and reputable information that could be deemed unethical or inappropriate for the physical age of the gifted student.

2.3.4 **Neuroscience**

Epigenetics have the capacity to explore prenatal genes and inherited traits as social indicators. Epigenetics is the biological study of genetic traits that literally means 'outside of genes' (Wolffe & Matzke, 1999). Scans on gifted adolescent brains have confirmed differences based on stages of development, gender and intellect (Blakemore, Burnett, & Dahl, 2010). This section explores advances in neuroscience and the concept of *neural efficiency, as the extent to which a brain uses its potential*.

Early tests by Wolfe and Brandt (1998) showed epigenetic changes to the brain from over-stimulation and under-stimulation. Contemporary studies of genes and intelligence reinforce the notion that inherited intelligence is complex trait influenced by genetic variants (Rizzi & Posthuma, 2013). Such studies offer a foundation for the Neural Efficiency Hypothesis (NEH) of intelligence (Grabner, Neubauer, & Stern, 2006). NEH identified student potential by studying brain stimulation in enriched environments. Postulation from Geake (2008) suggested that the brain neocortex had its full complement of nerve cells, supported by glial cells at birth. Since then however, Blakemore, Burnett and Dahl (2010) have confirmed that accelerated development through adolescence continues to promote cortical growth responsible for cognitive processing. Ongoing studies from Blakemore and Mills (2014) show development continuing, as long as glial cells are stimulated.

A motivated student in an enriched classroom therefore continues cell growth that increases plasticity at a neurone level (Sale, Berardi, & Maffei, 2009). Unmotivated students with a poor attitude to learning however, do not progress nor grow cells. Nagel's (2010) neuroscience acknowledges increased brain neuroplasticity, curiosity and the rapid pace of learning as characteristics that set gifted students apart intellectually from their age peers. The identity and attitude adopted by gifted adolescents based on childhood experience therefore has a large influence on continued brain development (Greenfield, 2015).

This section therefore argues, that inherited traits and potential, are not automatic precursors to success, as Subotnik, Olszewski-Kubilius and Worrell (2011) assert: "gifted children need to become eminent producers to be recognised as gifted adults" (p. 23). Three case studies by Mudrak and Zabrodska (2015) used NEH to explore gifted adolescent learning, postulating the influence of social-environmental factors on individual autonomy and progress. Their studies documented gifted students who relied on effortless ease of learning in junior-school, failing to progress in secondary school. The research points to the importance of identifying complacency early, providing scaffolded learning through the middle years and consciously teaching study skills to circumvent failure.

Case studies in handbooks of adolescent psychology illustrate the effect of failure and risky behaviour on relationships, learning, habits and identity. Studies of risk range from students experimenting with embellished appearance, to participating

in sport and music (Blakemore, 2012; O'Donohue, Benuto, & Tolle, 2014). Research indicates an increased frequency of risky behaviour at puberty that Geake (2008) attributes to the underdeveloped pre-frontal cortex of the brain. As the control centre of the brain, this area is concerned with the satisfaction of need, while a second area assesses risk. Put simply, the social-emotional area of the brain matures faster than the control network. Demir (2015) maintains that friendships, advanced intellect, and openness offer stability that reduces the probability of risk-related danger.

Advances in neurological research have shown structural and functional differences between genetic indicators and the brains of students with very high and very low ability (Sousa, 2015). Brain research therefore supports the notion that physical, psychological and psychosocial needs gain parity at adolescence. Furthermore, contemporary understanding about the speed of brain processing clarifies student need to further inform educational practice.

2.4 GIFTEDNESS

Psychological, sociological, and the epigenetics of neuroscience presented in previous sections, contribute to the debate over a definition for giftedness. The focus in this section is refined to a discussion of asynchronous development and then the characteristic behaviours of gifted adolescents. Low-latent inhibition (Section 2.4.3) and forced choice dilemmas (Section 2.4.4) are raised as common challenges, that influence the wellbeing of gifted adolescents. Assessments used to identify gifted adolescents are explored in Section 2.4.5. The section closes with three distinctly different paradigms that have been used to classify gifted students.

Definitions for giftedness through history have been influenced by a zeitgeist of societal values. Zeitgeist describes the spirit beliefs at a particular period in history. In ancient Greece gifted scholars were philosophers. In the Renaissance high status was afforded to artists and writers. Gallagher (2011) noted that the Sputnik-space-race sparked an interest in knowledge in the early 1960s as a race power. Recent references highlight sport, music or excellence in science and economic success. Each example illustrates flexible boundaries and a dynamic interpretation of giftedness that changes with social, cultural and economic priority.

Gifted students are however distinguished by an inherited curiosity that accelerates maturity from an early age. Eide and Eide (2004) graphically described

gifted children with enhanced memory as cognitive flypaper, suggesting that they learned quickly from observation or snatches of glimpsed information. Genius, gifted, talented and highly-able are terms that have been used to describe students with a capacity to learn faster, solve problems quickly and display exceptional talent.

2.4.1 **Under-achievement**

One of many enduring urban myths identifies gifted students as fortunate, having an ability to learn without a need for assistance (Treffinger, 2009). Another portrays students as high achievers, well adjusted, unstressed, more popular, and happier than their age-peers (Siegle & McCoach, 2008). Research contests such myths citing forced-choice dilemma (Section 2.4.4) and under-achievement as chronic syndromes with serious academic, behaviour and health outcomes (Gross, 1999).

Under-achievement in adolescence was recognised by Reis (2011) as a discrepancy between two factors: Performance and assumed ability gauged from earlier years of schooling. First, *performance* was illustrated by Rimm's Law (2007) as a hesitation or failure to engage due to the tension caused by dwelling on thought about a task; as opposed to being engaged in the task. Rimm (2010) studied the choices adolescents made to practice and extend natural talent. His explanation offered a plausible reason for performance failure. Ford (2003) highlighted the importance of addressing the gifted adolescent need by providing equitable support. Second, *assumed ability* was tested in a longitudinal urban study of thirty-five gifted students in the United States, half were found to be under-achieving by the time they reached adolescence (Herbert & Reis, 1999). Earlier, a 1974 longitudinal study (n=210) in Britain had found that half a group (n=20) of gifted children (IQ160+) did not reach potential shown in early promise (Freeman, 2006). The implication from both studies was that not all gifted children grew into exceptionally talented adults.

In the United States studies from the NSCAW (Office of Administration for Children and Families, 2012) and benchmarks set by the National Centre for Education Statistics (2016) drew concerning correlations between low academic performance and substance abuse. Such research mirrored the United Kingdom's (Office For Standards in Education, 2005) Healthy Minds study (n=72) that reported mental health as the main barrier to academic success. Longitudinal studies

extending from the report showed social-emotional wellbeing as a whole-of-school responsibility; beyond individual teachers (UK National Wellbeing, 2013).

Two examples are offered to illustrate the effects of under-achievement on wellbeing. A clinical psychology study of under-achievement in gifted adolescents (n=15) Grobman (2006) found symptoms relating to social, emotional, and physical instability. Low-self efficacy was evident as eating disorders, serious depression, anxiety, and self-harm. In another study, Coleman (2014) found that helping gifted students control destructive mood and extreme sensitivity improved academic results. In both cases a focus on the affective domain and a safe supportive environment influenced wellbeing and academic outcomes. These studies reinforce Nagel's (2009) work on the adolescent brain discussed further in Section 2.3.3 that link social-emotional wellbeing and learning.

Parallels have been drawn between under-achievement and engagement at school in gifted adolescent populations (Reis & McCoach, 2000; Whitmore, 1980). Poor behaviour has been explored as a symptom of boredom, lack of challenge and the fast completion of classwork (Diezmann & Watters, 1997). McCoach and Siegle (2003) concluded that gifted education strategies targeting curiosity were found to circumvent the negative ramifications of boredom. Disengagement and early departure is expanded in Section 2.5.2.3 in a discussion of connectedness as a construct of motivation. Other studies have linked attitude, self-concept and self-efficacy to performance with correlations drawn between accelerated work intensity and failure to cope with excessive pressure (Subotnik, Olszewski-Kubilius, & Worrell, 2011). Evidence in this section has highlighted concerns over underachievement in gifted populations. It has reinforced the value of appropriate gifted education strategies to assist gifted students as they transition adolescence.

2.4.2 Definition for a Gifted Adolescent

The ongoing melee over a definition for *gifted student* has fractured opinions on how to approach gifted education (Ambrose, Van Tassel-Baska, Coleman, & Cross, 2010). The Columbus Group (Javits, 2002), United States Federal Act definition was widely referenced due to its relevance for that time:

> Students, children, or youth who give evidence of high achievement capability
> in areas such as intellectual, creative, artistic, or leadership capacity, or in

specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities. (p. 107)

An updated Columbus Group definition from Neville, Piechowski and Tolan (2013) was initially adopted for this study as:

A gifted student embraces opportunity for experiential learning from an early age, enjoying intellectual tasks that require minimal repetition, exceptional observation skills, challenge and complex cognitive processing to solve convoluted problems quickly. (p. 23)

My adapted definition was conceptualized to align with the study context as:

A gifted adolescent is curious with keen observation skills, enjoys intellectual activity with minimal repetition and has an exceptional speed of cognitive processing for complex problems from an early age. Gifted students have additional needs to their age peers, due to curiosity that makes them more vulnerable to social challenges and risk at an earlier age.

2.4.3 Asynchronous Development

Asynchronous development has long been recognised as a defining trait of giftedness. The term asynchrony was coined when Hollingworth (1926) perceived an inward feeling of turmoil in gifted children. Asynchrony between intellectual, social-emotional and physical development offered an explanation for why gifted students made personal choices that detrimentally affected learning, behaviour and potential. Silverman (2002) described asynchrony as a difference in development between advanced intellect and immature social-emotional skills that challenge socialisation. Dabrowski and Piechowski (1977) described the behaviour of gifted students as five *sensitivities of over-excitability* (OE) *associated with psychomotor, sensual, intellectual, imaginational and emotional development*. For the purpose of this study asynchrony has two reference points: inward and outward.

As an example of inward asynchrony, Einstein displayed giftedness quietly from an early age. He was a sensitive quiet child who experimented with abstract ideas and chose not to speak until after the age of four (Frank, 2002). Einstein listened intently but did not respond because he saw no purpose and sensed a threat of judgement. As an example of outward asynchrony, a ten-year-old student may react aggressively with frustration when he tries to forge the elaborate ideas of a sixteen-year-old mind, using the dexterity of ten-year-old hands. His friends may not

understand his enthusiasm, nor comprehend his anger or complex abstract ideas. Although a gifted adolescents desire to correct maladjustment can be a source of frustration, Laycraft (2009) suggest that it may be the driving force behind autonomy. Gilbert (2006) posited that "the secret of happiness is variety, but the secret of variety, like the secret of all spices, is knowing when to use it" (p. 223). Both inward and outward asynchronous development affects learning, and wellbeing.

Challenges for gifted students at adolescence are therefore, accentuated due to asynchronous development. Mandaglio (1995) described the multi-faceted inner experience as intense sensitivity, emotion and awareness that could be expressed outwardly as over-excitable behaviour. Repeated reference in the literature to giftedness as a 'hidden social handicap' underscores the heightened social vulnerability of gifted adolescents (Coleman & Cross, 2014; Silverman, 1991).

2.4.4 Low Latent Inhibition Hypothesis

Excessive neural efficiency is a characteristic common to gifted students that was referred to by Weiner (2010) as Low Latent Inhibition (LLI). LLI provides a neurological explanation for behaviours associated with asynchrony LLI is a neurological condition described in a Harvard study by Cromie (2003) as an inability to ignore irrelevant messages that overstimulate the brain. It is presumed that LLI presents a clouded view of reality that slows thought-processing speed, due to distraction and constant reflection.

Asynchrony complicates LLI, creating an intense awareness, sensitivity and ongoing inner conflict. Cromie (2003) found that although traits differed among gifted students, many shared a tendency toward over-excitability and hyper-sensitivity that made them prone to LLI. For example gifted students who do not display a quick wit, may have a significantly slower processing speed due to LLI. Cromie's study extended further to show links between high creativity in gifted students and schizophrenia that lay beyond this research study.

Creativity is believed to be stimulated by LLI making reality appear more vivid. In a study by occupational therapists Gutman and Schindler (2007), overstimulation for creative tasks elicited a 'blank' response from students with LLI who needed time to process the mass of information. Experimentation with the control of LLI using structured scaffolding helped students absorb the experience.

Csikszentmihalyi (1997) made a reference to LLI saying "flow could potentially help patients to dampen internal chaos and extraneous environmental stimulation that triggers sensory overload" (p. 76). It has been suggested that the control of LLI offers a non-pharmaceutical solution to the strong emotions of anger and frustration experienced by gifted adolescents who struggle with challenges of inner balance.

Kaufman and Baer (2006) attributed excessive physical and mental exhaustion to LLI. Similarly, Weiner (2010) postulated that constant stimulation and the inability to filter multiple stimuli affected memory retention, creating confusion and manic thought in gifted students. An understanding of the neuroscience behind epigenetics, neural efficiency hypothesy (NEH) and low latent inhibition (LLI) guide teaching strategies toward careful scaffolding, and limited distraction by filtering excess stimulus. Understanding giftedness helps teachers to differentiate curriculum for greater engagement and deeper memory retention.

2.4.5 **Forced-choice Dilemma**

In the early years of schooling gifted students are easily recognised by exceptional skill and academic success. As they advance through the middle years of schooling, new skills of integration lean toward sameness and avoiding exceptionality (Eccles & Wigfield, 1997). Bandura's Social Learning Theory (1986) suggests that behaviour is driven by weighing up observed and experienced consequence therefore gifted adolescents learn to disguise talent to avoid high expectations, and gain entry to social groups. Gross (1999) referred to these forced-choice dilemmas (FCD) as changing student behaviour thus altering a gifted student's developmental trajectory.

Gross observed students disguising talent and students consciously under-achieving to gain acceptance into friendship groups where sameness was valued. Gifted students therefore adopt new behaviours and are not easily recognised as they transition adolescence. MacCann, Fogarty, Zeidner and Roberts (2011) identified defence mechanisms used by gifted students as barriers to perceived threats of bullying and rejection. A large (n=1,465) Tennessee study revealed FCD as the most prevalent coping strategy used by gifted adolescents. The study identified ridicule, rejection and marginalisation as new behaviours after exposure to bullying (Peterson & Ray, 2006). Gifted adolescent wellbeing is challenged by social, intellectual and ethical risk when support is not accessible (Shaunessy & Suldo, 2010).

Gifted students are vulnerable to FCD due to tension created by asynchronous development. This was evidenced in a study of gifted students by Pfeiffer (2013), who identified conflict, social rejection, and isolation limited developmental potential. This finding supported Jung, McCormick and Gross (2012) research that showed forced friendships changing behaviour, causing students to mask personality traits, under-achieve and delay development. As a defence mechanism FCD therefore threatens authenticity. To assist educators identifying gifted students experiencing FCD, Dixon, Craven and Martin (2006) have developed checklists for under-achievement, self-concept, expectations and academic locus of control.

2.4.6 **Assessing Giftedness**

Neville, Piechowski and Tolan (2013) referred to highly gifted students as being 'off the charts', acknowledging what Makel, Wai, Putallaz and Malone (2015) refer to as an academic gap between gifted students and age peers. Like the tools used to assess wellbeing, tests for giftedness typically combine the collection of objective and subjective data. Webb (2013) maintained that behavioural traits and advanced expressions used in conversation, clearly identified students as gifted without testing, but argued that formal assessments were necessary to guide differentiation strategies. Controversy remains over whether to assess students, and if so, when and how?

In the classroom, distinguishing good students from gifted students is important. The wellbeing of a good student or a student with high-ability would be challenged if they were wrongly placed into an accelerated learning program for gifted students. Different characteristics of students have been assembled in Table 2.3 to consider distinguishing *good* from *gifted*:

Table 2.3.
Distinguishing good from gifted

A good student:	A gifted student:
• Pays attention	• Is engaged and involved
• Answers questions	• Asks questions
• Will guide the group	• Leads by initiative, intuitively
• Follows instructions	• Works very well independently
• Meets expectations	• Learns beyond what is expected
• Top of the group	• Beyond the group

Concerns raised over gifted students finishing work quickly prompted a qualitative study in the United States (n=16) by Peine and Coleman (2010). They reported bright, bored gifted students waiting in class as likely to develop behavioural issues. Accurate assessment is particularly important when students have two exceptionalities, referred to as twice-exceptional (2e). In addition to having high intellect and creativity as recognised characteristics of gifted students, 2e students have physical, visual, or auditory skill disability. Impairments influence thinking, learning, perceiving or remembering processes (Wormald, Vialle, & Rogers, 2014). The identification of natural intellect and creative or sensorimotor ability in 2e learners is complex, making them more vulnerable to misdiagnosis and under-achievement (Assouline, Colangelo, VanTassel-Baska, & Lupkowski-Shoplik, 2015).

Daniels and Piechowski (2009) showed concern for the diagnosis of hyper-sensitivity and over-excitabilities being misinterpreted when:

> excitement is viewed as excessive, their high energy as hyperactivity, their
> persistence as nagging, their imagination as not paying attention, their passion
> as being disruptive, their strong emotions and sensitivity as immaturity, their
> creativity and self-directedness as oppositional disorder. (p. 439)

Excitable behaviour affects the assessment of students as gifted, when behaviour is mistaken for neurological conditions like schizophrenia and attention deficit disorder (Nagel, 2010). Comparisons were made in the following studies:

- Zigler and Farber (1985) drew similarities between the behaviour of gifted students and students with Asperger syndrome;
- Shaywitz, et al. (2001) noted similarities in high-energy erratic misbehaviour between highly gifted boys and boys with learning disabilities. The study described emotional immaturity that defied social norms;
- Heller (2003) reported students showing excessive concern beyond the norm in response to emotive situations of fairness, injustice and risk;
- MacCann, Fogarty, Zeidner and Roberts (2011) observed over-reactions to social challenges of acceptance and isolation;
- Harrison and Haneghan (2011) documented extreme sensitivity based on unrealistic anxiety and insomnia from exaggerated fears of death.

Frances (2013) estimated that 3% to 5% percent of students receiving treatment for mental and behavioural issues had been wrongly diagnosed. Students had been

diagnosed based on observational reports of behaviour that had not assessed student potential or boredom. Martin, Burns and Shonlau (2010) reviewed studies that had misdiagnosed giftedness, recommending that ranges of aptitudes, and behavioural talent, skill and ability, would provide more accurate assessments.

In the seventies Goldberg's (1972) twelve item General Health Questionnaire used to assess psychiatric illness was replaced with psychometric tests that were able to decipher giftedness from schizophrenia. Holtz (2010) provided an historical summary of intelligence testing that began with the concept of 'mental age' from Binet-Simon's psychometric intelligence quotient (IQ) tests in 1904. Principles of IQ testing were applied in Terman and Oden's (1959) longitudinal studies of genius (IQ+135). Fifty years later, Flynn (1987) used IQ tests to compare education systems across fourteen nations. Tannenbaum (Tannenbaum, 1995) rejected the IQ definition, claiming a lack of recognition for creativity, specific gifts or under-achievement. Nevertheless, a century later, Millar, Dahl and Kauffman (2011) named psychometric testing using IQ as the most widely accepted predictor for success.

In the interim, a range of assessments that incorporate the affective domain have gained favour. Sternberg's (1998) Triarchic Theory of Intelligence was one of the first to shun IQ tests, thus challenging the definition of intelligence. Critics of the theory challenged the equal importance given to cognitive, creative and psychomotor skills (Tirri, Nokelainen, & Komulainen, 2013). Recognising the complexity of developing test batteries to identify gifted students, Sternberg (2016) developed a set of standardized assessments. His Rainbow project (n=1015 students) has trialed the tests in fifteen schools using an ACCEL model (2016): an acronym for Active Concerned Citizenship and Ethical Leadership. ACCEL analysed creative, ethical, practical and 'wisdom-based' skills to group, monitor and predict University entrance scores.

> Promoting higher-order thinking skills in the absence of leadership and active
> citizenship produces high-IQ, abstract analytical thinkers who are paralyzed in
> the face of practical, real-world problems, and often respond in ways that show
> little knowledge of and engagement with, the real world and its people (p. 16).

Torrance and Sisk's (1997) observation that creativity and task commitment were consistent traits of giftedness, contributed to Reis and Renzulli's (2010) development of a Revolving Door model (2012) that assessed all students. From Type 1

enrichment selection, underachievers and gifted students deemed capable of acceleration were offered differentiated Type II enrichment.

Opinions on tests for giftedness reveal *four discordant* views. The first group suggested that testing and segregation into ability groups antagonised social acceptance (McAdams & Manczak, 2015). This is illustrated by the influence of giftedness traits on precocious behaviour in a longitudinal study of mathematics students (Richardson & Benbow, 1990) and studies of forced-choice dilemma by Jung, McCormick and Gross (2012). Lignier (2010) warned that social acceptance was a factor sometimes influenced by parents. His French study evidenced socially well-positioned parents, requesting intelligence testing to obtain personal status through their children. Lignier's study resulted in a change in formal reference to 'gifted students' with IQ scores above 130 in the 1980s to 'intellectually precocious'. The significance of the shift in terminology was to deny precocious parents access to status and prestige.

The second group of studies affirmed the use of testing to identify students as gifted and encourage high goal setting (Csikszentmihalyi, Rathunde, & Whalen, 1996; Grabner, Neubauer, & Stern, 2006). This group acknowledged under-achieving students, who may not otherwise experience an opportunity to thrive. VanTassel-Baska (2007) suggested the need for observational comments to support concrete academic data for a holistic view of progress, to show coping, effort and thriving. Interest in combining domains was stimulated by Gardner's (1998; 2004) notion of multiple-intelligence as a range of abilities, saying:

> the biggest mistake of past centuries in teaching has been to treat all children as
> if they were variants of the same individual, and thus to feel justified in teaching
> them the same subjects in the same ways (Gardner, 2009, p. 564).

Identifying students based on a range of abilities, enabled pedagogically-based interventions that aligned teacher training with strategies and student learning styles.

The third group acknowledged the skill of trained teachers accurately identifying gifted students based on continued behavioural and academic observation (Roeper, 2013). Hernandez-Torrano, Prieto, Ferrandiz, Bermejo and Sainz (2013) Spanish study for example, identified the specific characteristics that teachers recognised in gifted students. Reis (2011) maintained students were clearly identified by their ability to think laterally and solve complex problems. The most prevalent

reference to identifying giftedness in students was to Renzulli and Reis's (2008) Three-ring Conception of Giftedness used to distinguish above-average ability, high task commitment (motivation) and creativity. This simple model replaced formal normative assessment with practical classroom-based performance. Critics argue however, that observational assessment founded on intuition requires the additional imperative of intellectual assessment (Sternberg & Davidson, 2005).

The fourth school of thought did not advocate for identification at all, claiming that it altered the way students viewed themselves, and were viewed by others. This research extended into personality types that included precocious, perfectionist and obsessive behaviour traits. Research into these behaviours was considered beyond the scope of this study, because none of these behaviours were evidenced by this study.

In the last thirty years qualitative assessments of student attitude, self-concept and motivation have used Wechsler's picture arrangement tests (Wechsler, 2005), social factors (Millar, Dahl, & Kauffman, 2011) and self-reporting. Self-reporting was found to be the most widely used data collection method for the assessment of giftedness in adolescents due to the ease of delivery and analysis (MacCann, Wang, Matthews, & Roberts, 2010). Target groups and time available determines the format ranging from Likert-scales, Cantril Ladders, 'yes-no' responses and inventories to checklists that enable respondents to endorse personal statements. The Tromso Social Intelligence Scale (Silvera, Martinussen, & Dahl, 2001) for example, is a quick test that uses twenty-one questions to assess social traits. In a test for validity, Grieve and Maher (2013) were able to deduce a connection between social-emotional maturity and empathy. They recommended the scale based on internal reliability, temporal stability and psychometric properties.

Duckworth and Yeager (2015) however warned against self-reporting for program evaluations. Their study revealed opposing views of 'truth' between self-report questionnaires from teachers and students. Critics of adolescent self-reporting caution that puberty onset interferes with adolescent conceptualisation between genders (Pfeiffer, 2013). Females reported inflated views of creative ability, while males exaggerated physical skill. Students avoiding stigma, subconsciously self-report inaccurately so they are not identified as gifted (Cross, Coleman, & Terhaar-Yonkers, 2014). A study of thirty-two schools in Boston confirmed that adolescents

were prone to inaccurate self-reporting, since high-ability students tended to hold a low opinion of themselves (Duckworth & Yeager, 2015). Voigt and Wechsler's (2014) Brazilian study of gifted adolescents (n=60) showed that formal IQ testing for creativity and intellect did not align with self-reporting. Self-reporting revealed a distorted perception of personal traits and talent. They concluded that idealistic and distorted self-reporting had ramifications for goal setting and career choices. These studies suggest the cautious use of questions for self-assessment. In summary, ongoing rhetoric over a definition for giftedness and the extent of differentiation required for students affects whether schools choose to identify students for gifted programs.

2.4.7 **Paradigm Trends in Gifted Education**

A century ago, educators were challenged with catering to the advanced learning needs of gifted learners, while others in the class mastered the basics (Monks & Pfluger, 2005). Educators have sought strategies to address a range of different conceptions of giftedness (Ambrose, Sternberg, & Sriraman, 2012). This section outlines the functional, temporal and developmental dimensions of three gifted education paradigms from the past century.

2.4.7.1 *Intelligence*

The first of three paradigm trends highlighted in this section, centres on intelligence. In this paradigm, cognitive functioning and intelligence are identified and measured. Terman used Galton's (1869) pioneer work on psychometric testing to calculate intelligence quotient (IQ) as a single number. Simplistic biological measures of head circumference formed part of the data collected for Terman's longitudinal study of genius 1916 to 1959. Using similar tests Hollingworth's (1926) early research posited that an elementary-aged child with IQ140 mastered concepts twice as fast as their age peers, while children above IQ170 (considered genius) completed work quickly then wasted time. She maintained that the optimum intelligence ranged between IQ120 and IQ145 allowed students to do anything in life, yet maintain similar behaviour and interests to others. Hollingworth (1942) claimed that engagement of students in class was vital, since disengaged children did not develop powers of sustained effort, respect for tasks or habits of learning. In this paradigm child prodigies were considered gifted and privileged, despite students in Quart's

(2006) study of child prodigies, viewing talent as a liability. Students were encouraged to practice intensely and excessively with unrealistic demands and high expectations. Quart documented cases of ambitious parents 'hot housing' children for chess, mathematics and music before reaching the age of ten. Findings revealed children developing into worn, depressed adults, with health symptoms ranging from personality disorders to physically self-destructive behaviour. Section 2.3.1 mentioned intelligence being inherited or learned in a supportive environment, with traits of giftedness evident as capacity for logic, fast processing and heightened awareness. The National Association for Gifted Children (2011) viewed the top ten percent of the population in one or more domains of excellence, as gifted.

2.4.7.2 *Talent and Creativity*

In 1970 the gifted education focus changed to a second paradigm, from academics to a focus that included the affective domain. Jensen and Sinha (1992) were amongst many reporting on behavioural intensity, speed of processing and nervous system reaction times using brain scans for this paradigm. The personal benefits of a broader education for gifted students was summarised by Reis (2011) as improved memory attitude toward engagement and fulfilment of potential.

The challenge faced by educators was illuminated by Delors (1996) report to UNESCO that questioned why creative students were asked to comply to static curriculum. Creativity in this paradigm ranged from the arts, to finding a creative solution to a complex problem involving genetics and science, solving peace and social issues, or conflict over environmental sustainability and cultural difference (Robinson, Shore, & Enersen, 2006). With Robinson's (2012) suggestion that creative characteristics set gifted students apart from their peers, students were assessed with a view toward individualised teaching (Makel, Lee, Olszewki-Kubilius, & Putallaz, 2012). To illustrate an example of typical studies undertaken for this paradigm, a biographical study of twenty-three artists by Runco and Pritzker (2011) revealed advanced fluency of expression, flexibility, logic, originality and elaborate problem-solving well beyond their chronological age. Gagne (2013) was the first to differentiate between traits of giftedness and talent using his Differentiated Model of Giftedness and Talent (DMGT) in 1985. DMGT is widely referenced in Australian education documents.

2.4.7.3 *Differentiation*

Students neither learn at the same pace nor are they interested in the same topics. The third paradigm refers to the differentiation required for a student to progress in their learning. Collaborative and individual inquiry-based learning invites creative extension and solutions using inquiry-based approaches. For example, longitudinal studies by Feng, Van Tassel-Baska, Quek, Bai and O'Neill (2005) evidenced improved outcomes for gifted students, using collaborative projects that integrated concept development, critical thinking and mastery of advanced skills. Tomlinson, Ford, Reis, Briggs and Stickland (2004) described differentiation as an ongoing formative process that involved scaffolding, feedback and summative assessment. It involves altering content, instruction and assessment as a response to diverse needs.

Rogers (2012) identified a need for teachers to target a level, pace and degree of cognitive complexity for gifted students, that is unsuited to average ability students. Her work on ability grouping offers effective strategies for the classroom, noting its effectiveness for gifted students, but additional scaffolds and tutoring required for low-ability students. Hattie (2012) recommends starting units of study with a 'big idea' to foster autonomy and enable exploration of a topic in a variety of directions. The Maker model (Maker, Alhusaini, Pease, Zimmerman, & Alamiri, 2015) offers a practical application to expand the big idea to guide:

- content – abstractness, complexity, extracurricular, real-life topics;
- process – complex thinking inquiry-based learning, open-ended, reflective;
- complexity (product) - authentic audiences, feedback, evaluation; and,
- learning environment - complex, flexible, independent, learner-centred.

Writing course, unit and lesson plans using a KUD format, details the Knowledge, Understanding and what students are expected to Do. At a classroom and student level, Coil's (2007) six practical strategies list: ways to work and learn; amounts of time to complete work; approaches to cultural difference and language acquisition; levels of thinking, readiness and ability; assignments for students working on the same topic; and means to access what has been learned. An eleven question self-check from Kaplan (2005) helps teachers to check the depth and complexity of a teaching unit to show the effectiveness of differentiation.

2.5 LEARNING

Although academic competence and mastery are considered the core business of Western education, Eastern Confucian philosophy referred to in Section 2.2 shows the aspects of the affective domain that sustain development and build the competence and autonomy of gifted students. This section opens with a discussion of how learning differs for gifted students (Section 2.5.1). Section 2.5.2 explores self-determination as a macro-theory of motivation. Traditional models for gifted education explored in Section 2.5.3 suggest a need for change based on concern for under-achievement in gifted populations (Section 2.5.3).

2.5.1 Learning for Gifted students

Many believe that gifted students are fast learners with innate curiosity and intrinsic motivation. Although scaffolded instruction is suited to all students, it gains importance for gifted adolescents whose patterns of thought are neither linear nor convergent (Reis, 2011) thus challenging the common myth that gifted students require less assistance (Treffinger, 2009). Studies by Lipman (2012) showed that scaffolding helped gifted students understand purpose and direction, stimulating more philosophic and creative responses than those given by age-peers. To Vygotsky (1978) scaffolding that aligns current knowledge with a new task should be removed as students gain task control.

2.5.1.1 *Zone of Proximal Development*

Researchers have long been interested in improving the process of student learning through interaction with more capable others. Vygotsky (1934) used the term *Zone of Proximal Development* (ZPD) to graph the zone between what students can do without assistance, and what they can achieve with help. Vygotsky (1978), noticed that young children appeared confused by strict instructions about a task involving coloured cards. Older children had no difficulty with the same task, relying on the cards and teacher for assistance. Adolescents completed the task easily with minimal instruction or reference to the cards. The study demonstrated what McLeod (2010) later referred to as 'educational scaffolding'. Paris and Paris (2001) used Vygotsky's reference to describe learning as being "shaped and elaborated through participation

in zones of proximal development" (p. 96). The ZPD of a gifted student has widened by adolescence, looking markedly different from age peers.

2.5.1.2 *Choosing to Engage in Learning*

By adolescence, decisions to engage in learning lie with the student (Davis, Rimm, & Siegle, 2014). Motivated gifted students use a full range of learning resources to fully engage. Use of the term learning resources in a school context has two sources: exogenous and endogenous (Chandler & Ziegler, 2017). Exogenous refers to social contacts, materials and cultural sources, while endogenous resources typically relate to health, goals and personal learning. Some gifted adolescents who lack the motivation of self-determination, consciously choose to disengage. Jung, McCormick and Gross (2012) identified forced choice dilemmas faced by gifted adolescents. The dilemma led many to hide talent to avoid being recognised as different (refer to Section 2.4.3). Nagel (2010) noted that such peripheral connections were important for students to watch and learn acceptable social and ethical behaviour.

Verbal or non-verbal connotation, and positive or negative responses from friends, were referred to by Greenfield (2015) as nature's mechanism for constraining egocentric, exaggerated claims about 'self'. Her study of digital technology revealed that students were unable to build the same resilience or responses from cyber relationships. Curious gifted students who engage for extended lengths of time with books and computers therefore, limit experiences that invite feedback. A reliance on cyber-friends had the capacity to lead to loneliness and an inability to develop authentic friendships. The desire for friendship made curious lonely students vulnerable to disclosing private, personal information online (National Health and Medical Research Council, 2013).

A growing number of studies are exploring an increasingly problematic dependence on computers for work, play and communication. Going online provides an escape from facing social challenges with age peers. Research from Cacioppo and Patrick (2009) linked escapism, loneliness and pressure on the immune system to student dependence on technology. In 2015 (Yu, Li, & Zhang) a two-year Chinese study (n=356) of gifted seventh grade students found that an intense interest in books and computers greatly reduced physical activity, willingness to try new challenges and social contact. The study made connections between technology dependence and

autonomy, anxiety and depression as aspects of wellbeing. A movement class was created to redirect reading and screen-time to outside activities involving new skills and risk. The study evidenced Dweck's (2006) growth mindset when students showed a greater interest in physical activity by eighth grade, then further engagement in ninth grade. Scaffolding new risk and personal communication skills exchanged a reliance on online gaming for greater connection with friends through sport and activities. Mindfulness, meditation and growth mindset are contemporary notions used to promote wellbeing by directing students away from strong emotional states and a reliance on social media. These had not been considered in program planning in the early 2000's at the time of ZEST's inception. Dependence on computers is pertinent to gifted students as a defence mechanism against loneliness. Social challenges can be forgotten by spending time on social media.

Opportunities for social engagement are created by the nature of a school community coming together to learn. DeWall, Baumeister and Vohs (2008) maintain however, that learning about social-emotional development is enhanced by the motivation of skilled staff and an inclusive setting. Social engagement promotes experiential learning that contributes to school satisfaction.

2.5.1.3 *Inquiry-based Learning*

Three forms of inquiry-based learning used to extend students include problem-based learning highlighted by Gallagher (2017), design-based learning for the creation of functional artefacts (Darling-Hammond, 2008) and challenge-based learning (Johnson & Adams, 2011). Collaborative practices offer opportunities to practice real-life scenarios.

Studies in Turkey (Sak, 2011), India (Srikala & Kishore, 2010) and Hong Kong (Yuen & Fong, 2012) have trialled inquiry-based learning approaches to differentiate curriculum for high-ability students. Each alluded to the value of feedback and reflection to ensure that agency for learning remained with students. Ambrose, Sternberg and Sriraman (2012) asserted "perhaps the most critical tactic is to ensure that inquiry dominates the teaching of any curriculum model" (p. 170).

Gifted students characteristically question assumptions beyond the obvious in search of deeper challenges. Challenge-based learning and high possibility classrooms encourage the use of technology to solve real-world problems. Churches

(2009) and Heer (2012) provide practical multi-modal applications of technology using Bloom's taxonomy of learning, to capitalise on abstract associations. Their applications of Bloom's taxonomy continue to map low-order skills of acquiring, sorting, remembering and retrieving, toward high-order thinking skills for problem-solving (Anderson, Sosniak, & Bloom, 1994). Multimodal and multidisciplinary approaches provide gifted students with the scope to extend analyse and evaluate ideas, to enable knowledge application to new contexts.

A comprehensive study of Canadian inquiry-based learning by Friesen and Scott (2013) named teachers as gatekeepers to innovation, who possessed the keys to opportunity. Their study recommended a full systemic review of education, referring to aspects of inquiry-based learning as 'uncomfortable bedfellows' with standardised examinations. Professional development for staff is required to bridge the tension between innovative approaches that embrace social media and technology, and the traditional responsibility to meet student need.

Neihart (2015) pointed out that although intrinsic motivation was evident as curiosity in gifted students from an early age, by adolescence students had been exposed to a range of extrinsic motivation. Gifted students thrive on intrinsic motivation, with less reliance on the extrinsic rewards of reports, certificates or test results (Seligman, 2011). Luthar and Latendresse (2005) went further to associate school reporting with materialism and reduced school satisfaction. Shaughnessy (2013) reasoned that talent, skills and ability developed with student input using inquiry-based learning, nurtured the intrinsic motivation required to develop self-determination for gifted adolescents.

2.5.2 **Motivation as Self-determination**

A field study by Deci and Vansteenkiste (2004) indicated that motivation for learning increased for gifted students when basic needs were satisfied. Constructs from self-determination (SD) theory explored in this section illustrate a connection to gifted adolescent engagement and wellbeing at school through a:

1. Functional base that holds relevance for choice, decision-making and problem-solving (Wehmeyer, et al., 2012). Students explore how to "interact with opportunities to improve their prospects of getting what they want and need in life" (Wolman, et al., 1994, p. 4).

2. Learning focus that offers strategies to optimise competence and autonomy through opportunity (Colangelo & Davis, 2003).

3. Experiential premise as motivation to learn (MacConville & Rae, 2012).

Deci and Ryan's (2008) SD theory originally framed in 1985 combined elements from each of the SD theories. Deci and Ryan believed that competence, autonomy and relatedness, stimulated intrinsic motivation with an outcome of greater engagement. Psychological and social *autonomy* referred to taking independent action, to control the outcomes and mastery of *competence*. Psychological *relatedness* reflected a universal desire to care for and connect to others, thus influencing the quantity and depth of friendships (Ryan & Deci, 2001). They posited that using test results as an extrinsic prime motivator for gifted students' reduced intrinsic motivation. Furthermore, Sokol, Grouzet and Muller's (2013) confirmed that gifted students were intrinsically motivated to assume responsibility for their own learning. Based on information presented thus far, this study posits that the three components of Deci and Ryan's (2008) theory of motivation be explored, to reveal how student engagement supports wellbeing. Each construct is introduced below.

Autonomy and a desire for independence were identified by the European Health Report (World Health Organisation, 2013) as highly desired basic needs that contribute to 'life satisfaction' and freedom from external control or threat. Betts' (1992) interpretation of autonomy acknowledged students as being responsible for their own learning, requiring an ability to think critically, and practice interpersonal and intrapersonal skills. To this end, Australian education aims guide dependent children toward independence and autonomy (Australian Curriculum Assessment and Reporting Authority, 2016). Core skill tests monitor the language, literacy and learning skills of reading, writing, oral communication, numeracy and learning. The Australian Core Skills Framework policy places autonomous learning as the highest level of performance (McLean, Perkins, Tout, Brewer, & Wyse, 2012). In this document, autonomous learners are defined as independent learners with a willingness and capacity to take charge of their own learning. One might predict therefore, that giving autonomy for problem solving to a gifted adolescent, would ignite characteristic creative lateral thinking skills. Although four of the five core skills might be enhanced, oral communication (pp. 118-120) may present challenges due to the psychosocial strength and a command of language structures required.

Increasing autonomy as part of the structured framework, while addressing social challenge associated with the communication of complex ideas, may therefore lead to higher performance outcomes. Social challenge is addressed later in this section as 'relatedness' as an important construct of SD. Cross (2010) reported on social challenges associated with the shift from dependence on parents and teachers to autonomy and a reliance on peers. Chinese studies by Fong and Yuen (2016) and Yuen, et al. (2012) confirmed that many gifted adolescents faced social challenges as they sought independence. Autonomous learning therefore requires well-designed scaffolding to support encounters of success, failure and risk in experiential learning.

Mastery of *competence* and skills are highly valued by gifted students. By adolescence however, the intellectual gap with age peers has widened considerably. Kulik and Kulik (1992) quantified the talent of gifted students at an average of 50% higher than students of the same age, arguing that curriculum could be enriched and accelerated to twice the rate of expected grade competencies. Gifted students therefore operate at significantly higher levels of thinking than their peers. Scaffolded learning could easily be overlooked by educators influenced by myths that suggest gifted students learn easily without assistance (Cross, 2002; Sak, 2011). Davis, Rimm and Siegel (1978) highlighted a concern for units written to broad guidelines that "are primarily based on state standards and do not include the depth and complexity needed for gifted and talented students.

Relatedness is the third self-determination construct of Deci and Ryan's SD that gains importance at adolescence due to their strong desire to belong (Lieberman, 2012). O'Brien's (2012) studies of positive education suggested: "we cannot flourish as individuals in isolation" (p. 120). Studies of music expression have provided evidence of co-curricular involvement being linked to emotional wellbeing, engagement and authentic relationships (Saarikallio, Vuoskoski, & Luck, 2014). In response to a gifted education inquiry in Australia, Munro (2012) claimed: "the multiple groups and cultures to which a student belongs influence the display of gifted and talented knowing and thinking" (p. 2). Also in Australia, McDonald and Star (2008) observed that students who invested time and effort in joining like-minded groups advanced their talent, social skills and overall engagement at school. Displaying exceptional talent at adolescence however, risks identification as different, thus jeopardising acceptance into groups. Studies of stigma and tall-poppy

syndrome by Eliot and Covington (2001) revealed a hesitation to display talent, and a tendency toward self-imposed isolation to avoid social challenge.

A UNESCO study by Adams (2012) identified students socially disengaged from co-curricular activity at school, as being the most likely for early departure. Realising value in socialisation and concern for social avoidance and isolation, a longitudinal study of adolescent health (n=20,000+) in the United States explored the development of a connectedness scale to determine how students network (Chung-Do, Goebert, Chang, & Hamagani, 2015). Home interviews between 1995-6, 2001-2 and 2008-9 identified: school involvement, academic motivation (results), school attachment (absenteeism), teacher support and peer relations as five factors (n=717) influencing school engagement. Constructs similar to the first three are included in this study as objective elements (Phase I) and the final two as interview questions asked of participants in Phase II. Connecting with others, autonomy and learning therefore motivate gifted adolescents at school.

2.6 SYSTEMIC INFLUENCES ON GIFTED STUDENTS

Viewed systemically, school, community and national perceptions of giftedness influence policy and practice. Appendix C (b) shows the first page of a cross-national program comparison of twenty-three nations. Heuser, Wang and Salman (2017) reduced assessments for the study to the binary dimensions of:

- Scholarly vs co-curricular capabilities
- Aptitude vs achievement
- Nature vs nurture
- Individualistic vs collective

The binary dimensions are applicable to the scholarly outlook of a Western school or Asian society that operates as a collective, since both outlooks aim to achieve similar outcomes. Many agree with McClain and Pfeiffer (2012) that using the dimensions to define giftedness provides a starting point for policy and program design.

The philosophy behind gifted education is that students possess inherited potential that can be developed in the school setting. Dai and Chen (2013) noted:

> what drives this paradigm is a deeply rooted assumption that gifted children and
> adults are qualitatively different from the rest of the population, as they show

distinct differences in ways of thinking, social–emotional characteristics, educational needs, and developmental trajectories. (p. 155)

VanTassel-Baska and Brown (2007) assessed the effectiveness of gifted programs by their inclusive practice and support offered to students. A study of best practice in gifted education by Ambrose, VanTassel-Baska, Coleman and Cross (2010) admitted however, that sound strategies for one setting could not be transferred without differentiation. The most successful strategies were informed by research to include broad community partnerships. In Fiedler, Lang and Winebrenner's (2002) words:

There are times when gifted students should be segregated for fast-paced accelerated work. There are times when gifted students should work alone. There are times when gifted students should compete to see who is best. (p. 108)

Evidence in this section has reinforced the value of a systemic approach to gifted education to assist the sustainability of gifted programs.

2.6.1 International Influence on Gifted Education

Key documents generated in the United States catalysed change to gifted education globally. The 1988 "No Child Left Behind" Act (Javits, 2002) was deemed by critics as inequitable for high and low-ability students. The Act drew controversy over ability grouping students (Grossen, 1996) resulting in widespread introduction of mixed ability classes as a one-size-fits-all economic solution (Benbow & Stanley, 1996). Several authors have used the analogy of a glass ceiling being placed on teachers advocating for higher standards (Mendoza, 2006; Roberts & Roberts, 2001). Sykes (1995) reported schools simplifying curriculum to build self-esteem and ten years later Stout (2007) recalled echoes of reference to curriculum being 'dumbed down'. In Australia, an Operation of Schooling Review (Tuovinen, Aspland, Allen, Crosswell, & Hunter, 2007) called for change due to "high-ability children in mind-numbing classes pitched at a level below" (p. 5). Luke (2010) challenged the mediocrity of tasks that failed to challenge or engaged student intellect.

The second document 'A Nation Deceived' was critical of schools holding back America's brightest students (Colangelo, Assouline, & Gross, 2004) suggesting a time lag between research, policy and practice. In response, the Davidson Institute (2011) developed a list of mandates that included academic acceleration. A third document "A Nation Empowered" (Assouline, Colangelo, VanTassel-Baska, & Lupkowski-Shoplik, 2015) supported systemic approaches. It advocated for

increased funding and policy for gifted education. Although it alluded to innovation and higher academic outcomes, directives detailing what, who and how to fit gifted education programs into existing systems, were limited. Finally, the US Department of Education's "Every Student Succeeds Act" (ESSA) required States to choose indicators to address school quality and improve learning conditions (Tempkin & Harper, 2017). In the initial submissions, nine states chose not to include wellbeing-related indicators.

Little has changed since earlier studies by Galbraith (1985) that revealed students feeling misunderstood and plagued by unrealistic expectation. His findings remained unchanged when revisited in 1992 (Kunkel, Chapa, Patterson, & Walling, 1992) and again by Delisle (1994). Failure to deliver equitable problem-based education to gifted students was referred to by Gallagher (2017) that went beyond academic deprivation to be a civil rights issue. Cross, Coleman and Terhaar-Yonkers (2014) advised that more contemporary empirical evidence might drive policy and reduce barriers created by rigid structuring, shifting priorities, and a resistance from adolescents to be identified as gifted.

2.6.2 Research Influence on Australian Education

The effectiveness of current programs on academic outcomes and the wellbeing of students are reflected using global comparison. Mourshed, Chijioke and Barber's (2007) study of twenty education systems for example, revealed a relationship between the degree of central control over school processes and system performance. Australia has compared favourably on the development of models and policy for effective education practice when compared to the USA, UK, Canada, NZ and Norway (Wallace, Holloway, Woods, Malloy, & Rose, 2011) but ranks below leading Western nations (Organisation for Economic Co-operation and Development, 2008) on student outcomes.

Commenting on the 2012 Program for International Student Assessment (PISA) McClarty (2015) stated "the more time talented students spend in U.S. Schools, the lower their performance on international assessments" (p. 3). McClarty (2015) studied gifted students who consistently outperformed their age peers in High school and Tertiary academic tests. Recommendations supported strategies that allowed gifted students to move quickly through school, working with older peers of

similar intellect; reasoning that schools were not equipped to cater for the academic needs of gifted students. Statistics have raised questions about ineffective strategies, with and a search for new proven approaches from abroad.

Building on the notion of education being aligned to wellbeing assessments outlined in Section 2.2.2, the first World Happiness Report (n=156 countries) by Huppert and So (2013) was published in 2012. The large (n=43,000) European Social Survey used the ten indicators from Steer's Happiness Index to assess twenty-three countries. Nordic nations were held in highest regard with Finland's mental health and social wellbeing ranked highest (Tirri & Kuusisto, 2013). In 2016, Denmark was placed at the top of the index ahead of Switzerland, with Australia ranking in the top ten (Helliwell, Layard, & Sachs, World happiness report 2016, 2016). High scores were a reflection of stable economies, advanced social welfare systems with equitable health and importantly, a united positive teacher attitude toward improving education. Conversely, Portugal's lowest score correlates to their unstable economy, low level of education (average 8.5 years) and correspondingly low level of social trust. Of significance in the survey, was the influence of systems on individual wellbeing, and the value placed on education and trust in communities. According to Masters (2016) declining Australian PISA scores align with limited opportunity and socio-economics disparity between social boundaries.

2.6.3 **Australian Curriculum**

Two decades ago Geake (1999) warned the Australian Senate that "subsuming gifted education within 'special needs' may be justified conceptually but makes it harder to see whether gifted education is actually being given appropriate attention" (Item 4.14, p.82). Direction toward a common National vision for education from the Australian Curriculum and Reporting Authority (ACARA) began in 1989, thus influencing ZEST at the time of its inception in 2005. In 2008 the Melbourne Declaration (Curriculum Council) established goals for all States to direct consistency across all education sectors. The two Melbourne Declaration goals of interest for inclusive practice read:

1. Australian schooling will promote equity and excellence; and
2. All young Australians will become successful learners, confident and creative individuals and active and informed citizens.

Within the Australian curriculum, Middle Years philosophy recognises specific needs related to students at early adolescence outlined in Section 2.3. The middle years in an Australian school refers to the first two years of adolescence, aged nine to eleven, in Year five and Year six. It is a time of rapid development when a social sense of belonging shapes identity (Caskey & Anfara, 2014) and school strategies capitalise on inquiry-based approaches to motivate students. In essence, Middle School philosophy supports the deep learning that gifted students seek however, learning is dependent on opportunities to socialise and experience learning in a safe, supportive environment.

The philosophy behind current inclusive practice identifies Australian schools as teaching to diverse learning needs with equity and respect as supportive, engaging places of teaching and learning (Australian Curriculum Assessment and Reporting Authority, 2016). Early concerns cited by Benbow and Stanley (1996) remain however, over the interpretation of equity for groups with different cultural, physical and intellectual needs. Luke (2010) suggests that the broad scope of curriculum and inclusive education policy is open to misconception. Prior to the development of a National policy on inclusion, gifted education was guided by the Disability Discrimination Act of 1992 (Beare, 2010), supported by the Independent Schools Association (2016). The act promoted integration making it unlawful for a setting to discriminate against students. For the purpose of this study, inclusive education and tolerance toward difference are viewed as a crucial support to assimilate gifted students harmoniously into a school community.

The lack of clear directive from National policy however, contributes significantly to uncertainty about appropriate practice and requirements. Gross, Urquhart, Doyle, Juratowich and Matheson (2011) recognised for example, that a lack of understanding about acceleration as a direct barrier to innovation. A general undercurrent of frustration toward progress in gifted education is evident in the literature. Expressed frustration reflects perpetuated myths, poor provision of policy, resourcing and funding. Therefore, legislative change and the wording of policy documents continue to impact classroom delivery and student outcomes.

ACARA (2016) provides an extensive curriculum and assessment guideline organised by grade levels and subject areas. Its three-dimensional design includes learning areas, general capabilities and cross-curriculum priorities. Cross-curriculum

priorities enable policy and programs to be tailored to individual school settings and student needs. Student diversity is the cross-curricular priority that includes gifted education. The terminology for gifted education has changed in recent documents, adding complexity to navigation for teachers. Interpreting information adds a layer of complexity for teachers as they mould the guidelines into localised school directives.

Policy documents however, provide limited guidelines to differentiate schooling for gifted students beyond directives for inquiry-based approaches. ACARA's definition for giftedness references Gagne's (2013) model that differentiates giftedness from talent. The small section on gifted and talented students has been placed beneath 'Diversity' as a cross-curriculum priority in current guidelines (Australian Curriculum Assessment and Reporting Authority, 2016). They are open to interpretation by each State and individual schools, based on local expertise and regional priorities outlined in Section 2.6.3. Limited time allocated to professional development presents challenges for the development and delivery of special programs. ACARA does not offer a specific tool to identify students however, attachments to State education websites offer information giftedness and the concept of acceleration. In Queensland curriculum provisions are made for gifted students using the P-12 Curriculum Assessment and Reporting Framework (Department of education and training, 2017). Progress in the recognition of wellbeing can be attributed to research like the Australian Child Wellbeing Project (Redmond, et al., 2016). Most recently, wellbeing has been embedded into compulsory units for students aged between five and fifteen in Health and Physical Education classes from Prep to Year ten (Australian Curriculum Assessment and Reporting Authority, 2016). Units include focus areas of mental health and wellbeing that complement food and nutrition, health benefits of physical activity, active play, fundamental movement skills and lifelong physical activities. Scope remains for State or school-based initiatives beyond mandated curriculum (Morrison & Kirby, 2010).

2.6.4 **State-wide initiatives**

Due to the expanse of Australia, the needs of schools in each state differ. The Australian curriculum provides guidelines to unify standards, but each state interprets these based community priorities. Some online resources can be shared, but most are developed by State authorities.

In early 2017 contact was made with Government authorities and representatives from the Department of Education and Training in Queensland to gain insight for this research. Two programs that supported school initiatives involving wellbeing were the Learning and Wellbeing framework Engage2Learn (E2L) designed to enhance staff and student wellbeing as a whole-of-school approach; and the interactive video game used to assess social-emotional wellbeing named Rumble's Quest (Homel & Freiberg, 2016). Psychometric analysis (n=3461) of students aged from five to twelve from high, medium and lower socio-demographic bands demonstrated that Rumble's Quest was a valid, reliable measure for informing strategy. The Northern Territory prioritised child safety and the Mind-Matters resource, while schools in Victoria use Kids-Matter extensively. Western Australia promoted whole school and community approaches supported by the Health Promoting Schools Association. South Australia worked with the Positive Education Schools Association (PESA) to report on relationships built by schools as indicators for community wellbeing (School example filed with archive documents coded: 31CB-Z-April, 2017).

Perusal of current programs Australia-wide verified a preference for whole-of-school approaches with monitoring to compile data. A letter of correspondence (coded as evidence 32DB-Z-May, 2017) from the Queensland Minister for Education acknowledged that while no two States used the same instruments, there was a shared interest. Ensuing discussions revealed promise through a desire for States to collaborate in their development of a vision to improve the wellbeing and outcomes of students across Australia.

2.6.5 **School-based Strategies**

Effective strategies for curriculum differentiation consider pace, level and grouping. A study by Vaughn, Feldhusen and Asher (1991) named student withdrawal for individual instruction as the favoured method of gifted education delivery in the early nineties. The Richardson Report (Cox, Daniel, & Boston, 1985) however, referred to pull-out programs as producing the least effective academic outcome for students.

Advanced placement, grade-skipping and early-placement at school or university require rigorous testing with critics citing concerns for organisational

skills and social-emotional maturity (Hewstone, Stroebe, & Jonas, 2012). Grade-based acceleration enables the completion of formal schooling in less time, while subject-based acceleration equates with streaming students by ability in isolated classes. Those who gain mastery of new concepts quickly in one subject however may struggle in another (Dotterer & Lowe, 2011). Tsai explained:

> Gifted students have learning characteristics that are different. They should be matched with differentiated curriculum that is appropriate to their ability level. To match the characteristics of fast learning, options for acceleration should be made available. (Tsai, 2007, p. 94)

Schools have consistently favoured grade-based over subject-based acceleration strategies. Nevertheless, despite sound longitudinal research that highlights the benefits of all styles of individualised programming (VanTassell-Baska & Wood, 2010) sceptics continue to openly contest the need for tailored gifted education programs. Table 2.4 compares the two strategies.

Table 2.4.

Structural intervention strategies

Subject (content) -Based	Grade-Based
Differentiated curriculum	Integrated studies across subject boundaries.
Withdrawal from class	Multi-grade classes: small schools combine grade levels into one class.
Early school entrance: start at an earlier age.	Advanced students join older classes.
Compaction of curriculum: cover regular curriculum with minimal repetition.	Grade-skipping: students reduce time at school and work with older peers.
Select material and mentors appropriate to the student ability.	Use gifted education strategies and high order thinking for all abilities.
Acceleration in a single subject.	Grade telescoping: involves both compaction and acceleration used by the case study school in this study.
Curriculum compaction then advancement based on mastery.	
Advanced placement: teach content and skills designed for a higher level.	Early placement: students complete requirements early then move higher.

Critics of acceleration flag social-emotional consequences for gifted students at adolescence, however the National Association for Gifted Children claim that there has been no evidence that acceleration negatively affected wellbeing. Their claim was supported by numerous studies that demonstrated the benefits of acceleration and a conclusive Dutch study (Hooqevveen, VanHell, & Verhoeven, 2012) that showed minimal differences in the wellbeing of gifted accelerated students (n=148) when compared to non-accelerated students (n=55) aged 4-27.

2.6.6 **Class Strategies**

Silverman (1995) described the reality of gifted students working in mainstream mixed ability classes without differentiation as impossible for gifted students:

> to conform their thinking to the ways in which others think. Some do not 'group' well. Some have difficulty developing relations with others. Some argue continuously because that is the way they learn. Some are intensely sensitive. Some have major discrepancies between intellectual maturity and motor coordination and so appear immature. (p. 3)

Arguments are established for ability grouping and differentiation using acceleration and compaction as teaching strategies.

2.6.6.1 *Ability grouping*

The definition for ability grouping adopted for this study comes from Neihart (2007) as: "any arrangement that attempts to place students with similar levels of ability (skill or intellect) in instructional groups" (p. 333). Educator attention was drawn to ability grouping when Kulik (2003) revealed significant benefits for gifted students, but negative outcomes for low-ability students. Others have argued that socialising with knowledgeable like-ability peers and mentors benefits the development of all students (Rogers, et al., 2015). Robinson (2011) and Coleman (2014) are among the more outspoken proponents for ability grouping.

Many studies focussed on ability grouping have shown improvements in academic performance, social-emotional development and behaviour (Dotterer & Lowe, 2011; Vogl & Preckel, 2014; Brulles, 2010). For example, a large scale study by Tieso (2005) reported significant improvement when mathematics classes were streamed (n=645). Another qualitative research study (n=530) conducted in three public schools (Matthews & Kitchen, 2007) explored the outcomes of ability

grouping for: gifted (like the ZEST case study at Knott School); International Baccalaureate; and high achieving science students. Analysis of academic results and perceptions of behaviour and school satisfaction improved across all groups however, the study also revealed unrealistic expectations placed on gifted students.

Studies of mixed ability classes have also indirectly offered support for ability grouping for gifted students. Research by Preckel, Goetz and Frenzel (2010) cited evidence of poor engagement, boredom, low academic self-concept and under-achievement from gifted students in mixed ability classes. The study supported findings from Sternberg and Davidson (2005) who claimed mixed ability classes denied gifted students opportunity to advance, while ability grouping made differentiated instruction easier.

An earlier study by Soriano de Alencar, Blumen-Prado and Catellanos-Simon (2000) used work content as the variable in two mixed ability classes. Gifted students were distributed across both classes. The first class (x) was given challenging divergent problem-solving activities to extend their thinking, while the control class (y) completed standard tasks with little challenge. All students in the extension group (x) improved engagement and outcomes however the non-gifted students improved far more than the gifted students. The study revealed two findings: first, all students preferred and benefit from extension tasks of high-order thinking; second, gifted students do not excel academically in mixed ability groups. Furthermore, failure to excel affected the self-concept of gifted students.

The Frog Pond hypothesis by Davis (1966) that advocated mixed ability grouping was the foundation for the Big-fish-little-pond (BFLP) theory. BFLP made social comparisons in large studies of gifted students that span twenty-six countries, including Australia (Marsh & Hau, 2003). As protagonists for BFLP Marsh and Parker (1984) originally suggested that gifted students were *big fish* who felt less competent when grouped with other big fish. Studies in Israel (Zeidner & Schleyer, 1999) and Asia (Seaton, Craven, & Marsh, 2008) concurred that BFLP led to lowered self-concept and increased anxiety. The studies imply that academic self-concept was influenced by extrinsic factors, such as competition, personal accomplishment, and the results of those in close proximity. Characteristically, curious gifted students thrive on intrinsic motivation (Neihart, 2015).

The BFLP hypothesis is relevant to this research for its stance on mixed ability grouping. Gross (1997) used BFLP terminology to support ability grouping, claiming that big fish like to swim with other big fish. Again, using BFLP language Martin (2013) likened an unsupportive school ethos to a *pond* that influenced student goal setting and engagement. Makel, Lee, Olszewki-Kuvilius and Putallaz (2015) suggested changing the pond rather than the fish, by providing a rich program and environment.

This section has explored the influence of ability grouping to the wellbeing and motivation of students, and ease of differentiating teaching for staff. Ability grouping is however a structural change that influences the school community due to requirements for resources and funding. The influence of the innovation therefore needs to be carefully considered prior to creating a gifted class with specialist staff.

2.6.6.2 *Acceleration and Compaction*

A meta-analysis of gifted strategies by Steenburgen-Hu and Moon (2011) highlighted acceleration as the most beneficial strategy for gifted students. Over thirty years earlier, Stanley (1978) reported on the reluctance of schools to compact curriculum and accelerate student learning as an international tragedy. Acceleration quickens the pace of learning, while compaction reduces curriculum to its basic concepts and minimal repetition. Ten years later, a longitudinal study of gifted mathematics students by Richardson and Benbow (1990) reported greatly improved outcomes using compaction and acceleration yet, noted these as the least common modes of delivery in schools. Twenty-five years later, Jung and Gross (2015) continue to maintain that the combination of acceleration and compaction produces the best academic results for gifted students. Academic policy developed in the United States have provided guidelines for acceleration (Colangelo, et al., 2010), yet few Australian programs of acceleration have been documented (Munro, 2012).

Limited use of acceleration and compaction has been attributed to complexities surrounding: the identification of gifted students, resourcing, selecting strategies and differentiating assessment (Gross, Urquhart, Doyle, Juratowich, & Matheson, 2011). A study by Rimm and Lovance (2007) noted that teacher confidence and personal ability had a profound impact on willingness to introduce

new strategies. Numerous other studies have expressed concern about the provision of adequate training to assist staff, signalling a need to expand training.

2.7 PROFESSIONAL DEVELOPMENT

This study has argued that broad support for professional development (PD) and preservice training are the most effective method of disseminating uniform information about gifted education and inclusive practice (Lassig, 2009; Ferrara, 2006; Watters, Hudson, & Hudson, 2013). A brief overview of professional development and educational outcomes in other nations gives insight into developing a model for Australia.

Most PD in the United States over the past two decades has been subject-content-related (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). An extensive study of 130,000 public and private school teachers showed a disconnection between PD and practice in schools. Only 14 percent of staff admitted to making a conscious effort to collaborate with fellow staff. Staff perceived a divide between their role and school governance that limited work as a professional community. Countries that placed value on PD shared the feature of making collective decisions, prompting comment from Darling-Hammond, Wei, Andree, Richardson and Orphanos (2009): "the United States is substantially behind other OECD nations in providing the kinds of powerful professional learning more likely to build teachers' capacity" (p. 27).

Global PISA scores in Germany and South Korea increased markedly between 2002 and 2012, while Australian scores dropped. PD in the Netherlands and Singapore attributed impressive improvement on an action research model that enabled teachers to make decisions on lessons, student welfare, curriculum development and evaluation. To achieve these outcomes, staff completed at least 100 hours of professional development per year, in addition to regularly scheduled time for common planning. Darling-Hammond et. al. (2009, p. 19) noted a contrast in Sweden. Despite the provision of PD in Sweden, student outcomes have decreased. Since 2007, fifteen days have been allocated annually to in-service training as a 'Lifting the teachers' program to encourage staff to access university study. Staff support included 80% of their wage for study if they maintained a school schedule with 20% contact time.

In Singapore teachers were expected to work with peers and to mentor in other classrooms for twenty hours per week, in addition to 100 hours of paid PD per year (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009, p. 17). After three years teaching in South Korea teachers are eligible to enrol in a funded five-week PD advanced certificate that attracts promotion and increased salary. After their fourth year, Korean teachers are committed to ninety hours of PD courses over each three-year period. In England, PD for staff on National literacy and numeracy initiatives was credited with raising student outcomes on standard assessments from 63% to 75% over three years (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

Australia has been influenced by the policies and processes of other nations. Policy emanating from America's Marland (1972) report influenced the development of the Australian Government Quality Teacher Program (AGQTP). The three-year staged program attracted AGQTP funding for action research projects, networking and resource development (Gross, 1994; Watters & Diezmann, 2001). The diversity of lighthouse projects reflected the freedom schools have, to shape PD to the needs of different settings (Watters & Diezmann, 2013). Learning co-operatively with colleagues and from experts was valued highly, but few documented cases made provision for structural change. A summary of studies highlighted effective PD as:

- Intensive and ongoing;
- connected to practice;
- connected to other school initiatives;
- collaborative to build strong working relationships among teachers

Blackett and Webb's (2011) Supporting Emotional Needs of Gifted (SENG) model identified five ideal staff qualities to assist their understanding of giftedness, asynchrony, over-excitabilities, forced-choice dilemma and differentiated learning.

Ziegler's heuristic Actiotope model (2013) showed the capacity of professional development to help a community develop a shared ethos. Applications trialled in Europe (Ziegler, Stoeger, & Vialle, 2012) and South-East Asia (Phillipson, Stoeger, & Ziegler, 2013) revealed an unsupportive school ethos, as a competing system of influence on student motivation. Trials used a Health Promoting framework (World Health Organisation, 2013) to explore student attitude toward opportunity. Trials supported Yuen and Fong's (2012) finding that gifted adolescents

benefitted from broad programs with increased social interaction and mentoring from trained teachers; rather than programs with isolated individual focus.

Munro (2012) reminds us that a teacher's stance on gifted students carries implications for pedagogy, suggesting that confidence to differentiate curriculum increases with training and collaboration. His submission to a Victorian Parliamentary inquiry into gifted education stated that student outcomes would not change in schools without offering teachers professional development for differentiating curriculum. Likewise trials of newly developed Australian Curriculum (2016) suggest that without professional development, teachers were ill-equipped to identify and cater for gifted student needs (Henderson & Jarvis, 2016). The study argued for the addition of an elaboration to the Australian Professional Standards for Teachers (Australian Institute for Teaching and School Leadership, 2014) to include giftedness. Fluid definitions for giftedness and changing priorities in schools raise questions about the placement and form of PD.

2.7.1 Teacher Attitude and High Expectations

Early studies by Colangelo and Kelly (1983) fueled an interest in the influence of high expectations placed on gifted students. Kirk, Gallagher, Coleman and Anastasiow (2011) revealed two sets of expectancies working simultaneously in the classroom: what the student expects, and what the teacher expects. Both can lead to unrealistic goals, stress and a sense of failure. In contrast the high yet realistic expectations set by the National Middle School Association (2010) in the United States as "This we Believe!" provide tenants of inclusive, investigative practice.

The Rosenthal effect posits that expectations held by a teacher strongly influence how students cope and perform (Rosenthal & Jacobson, 1996). Van Tassel-Baska and Stambaugh (2010) observed that staff responses toward gifted students modelled inclusive practice, thus influencing responsive behaviour and status amongst friends. Studies by Rogers (1995) and Bishop-Smith, Bothner and Kim (2012) confirmed that stigma, changed status, and unrealistic expectation placed on students led to stress. Widespread documentation of myths and misconceptions illustrate strong links between attitude, expectations and student outcomes.

A United Nations (1998) longitudinal study of adolescents (n=12,000) identified staff empathy and quality relationships as significant protective factors for

student wellbeing. Identifying the important role of teachers has led to many studies on teacher attitude. Lassig's (2009) Australian study showed that a teacher's attitude toward gifted students was significantly influenced by school support, professional development and past experience with gifted people. McCoach and Siegle (2007) included age and confidence as influences that altered pedagogy. A study by Pinto, et al. (2012) on the perception of a 'good teacher' by administrators (n=41) confirmed passion, empathy and staff enthusiasm as the prime stimuli for student motivation.

This study posits that student perceptions of expectation influence how gifted adolescents feel, resulting in an inner-conflict that interferes with eudemonia. The belief is supported by a large study about inner conflict and emotional balance in adolescents (n=2091) by Woodhouse, Dykas and Cassidy (2012). The study found a connection between wellbeing, loneliness and victimisation. Although the study focus was adolescence, an inference was made to gifted adolescents. Another study (n=88) of gifted students by Mattanah, Brooks, Brand, Quimby and Ayers (2012) revealed improved academic outcomes when students received social support to better navigate inner conflict. Studies have therefore evidenced the behavioural, health and social benefits of understanding the unique needs of gifted students. Furthermore, Goleman (2013) asserts that gaps in teacher understanding about the inner turmoil faced by gifted adolescents, places students at risk.

2.7.2 Teacher Awareness

This section develops an argument for professional development that shows a need for confidence in adapting pedagogy to suit the needs of gifted students. The increasingly diverse populations entering schools highlight a need to develop supportive programs and environments (Hudson, Hudson, Lewis, & Watters, 2010).

In a study of teacher awareness, Baudson and Preckel (2016) confirmed two stereotypical images of gifted students that had been proposed by Monks in 1963 (Monks & Pfluger, 2005). The Harmony Hypothesis proposed that some viewed gifted students as superior in every domain, enjoying social popularity and general life satisfaction. Plucker and Callahan (2008) noted that teachers not trained in gifted education, have a tendency to adopt the Harmony Hypothesis, evidenced by their limited awareness of the stigma and challenges that gifted students experience. The second group support a Disharmony Hypothesis, believing that intellectually strong

gifted students suffered from maladaptive social-emotional challenges that render them socially inferior. Both harmony and disharmony hypotheses support an argument for greater understanding of individual need. A teacher's attitudinal stance toward gifted students therefore has significant ramifications for students seeking empathy, staff rapport or advice.

An Australian study (n=200) by Watters (2010) revealed the importance of teacher empathy on helping gifted students make career choices. His biographical interpretive study design identified seven specific staff characteristics that could be developed through professional development. The frustration for students was illustrated by Neville, Piechowski and Tolan's (2013) quotation from a compliant student:

> I have done everything my parents and coaches have asked me to do - expected me to do! Straight A's, success in extra-curricular, well-behaved… but I don't know who I am? (p. 3)

Benefits of effective gifted education programs have been shown to be diminished by a lack of understanding by 'significant others' (Vogl & Preckel, 2014).

2.8 SYSTEMIC MODELS

Many view schools as holistic systems (Section 2.7.1). The ecologist Roger Barker (1968) observed complex and dynamic connections in nature, that informed Bronfenbrenner's ecological theories of networks from 1979 (Section 2.7.2). Section 2.7.3 explores the Health Promoting Schools framework introduced as the Ottawa Charter by the World Health Organisation (1998) in 1984. The framework unites the systems of health and education to address local issues. The final section orientates the study to an Australia perspective. The notion of a holistic approach is explored as a foundation to systemic models.

2.8.1 Holistic Models

A holistic view of gifted adolescent wellbeing explores the influences of larger systems on an individual. Beecher and Sweeny (2008) viewed influences on individual student behaviour over a period of eight years. They reported academic benefits for all students from a holistic approach that used strategies borrowed from gifted education practice. Setting achievable goals closed asynchronous gaps

between gifted students and their peers and generally, raised student outcomes. Figure 2.2 illustrates the range of holistic views explored in the course of this study.
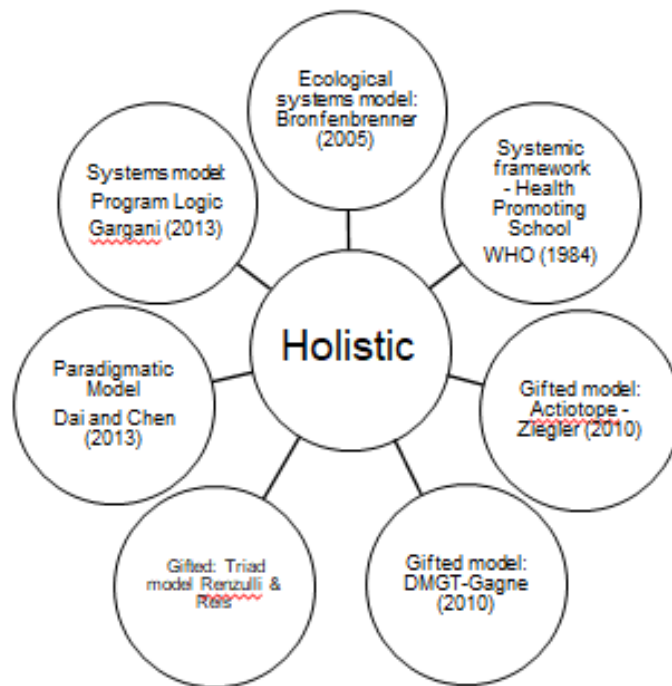
Figure 2.2. Holistic Viewpoints

Socio-cultural studies explore the notion of individuals being reliant on social groups. Ziegler's (2013) systemic Actiotope model has explored similar methods internationally, incorporating a Health Promoting School (World Health Organisation, 2013) framework (discussed further in Section 2.8.3).

2.8.2 **Bronfenbrenner's Network**

As a psychologist rather than a sociologist, Bronfenbrenner used a systemic orientation to view interrelated networks of human behaviour in social groups. Bronfenbrenner's (2005) ecological models explored networks holistically, dissolving barriers between the social sciences, cultures and disciplines. The multiple networks that influence as student at school reflect Bronfenbrenner's notion of a broadly networked system. Relatedness from Deci and Ryan's (2008) SD theory bears a similarity to Bronfenbrenner's (2005) broader concept of networked connectedness between social groups. Bronfenbrenner and Morris's (2006) Bioecological Model of Human Development is detailed in Figure 2.3 to illustrate the relationship between a student's micro-system and school.
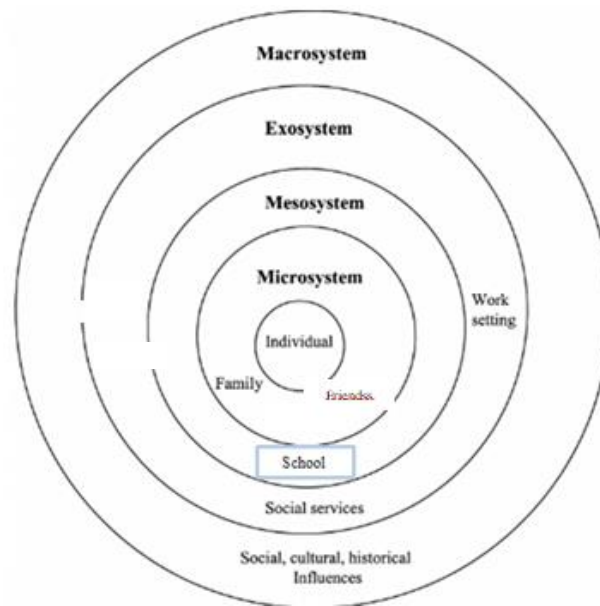
Figure 2.3. Bioecological model of human development

The meso-system, exo-system and macro-systems involve broad socio-cultural influences. Regional and State authorities provide guidance for schools and gifted education at an exo-system level. The macro-system encompasses the notion of National pride and global connections brought together through digital technology. Bronfenbrenner's chrono-system (not visible on Figure 2.3) represents time transition and event patterns that frame the systemic influence.

The decision to engage in learning at school lies within an individual's micro-system. Bloom (1985) found that early messages about setting goals from family and friends had a strong influence that determined talent development in artists, pianists and mathematicians. Such dynamics reflects the influence of the meso-system and proximal associations. Connectivity between an individual's microsystem and co-curricular groups includes sport, music and interest groups. Studies by Van Tassel-Baska and Wood (2010) have highlighted the value in connecting with mentors and others across the school community. Engagement with a range of systems therefore broadens experiential learning, thus highlighting the relationship between socialisation and learning.

2.8.3 **Health Promoting School Framework**

The International Wellbeing Group (2013) defines health promotion as any structured activity that improves an individual's health. Since the 1986 Ottawa

Charter, the World Health Organisation (2013) has consistently highlighted the benefits of combining health and education using a Health Promoting Schools (HPS) philosophy (Appendix J). The Charter documented a systemic approach to connect the wellbeing of students, with the traditional academic focus of schools (Weare, 2000; World Health Organisation, 1998). The International Union for Health Promotion and Education (IUHPE) is a competency-based approach to health education (Barnekow, et al., 2008). IPHPE promotes global wellbeing thus contributing to equity in health between and within countries globally. HPS initiatives address equity for individuals in schools as part of a wider community (Clift & Jensen, 2005; Queensland Health, 2013). Inter-professional boundaries intersect as three sectors:

1. student sector - curriculum, teaching and learning practices;
2. school sector - ethos, school environment and organisation; and
3. community sector - school partnerships (Barnekow, et al., 2008).

At a personal level, students encounter proximal experiences that impact what Bronfenbrenner (2005) referred to as their micro-system. In the school sector teachers assume a facilitating role as students interact (Young, StLeger, & Blanchard, 2012). In this sector, networked relationships and interactions that reflect the school's ethos, organisation and physical setting, make up Bronfenbrenner's meso-system. Rowe (2006) recognised such networking as a sound infrastructure for students to gain a sense of belonging. The wider community sector incorporates partnerships pragmatically, with culture and local businesses, social media and support through broader global and digital exo-systems (Gugglberger, 2011). HPS sectors therefore have parallels to Bronfenbrenner's systemic models, identified by this study to illustrate connectedness. Fane's (2013) image of a HPS nurturing cognitive development alongside social, emotional, physical and spiritual wellbeing is consistent with the vision for gifted education shared by this thesis.

Australia adopted the HPS framework in 1994 to address a range of health issues illustrated in this section (Davis, Dommers, & Cooke, 2002; Mukoma & Flisher, 2004). The Australian HPS vision (2015) states that:

- Good health supports lifelong learning;
- Positive educational experiences and outcomes contribute to wellbeing;
- Students learn best in a safe, responsive and empowering environment; and,

- Social justice and equity are fundamental to learning and wellbeing.

Establishing sound policy remains the foundation of the HPS approach. The use of policy to develop a shared ethos evidenced in Long, Barnett and Rogers (2015) study reported on quality and scope for gifted education in ten secondary schools. Qualitative analysis from principals (n=10) gifted coordinators (n=11) and teachers (n=37) revealed challenges when school policy did not support:

a) Student identification to allow adequate differentiation or inclusion;
b) Implementation that aligned with existing systems;
c) Staff time to enable networking and design of programs;
d) Resourcing and ownership for establishing a sustainable design; and
e) Incentives to attract adolescents who did not want to be identified as gifted.

HPS projects in regional Australia (n=12 schools) identified smoking, alcohol and sun-protection as community concerns (Lynagh, Knight, Schofield, & Paras, 1999). Reports showed the development of policy to build awareness, provided preventative measures that reduced health risks (St.Ledger, Young, Blanchard, & Perry, 2010). In each case a co-ordinator networked the three sectors at a community, school and student level. Clift (2008) used reviews from projects to develop practical guidelines to apply the HPS framework, noting that embedding programs within existing systems improved sustainability. Clift and Jensen (2013) trialled comprehensive health education programs to mend broken school and community networks. They concluded that united community goals were vital to garner broad interest in healthy outcomes.

India and Hong Kong provide three examples of such an approach using high school Life-skills education programs. Classes formally taught tolerance and psychosocial competence in the form of adaptive and positive behaviours. Adolescents collectively learned: "the ability to deal effectively with the demands and challenges of everyday life" (Manjunatha & Saddichha, 2011, p. 78). The first study example from India by Srikala and Kishore (2010) highlighted an awareness of support systems for wellbeing. Life-skills classes empowered adolescents with significantly better self-esteem, coping, adjustment and prosocial behaviour. Findings supported early research behind the establishment of HPS by the World Health Organisation (1997). A second study of adolescents in Hong Kong used Deiner and Chan's (2011) theory of happiness and longevity in a HPS framework. Realistic goals were set to build social life-skills and purposeful connections across

the school community. In the third study, Yuen and Fong (2012) used Ziegler's Actiotope model to view factors influencing school connectedness maintaining: "exceptionality grows when persons and their subsystems interact and adapt continuously until equilibrium is reached" (p. 120). Examples used a holistic approach that introduced policy with clear goals and shared school ethos.

Dissonance toward HPS have raised a range of issues with HPS implementation (Rowling, 2005) summed up by Fane (2013) as three ongoing barriers: traditional operational structure of schools, teacher skills, and resourcing. Consideration for barriers and practical guidance presents HPS as a viable systemic framework to address the wellbeing of gifted adolescents. Such a model may hold sustainable benefits for an entrenched malaise toward gifted education.

This section has illustrated global applications of the HPS framework. Success with health-related issues in some contexts have acknowledged the advantages of a co-ordinated approach to establish school policy and build networks in the three HPS sectors. Sutherland (2012) was critical of innovation attempts for gifted education that tinkered at the edges, but joined with others in supporting a complete paradigm shift, toward a systemic approach that is consistent with a HPS framework (Neville, Piechowski, & Tolan, 2013; Yuen & Fong, 2012; Ziegler, Stoeger, & Vialle, 2012).

2.9 PROGRAM LOGIC MODEL

This section introduces the Program Logic Model (PLM) to organise planning, documentation and reflection on gifted education programs. Tremblay, Brousselle, Richard and Beaudet (2013) recommended the use of PLM at different points in time: prior to project introduction, implementation, and evaluation for large and small-scale projects. Gargani (2013) showed how program input components were categorised as theory and practice to allow the flexible addition of new information. The program input for this study includes theories, data, sources and methods. This study models the use of PLM as a 'Progress Map' to organise content for the start of each new chapter (Figure 2.4). Progress maps show direction and the division of components into theory (inputs) to support practice.
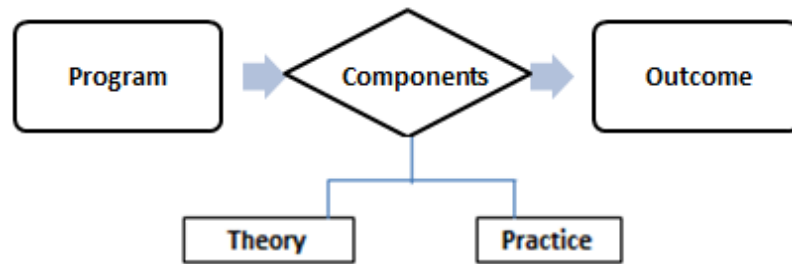
Figure 2.4. Program Logic Model

Each iterative step of the study informs the next using Plucker and Callahan's (2008) notion of reflection leading to interim program outcomes. Interim outcomes establish a link between chapters that provide built-in points for reflective evaluation. Figure 2.5 shows how PLM format has been used to develop three chapters of the study. Line 1 shows how Chapter three places methodology theory into practice to determine data collection methods. Chapter four *components* were data from archives, used in practice to develop interview questions as an interim outcome. Interview questions were used in Chapter five to gather evidence to develop the case study. Chapter six then triangulates archive and interview data for the discussion.
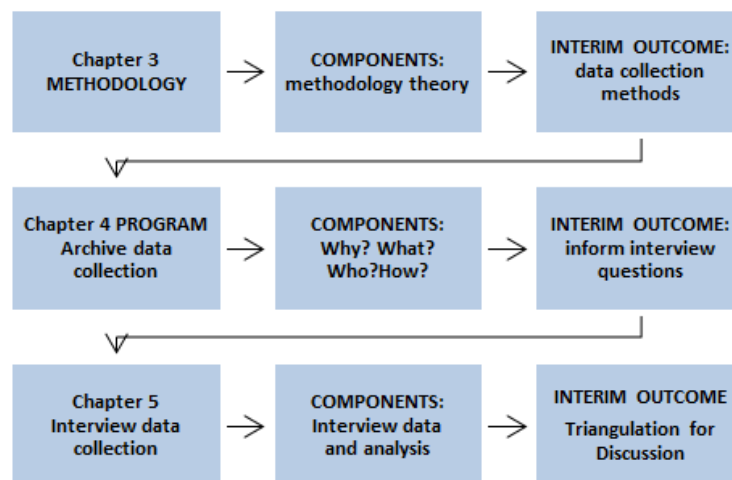
Figure 2.5. Development of Progress

As illustrated, progress maps do not have to be rigid. Use in this study shows their capacity to accommodate fluid change with new ideas as 'components' in loops of reflection. Its use as a Progress Map for this study responds to criticisms that PLM has the potential to be restrictive like cause/effect scientific models, that are based on assumptions and predetermined components. The rigid use of PLM would have

limited the flexible inclusion of fresh data as it emerged. After the literature review of Chapter two, a Progress Map will be presented at the start of each chapter.

2.10 PARADIGMATIC MODEL

The Paradigmatic Model is introduced to compare gifted education paradigms with the existing ZEST model in Chapter four, to compare trends and revised ZEST model in Chapter six. Dai and Chen's (2013) Paradigmatic Model in Figure 2.6 uses four questions to offer conceptual clarity.

The *theoretical wing* offers information about the nature and assessment of gifted programs to establish a rationale, need and purpose. The *practical wing* applies knowledge to show how change can be implemented. Differences in approaches to gifted education enable grouping within the gifted paradigm.
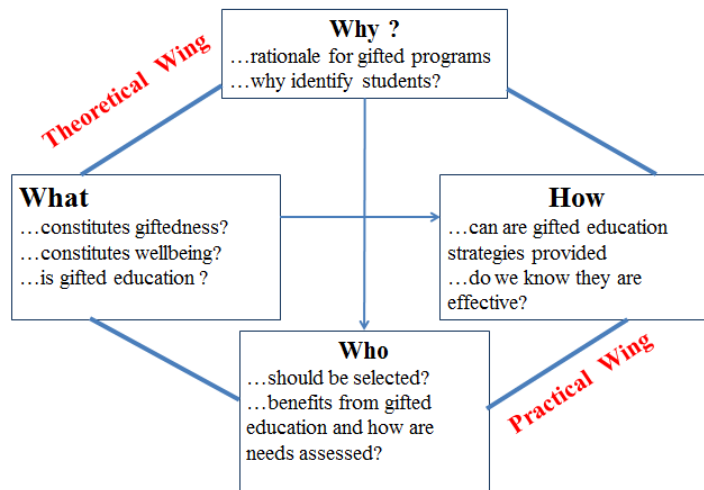
Figure 2.6. Paradigmatic Model applied to gifted education

Using a similar comparative model, three paradigm trends that have governed gifted education for the past century are summarised by Yun (2013) in Appendix C (a).

2.11 REFLECTION ON LITERATURE

Gifted ontology has been viewed through health and education lenses, laying a foundation to explore gifted adolescent wellbeing. In the context of the study, wellbeing includes physical, mental and social-emotional states. Past research suggests that gifted adolescents face different challenges to their age peers due to asynchronous development. Studies have indicated that empathetic teachers and a

well-designed holistic program provide for student needs as they traverse the social-emotional challenges of adolescence.

The school setting and personal attitudes have a strong influence on happiness and wellbeing based on socialisation and academic outcomes. Developmental change at adolescence is dynamic as opposed to remaining static based on inherited traits. The endemic under-achievement and under-detection of gifted students provides the motivation to research and reform gifted education (Phillipson, et al., 2009). As indicated by Ambrose, VanTassel-Baska, Coleman and Cross (2010) the lack of progress in gifted education does not reflect the commitment of educators, but a lack of clarity between philosophy, theory, research and practice. The current climate of educational instability creates an opportunity to enact change and quell enduring myths that present ongoing challenges for gifted students (Assouline, Colangelo, VanTassel-Baska, & Lupkowski-Shoplik, 2015).

This research has introduced the notion of using a systemic approach for gifted education. Large scale studies by the World Health Organisation (2013) and United Nations (2011) have shown the value of communication skills at adolescence. Bronfenbrenner's systemic model highlighted the co-dependence of health and education networks as influences on students. The Health Promoting School model provides a co-ordinated framework to address issues such as the wellbeing of gifted adolescents at school. The trend toward greater diversity in schools highlights the important role inclusive education plays in program development. PISA results indicate that further innovation is necessary for Australian schools to keep pace with the education outcomes of other nations (Masters, 2016). Chapter three outlines the study design used to present school-based evidence from Phase I of the study in Chapter four and participant voice in Chapter five, from the existing ZEST program at Knott School in Australia.

Chapter 3: **Study Design**

The design of this study was governed by ethical considerations surrounding the collection of data in a school context and a ticking time line. Staff transfers and student graduation threatened access to participants as time progressed. The research aim was to frame a case study around participant perceptions of a gifted immersion program as a shared experience at Knott School. The program has been referred to throughout this study as ZEST. Their vision was to improve the motivation of gifted students by balancing academic and social-emotional development. My interest in the wellbeing of students since the initiation of ZEST in 2005 has gained momentum, fuelled by qualitative research that links student health to educational outcomes (McLeod & Thomson, 2009). Findings from this study will contribute to contemporary research from Bergold, Wirthwein, Rost and Steinmayr (2015) and Jones (2013) that explored the health of gifted adolescents in the middle years of schooling.

3.1   **INTRODUCTION TO STUDY DESIGN**

Two study phases contribute distinctly different data:

- Phase I archival documents and two key staff interviews; and
- Phase II contemporary staff interviews and student focus groups.

Each phase was explored using qualitative methodology (Section 3.2). The synthesis of evidence from each phase contributes to an historical case study. Methods used to source and treat data outlined in Section 3.3 support Phase I evidence for the first research question: *What guiding principles informed the development of a program for gifted adolescents?* Phase I data established a time line for ZEST giving insight into questions to ask participants in Phase II. Section 3.4 outlines supplementary data collected using personal notation. Section 3.5 outlines coding developed for Phase I archival data that includes academic, co-curricular and health records. The decision to include absenteeism records as a reflection of good health and school satisfaction was supported by Tempkin and Harper (2017). Phase II (Section 3.6) verified and expanded evidence to explore a second research question: *In what way did the program influence gifted adolescent wellbeing?* Phase II data was gathered using

semi-formal interviews detailed in Appendix D. Interviews from staff and student perspectives are developed to reflect the influence of eudemonia, giftedness and motivation on wellbeing. Section 3.7 outlines the organisation of the database that links chains of evidence. The analytical framework developed for this study, helped to organise secondary analysis and triangulation. Experiences from the gifted program that contributed to student wellbeing remain the focus throughout the study. Figure 3.1 Progress map shows the 'theoretical' and 'practical' components of the Chapter that leads to an 'interim outcome' as a plan for data collection.
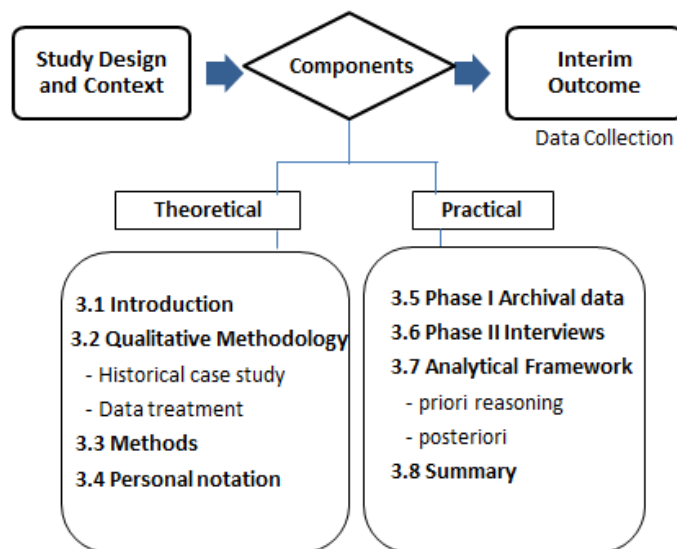
Figure 3.1. Chapter three study design Progress map

Theoretical foundations in Phase I detail the program initiation, enactment and reviews, drawing on principles and processes of the ZEST model developed from 2002. The practical application of Phase II involved interviews that explored the academic, social and emotional experiences of participants from the program beginning in 2005, over a period of six years until 2010.

3.1.1 Researcher

At the time of my initial contact with Knott School in 2004 I was unaware of the ZEST program. Following routine entry tests to the school, one of my children was invited to join the first ZEST gifted immersion class. Out of concern over the newness of the program, I observed progress with interest from a comfortable "arms-length" distance. As a parent my concerns were centred round expectations, workload and stigma of how others might view the class. Students settled quickly in 2005, working well as a class with a rhythm of shared enthusiasm.

In 2006 I accepted a Senior-school teaching position at Knott School, on the opposite side of the large campus to the enrichment hub. The role was therefore separate yet peripheral to the gifted program, providing what Doyle (2012) referred to as distance, to allow a capacity to think freely. A range of student experiences and changes to the program were observed from a comfortable physical distance. Occasional casual interaction with gifted students did occur in the course of professional duty. Concern for the wellbeing of many of the students prior to entering the gifted class and watching the surge of renewed enthusiasm shown by each new cohort, prompted interest in further investigation.

Meetings with families prior to 2005 program commencement offered an opportunity for students and parents to speak with like-minded families. At these gatherings it was quickly evident that students selected for the class, shared traits of intense curiosity, being industrious, always busy and excited by challenge. It was comforting to meet parents who shared the experience of children having traits that appeared different to age peers. A sense of reassurance was perceived from parents when the following objectives for the program were revealed at an early meeting: to encourage holistic development by helping students to balance social endeavours with their busy academic, social and co-curricular activities. The decision to join the ZEST immersion appeared easy for families attending promotional sessions, especially when their gifted children openly expressing a desire to attend.

Involvement with ZEST catalysed an interest in student wellbeing that had developed over a career of thirty years teaching Home Economics to secondary students. Following the Year twelve graduation of the first cohort in 2011, I embarked on this study to explore the impact of the ZEST immersion on student wellbeing at a deeper level. Insider status held implications for the quality assurance of this research study, due to access to data, direct observation and sole researcher status (Doyle, 2012). Consequently, advice on insider status from Dwyer and Buckle (2009) concerning the importance of reflexivity was acknowledged from the outset. Reference to my connection as a *parent,* from a staff member, gave a poignant reminder of the importance of establishing researcher credibility. I was acutely aware of the importance of neutrality as sole researcher. In response, meetings formally scheduled with participants enhanced authenticity for the study and my integrity as a researcher. Conversations opened with an overview of the purpose and focus of the

study. Judgment held potential for fluctuation between a position of strength and bias so I was cautious not to raise preconceived opinions, to acknowledge Eisner's (1998) notion of connoisseurship.

A detachment from participants maintained during interviews suspended the potential for bias or judgement. Of equal importance was the early establishment of confidentiality to increase conversation flow and reinforce trust. Rich exchanges were filled with what Simons (2009) described as thick description and I felt privileged that participants were so generous with their reflective thoughts. Having only one meeting and limited time with each participant highlighted the importance of accurately capturing the essence of each encounter.

Observing ZEST over time through insider status offered a wide lens that magnified my view of the program as a sub-system within the wider school system. The key benefit of sharing the same setting with participants was the ability to particularise as opposed to generalise journal notes (Section 3.4). Holloway and Biley (2011) used an etic perspective analogy as a 'view from the outside' that held different advantages to an emic perspective's contextual knowledge about a setting in its natural state. The positive benefit of emic familiarity was the holistic view of a broad system including archived material (Section 3.5) and meetings with participants.

Creswell (2012) cautioned about internal consistency and ethical consideration affecting the framing of questions for qualitative data collection and analysis. Questions compiled carefully avoided cross-referencing of a personal nature (Section 3.6.1). The integrity of interview questions was checked for relevance and phrasing to avoid leading statements, then again for bias at the time of transcription. Transcribing interview recording myself helped to monitor 'Pygmalion-effect' (Rosenthal & Jacobson, 1996) by re-checking for bias or preconceived ideas. Participants were offered access to documents to verify accuracy but transcripts remained the property of the researcher. Extensive teaching experience has nurtured ethical clarity to minimise concern.

3.1.2 Ethical Clearance

Insider status was carefully considered as part of the ethical clearance process. Concern highlighted by Mercer (2007) about bias and conformability were relevant due to the sole researcher status, school context, age of participants and style of

transcription. A memorandum of understanding was established between the Queensland University of Technology (QUT) and Knott School in 2011. The school agreed to support the study and allow access to archived data, students and staff.

Following ethical protocols ensured privacy, confidentiality and anonymity by minimising predicted risk. Data were cleansed and coded to de-identify people and places, and to establish a clear audit trail to reference primary data (Minichiello & Kottler, 2010). Original transcripts were stored to abide by ethics convention. The University Human Ethics Research Committee granted ethics clearance in April 2012 with approval number 1200000184. Appendix F presents a copy of the approval, filed as part of a 'Participant information package'. The package includes forms and emails prepared for students, staff and parents. Ethical clearance signalled the start of data collection from school archives for Phase I that year and questions for participants in Phase II in 2013. Parental consent was sought prior to contact with students under the age of eighteen.

3.2 QUALITATIVE METHODOLOGY

Social inquiry methods enriched by qualitative methods were suited to the study of gifted students in a school setting. The study reflects Miles, Huberman and Saldana's (2013) reference to qualitative methodology as the collection of data from a natural setting, emphasising the importance of internal consistency, a search for patterns and the absence of bias. The process reflects Minichiello and Kottler's (2010) view as an adventure with twists, expectations, surprises and unforeseen circumstances that are open to interpretation. Roeper (2013) championed the use of qualitative methods that provided deep insight into the inner experience of gifted students. From a methodological perspective qualitative data supports and refutes claims of existing theory to formulate new ideas.

Insight gained from archival documents in Phase I were expanded through deep questioning about the personal perceptions of ZEST participants in Phase II. Data were gathered and interpreted as patterns to derive meaning (Denzin & Lincoln, 2011). Methodology deviated slightly from traditional interpretation due to the historical nature of the data. Purposeful decisions made reduced the risk of bias, internal political abrasion and concerns of critical intent from stakeholders.

The study was not reliant on quantitative test instruments or questionnaires which may have missed rich data or constrained the direction of research (Holloway & Biley, 2011). Qualitative methodology supported the sensitive understanding of wellbeing using what Schwandt (2007) referred to as 'verstehen'. Adopting verstehen ensured that the study of six consecutive cohorts of ZEST did not evolve as an evaluation. Instead, constructs outlined in the analytical framework (Section 3.7) explore the wellbeing of gifted students as a case study. Refining further Gall et al. (1996) described "the in-depth study of instances of a phenomenon in its natural context and from the perspective of the participants involved … a case is the particular instance of the phenomena" (p. 545). Qualitative methodology was favoured over quantitative to enable a triangulation of rich primary data from multiple sources.

3.2.1 Historical Case Study

Case study methodology from Flyvberg (2011) and Yin (2014) provided the vehicle for unified analysis. Collecting data retrospectively deemed the study as historical thus benefitting from a broad lens of archival records, and participant memories about before, during and after ZEST. Data were collected, coded then deconstructed for analysis. Finally, evidence was reconstructed into an historical case with predominant reference to Yin's (2014) exploratory methodology, mimicking anthropology of 'what happened'. Similarly, Schwandt (2007) referred to case studies from the fields of medicine and education as detailed, accurate, bounded chronicles. Writing the historical case necessitated a maintained distance, for conceptualisation as a whole.

Concerns about the consistency and stability of the case as an interpretation of participant stories were identified and addressed (Simons, 2009). Stories have been used historically to pass-on knowledge and values through Australian Aboriginal dreamtime and Canadian First Nation legends (Friesen & Scott, 2013). As a holistic approach, learning radiates from imprinting at an early age, to modelling through adolescence with stories contextualised as art, song and movement. Contemporary studies have used the narratives of gifted adolescents to reveal personal renditions of their search for position in social groups (Watters, 2015). Simons' (2009) belief that we learn from well-told stories from an early age is reflected in these methods. The

importance placed through history on interpretation of stories strengthened my resolve to use narrative as a reflexive approach in my presentation of the case study.

In summary, this research was considered 'historical' because of the use of archival evidence from 2001, through the program study years 2005 to 2010 and interview phase in 2013 after all participants had completed the gifted immersion. The accuracy of interview and focus group data was reliant on memory and participant recall. Triangulating sources meant that student, staff and archival evidence were explored, compared with existing studies, confirmed and refuted using new research.

3.2.2 **Data Treatment**

This section gives a brief overview of the sourcing, coding and analysis of data using Yin's (2014) sensitivity and attention to detail. Four of Yin's explanatory techniques were used to code data as it was collected, including: time-series analysis, pattern matching, building explanations and linking data. Data organised into raw coded files were cleansed to maintain anonymity. Having one researcher responsible for the collection and collation of data maintained quality control and internal consistency. Figure 3.2 flow chart shows the continuous processes of data collection and analysis.
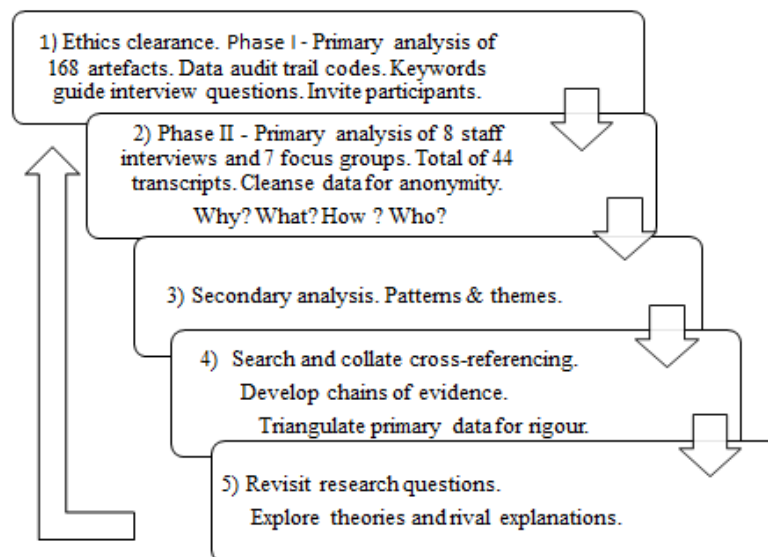
Figure 3.2. Stages of analysis

The arrow on the left-hand side shows the cycle of hermeneutic secondary analysis using an a priori approach referred to by Chadwick and Cazeaux (1992). Data relating to the first research question are reported in Chapter four. Phase II addresses the second research question in Chapter five. Secondary analysis and cross-

referencing provided checks for accuracy across multiple sources. Existing theories about needs, wellbeing and self-determination offered valuable constructs as codes to sort data. New discourse was stimulated as themes emerged.

3.3 METHODS

The study was conducted in two phases, drawing from a collection of 168 artefacts and fifteen transcripts. Appendix G (a) lists the archived evidence and two key stakeholder interviews in the coded data bank for Phase I. These interviews (n=2) were with staff who had left the school. Phase II comprised staff interviews (n=6). All staff interviews and seven student focus groups (n=36) are itemised in Appendix G (b). The research study involved a total of forty-four participants. Data collection methods listed in Table 3.1 show the data collected for both study phases.

Table 3.1.

Data collection for each study phase

	Collection Sources	Data Analysis
PHASE I	**Archival Data Sources** 168 items from 2001-2012 including: promotional material, original proposal, published papers, correspondence, evaluations, publicity, meeting notes, school records, unit planning, student artefacts, e-folios, Power-points and journal entries. * note 2 early interviews from Mr Sapphire/Mr Silver	**Primary analysis** 2011-2012 Key dates, stakeholders, ZEST policies and principles, aims, objectives, evolution, model, structure and theories. Tallies of co-curricular involvement and absenteeism. Program initiator and teacher of the first ZEST cohort.
PHASE II	**Interview Sources** (15 transcripts) 5 Staff interview transcripts 3 Interviews from other stakeholders (*including 2 early interviews from Phase I) 36 students in 7 focus groups	New primary data 2013 and **Secondary analysis** to identify subjective and objective elements, constructs, attributes and indicators as patterns. Triangulation of sources. Hermeneutic treatment of data.
	44 participants in total	

The cross-section of staff and students invited from each class represented a mixed gender of participants across six consecutive ZEST cohorts. Data cleansing performed at the point of data entry removed names, to create the tabulated register

(Appendix G). Files were coded by date and source to provide an audit trail for reference as analysis became more convoluted. Personal journal entry notations added clarity to archive analysis and participant interviews, to result in a holistic view of ZEST.

3.4 PERSONAL NOTATION

Written personal notations supported each phase of the study. Original evidence was deemed to constitute primary data, as for the notion of a forensic investigation, since direct quotations ensure adherence to fact, accuracy and authenticity. Notes were added to a journal diary and to interview transcriptions when clarification was required, for example, unsubstantiated comments, participant 'hidden agenda', anomalies, or visible inconsistencies in memory recall. Observational entries were inspired by Colangelo and Davis (2003) writing: "before Galileo or Einstein attempted to measure the properties of the universe, they first built theories grounded in observational data" (p. 8).

3.4.1 Journal Diary Entries

Journal diary entries offered an accurate time reference and reminders of emotion, relationships and circumstance. They provided a clear time-sequenced audit trail for chronological referencing and were not originally intended for use as primary data. Some were useful however, as in the referenced excerpt from Fred in Figure 3.3. Fred visited the staffroom to offer more information the day after his focus group interview.
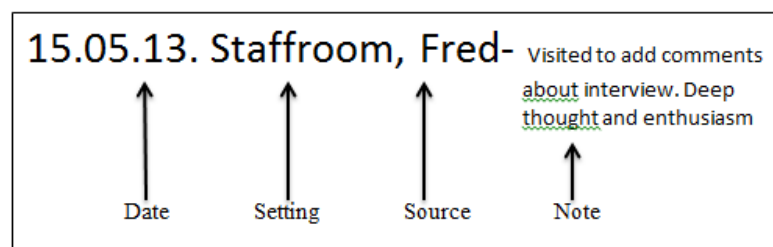
Figure 3.3. Journal coding

Another conversation with Fred that occurred spontaneously on playground duty over a week later prompted another journal entry. The entry noted that Fred appeared nervous but sincere in his initiation of the conversation. The content of the conversation was not as relevant to the study, as the fact that Fred made the approach to divulge information. In this instance, insider status of the researcher made it

possible to attract unsolicited comments in the course of conversation. Likewise, perceptions gleaned from teachers, heads of department and parents contributed to knowledge about student attitudes and networking at school. Journal entries written throughout the period of research placed insights into a context. A timeline developed through Phase I was able to be cross-referenced with Phase II data.

3.4.2 **Transcript Notes**

The pace of semi-guided conversations with participants provided short, quick responses that benefitted from the addition of post-interview journal notes. As illustrated in Table 3.2 organisational notes were added to transcripts as 'indicators' to establish sequence, non-verbal signals and context at two points in time: immediately after each interview and during transcription. Ten minutes was allocated to write observational notes after participants left the interview room.

Table 3.2.

Journal entry examples of indicator codes from different sources

Source Date/ cohort	Source: Transcript notes	Organisational sequence	Word Indicators
12.8.13 (2016)	Fred looked exhausted. Puffing on arrival from the morning sports carnival. He apologised but indicated his enthusiasm for being invited to the focus group.	Descriptive	Positive attitude Curiosity
12.8.13 (2016)	Fay appeared very *excited*. Eager to interject then often apologising. She was bubbly and well accepted by the group.	Building	Over-excitability Eudemonic
18.8.13 (2014)	Daisy watched Dan intensely. She appeared to disagree but chose not to speak - seems a little cautious of him.	Interpretation	Eudemonic Emotion
25.8.13 (2010)	Albert indicated that the deep *trust* established within the class group early in the year made him want to work.	Theorising	Trust
25.8.13 (2012)	Bella took longer to *trust* friends, which affected her *engagement*, motivation and acceptance of *acceleration*.	Conclusion	Trust Engaged Acceleration

Personal transcription of meetings within forty-eight hours provided an opportunity to add additional interpretive insight to contextualise journal notes. Staff interviews were longer than student focus groups, offering detailed vignettes with contemplated concerns. Student focus groups with multiple participants, benefitted from the addition of comments about personal traits and gestures to assist recall for the researcher. Identification, cleansing and line numbers for all digital documents were checked at the time of digital filing. The first column in Table 3.2 lists the interview date followed by the bracketed graduating year of the participant. The graduation year gives an indication of the age of the participant. For example, Albert from the 2010 cohort was in Year twelve, whereas Fred from the 2016 cohort had recently emerged from the immersion into Year eight. The organisational sequence helped to re-shape data following analysis. Indicators were made up of words (noted in italics) or inferred as subjective coding. Overlap between indicator codes helped to group quotations into patterns so that transcripts could be revisited thus drawing related quotations together. Archived documents explored in Phase I informed data collection methods for interviews in Phase II.

3.5   PHASE I DATA

The purpose of Phase I was to address the first research question and inform participant questions for Phase II. Evidence provided a time line, an understanding of the principles and practices of ZEST. Primary data accessed from printed and digital sources included school system archives, staff records and published papers that were archived for record-keeping. Two early interviews were also conducted with key additional stakeholders (Section 3.6.3.3) who had initiated the program and had since left the school. These interviews were not structured or digitally recorded but contributed considerably to the establishment of the time line and evolution of ZEST.

An audit trail of collected data is presented as Appendix G (a). Iterations for data collection involved:

1. preliminary reading to scan for facts and key dates;
2. identification of stakeholders in preparation for Phase II;
3. documentation of background and contextual detail;
4. examining decisions that led to changes in the evolution of the program;
5. interpretation of relevant events; and

6. guidance to develop interview questions for Phase II of the research.
Original implementation documents consolidated key dates and demographic detail while regular program reviews gave insight into monitoring and evolution. Published documents provided theories underpinning the ZEST initiative.

Analysis of student records for academic achievement, student co-curricular activity and absentee lists provided an indication of general health. Co-curricular involvement included sport, music, and club affiliations coded initially as sport (Sp), music (Mus), academic (Ac) and certificates and awards (C). Participant files were viewed prior to focus group meetings to gain insight into school involvement. Figure 3.4 shows early coding for archived documents and later for Phase II transcripts. The level of involvement indicates the frequency of engagement as either low (L) medium (M) or high (H). The example shows a high level of involvement in music, with the word 'excited' coded to indicate the student's attitude or engagement.
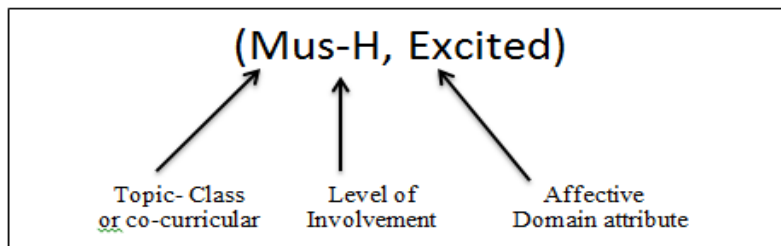
Figure 3.4. Transcript coding for co-curricular involvement

This example of in-text coding for this thesis directs the reader to student involvement, while directing the researcher to Appendix G (a) primary raw data files. Figure 3.5 is the researcher reference to Appendix G for an archived document. The unit plan was filed chronologically as the second document sourced from a person (EP) in 2005. The numerals 23-26 represent line numbers that were added to all digitally filed documents.
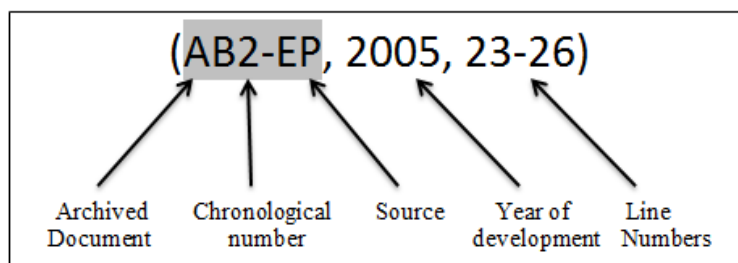
Figure 3.5. In-text archive reference

The highlighted area indicates a shorter code used for documents when the year and line numbers are not relevant for example, the short in-text citation (AB2-EP).

3.6   **PHASE II DATA**

The contemporary phase of the study from 2013 involved interviewing eight individual staff (n=8) and holding seven student focus groups (n=36) coded in Appendix G (b) and (c) respectively. Providing the range of opinions acknowledged Yin's (2014) premise about rigour; that reality was relative, and highly dependent on perspective. Likewise, Hsieh and Shannon (2005) highlighted the benefit of using a broad lens to capture historical, cultural, social, personal, political and temporal issues as one fluid image. The retrospective nature of discussion with participants lent itself to the narration of stories: a valued source of data recommended by Simons (2009). Interviews did not extend to parents or staff outside the program due to time constraints and complexities with access.

3.6.1 **Question Development**

Questions were designed to gather data to address the research questions, and support objective evidence revealed in Phase I. Recording participant voice digitally, meant attention was able to be focussed on conversational questioning technique and observation of non-verbal cues. Reflective two-way communication techniques recommended by Schwandt (2007) stimulated and enhanced participant recollection. Deep inquiry about connections students had made across the school setting, illustrated social networks and systemic support. Bronfenbrenner's (2005) view of systems as ecological networks influenced inquiry. Interviews drew on recall using time reference whereby participants reflected on experiences pre-ZEST, during and post-ZEST.

Using a range of open-ended question styles drew deeper responses. Considerations for interview design and data collection established:

- Who would be invited to participate;
- The need to seek parental consent due to the age of students;
- Key assessment and co-curricular dates to avoid;
- Selection of a central familiar venue with relaxed ambiance;
- Being mindful of the limited time available;
- Minimal noise to clarify audio recording for multiple devices.

Formatting interview questions with similar topics for staff and students assisted coding and analysis. During interviews and focus groups, the value of honest,

personal contributions to the conversation were acknowledged, thus affording Eisner's (1998) connoisseur status to reassure participants that they were experts on the topic of ZEST. The sample responses in Table 3.3 illustrate open-ended questions from Ms Ruby, the art teacher.

Table 3.3.

Examples of open-ended interview questions

Question style	Researcher questions
Descriptive	What aspects of the program did you enjoy most?
Diagnostic (illustrative)	How was the work you did in the program different to the other Year six classes? Which do you prefer?
Information-seeking question (clarification)	What did you mean when you mentioned the dynamics of the class?
Challenge questions (testing or comparing)	Why do you believe that? What made you think that most students felt that way?
Action question (reflexive)	What needs to be done to improve the transition into mainstream after the program?
Questions about priority and sequence	How important was building trust with a new class? What was the first step? What followed … second?
Prediction questions	Will your experience in the ZEST program help your approach to teaching other classes? … your career?
Hypothetical questions (linking concepts)	Could the program start a year earlier for students? How might the school community react to this?
Questions on extension (multi-level answers)	Tell me more about how ZEST has changed your teaching strategies?

Maintaining a conversational tone to encourage participant voice was instrumental to increase rapport and a relaxed ambiance. Direct quotations used throughout the case study strengthen authenticity.

3.6.2 Conduct of Meetings

The flow of conversation was optimised by choosing a setting familiar to participants, with minimal external noise or prospect of interruption. The use of three devices alleviated concerns of technology failure: a phone placed unobtrusively on the table, a second recording device pre-set to the side of the room and a recording

pen. The interviewer was aware that there was only one opportunity to gather data from each participant or focus group (Creswell, 2012). Interviews followed the Figure 3.6 formats the sequence:
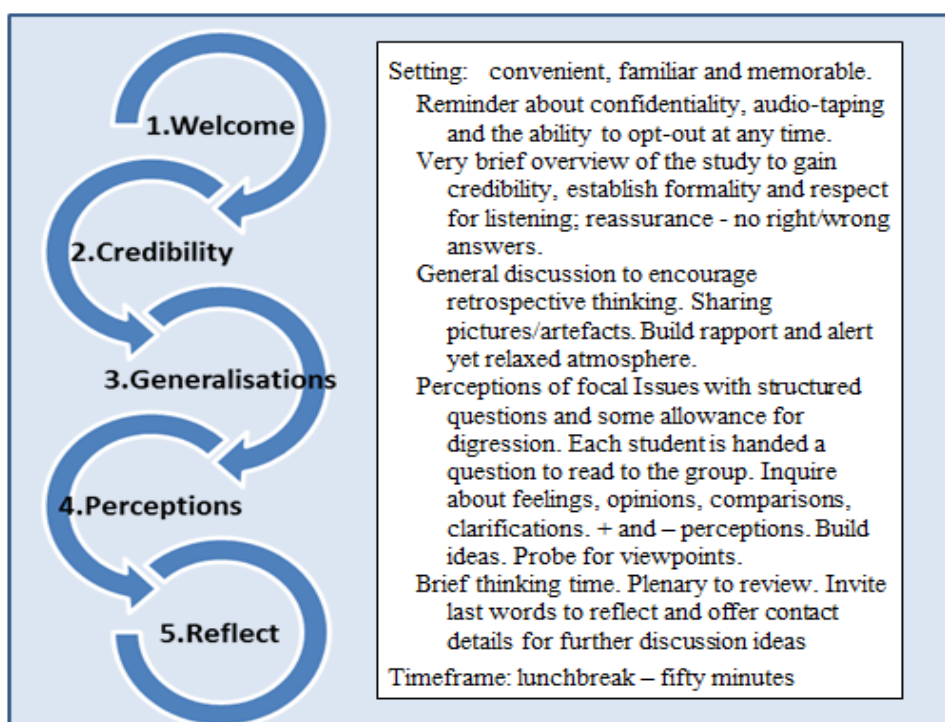
Figure 3.6. Conduct of meetings

Following protocol advised by Thomas (2015) the interview room was prepared with recording devices prior to the arrival of participants. Participant meetings started promptly with a brief overview of the purpose of the study, reminder of the voluntary nature of participation, notification that the session would be recorded for accuracy and the option to leave at any time. Audiotaping interviews minimised the necessity for extensive note-taking that may have inhibited rapport and conversation flow.

A prompt page for student focus groups Appendix D (a) and staff interviews as Appendix D (b) listed similar key topics to be covered. After an introduction and reminder about confidentiality, the sequence for interviews and focus groups followed:

a) Questions about best and worst memories of ZEST as a casual ice-breaker.

b) Personal attitudes about school, satisfaction of need and social dynamics before, during and after ZEST. Experiences and program evolution were explored to reveal friendships, empathy, tolerance and traits of giftedness.

c) Reflection and recommendations for change raised evidence of motivation and autonomy.

d) Closure for student focus groups centred on wellbeing. Individuals were asked to show personal wellbeing on Cantril Ladder at two points in time.

The two points in time were now (on the day of the interview) and when students were immersed in ZEST. The Cantril Ladder was a sliding scale developed in 1965 by Gallup-Heathways as a Wellbeing Index 'ladder of life' (Evers, et al., 2009). Questions therefore consolidated student wellbeing before, during and after the ZEST immersion.

At the completion of interviews, participants were reminded to respect confidentiality. They were offered researcher contact details with an assurance that transcripts would be available for review and further information would be welcome. After participant departure, the researcher completed journal notes for up to ten minutes to reflect on the process, ambiance and personal attributes of participants.

3.6.3 Sources of Participant Voice

To gain a holistic view of ZEST, focus groups were held with student cohort groups (three to six students) and teachers and three additional staff stakeholders were interviewed individually. The use of participant voice responded to a call from Van Tassel-Baska (2006) for authentic primary data to guide gifted programs and Gruen and Spender's (2012) recommendation to gather wellbeing data in context. Interview sources are detailed in this section.

3.6.3.1 *Student Focus Groups*

Focus groups were conducted within one term late 2013 after gaining parental consent (Section 3.6.3) since all students were under the age of eighteen. Age demographics for classes and focus groups are tabulated in Section 4.4.1 as demographics as Table 4.2. The selection of students was predicated on an assumption that students were gifted, based on Knott School's rigorous selection process and the students having completed the accelerated program.

Students given parental consent to participate were invited to attend lunchtime focus group meetings. An email from the information package (Appendix F) sent two weeks prior to the scheduled focus group, outlined the study as having three areas of interest: the ZEST program, personal perceptions and satisfaction (wellbeing).

Unlike parental responses, student replies were prompt with unanimous consent. Reminder emails sent the day before each interview, listed dot-point topics to be raised: joining ZEST, teachers/friends, happiest memory/greatest challenge, involvement (including co-curricular) and how they felt leaving ZEST.

The intent was to conduct six focus groups by cohort. Students who were absent on their allocated dates, indicated a desire to participate, so were accommodated in an additional seventh focus group. Appendix G (c) shows the coding for student focus group names. Three to six students represented each cohort, thus providing information from a range of gender and students from different sociologically positioned ethnic backgrounds. None were not coerced to participate.

Students signed an attendance sheet on arrival. Conversation etiquette was maintained by monitoring individual dominance and controversial or emotive subjects. Gross et al. (2011) cautioned that participants holding strong beliefs, perceptions, values and attitudes were likely to react differently to topics raised. Creswell (2012) highlighted the need to be prepared to establish courtesies to ensure safety, flow and equity, to maximise interview time due to interruption. The following school protocols were pre-determined and did not need to be stated:

- Speaking one at a time to share personal memories and beliefs;
- Showing courtesy by listening to the speaker;
- Respecting what people say as their own valued opinion;
- Offering reasons for what we say;
- It is not rude to disagree and ask why, when we really want to know.

The location of focus groups was important. Although the original ZEST room was preferred, for its ability to stimulate memory, only two focus groups were able to be held in the classroom. Five focus groups were held in a library annex, chosen for its soundproofing, accessibility and minimal interruption. The 'bystander effect' or Genovese syndrome came into play, whereby the moderator assumed a minimal role and responsibility for conversation was diffused to students (Fischer, et al., 2011). Maintaining a casual conversational tone increased engagement as students reflected on the ZEST experience. Minimal moderator interjection was required to keep conversations on topic, and respect time constraints.

3.6.3.2 *Staff Interviews*

As Appendix G (b) indicates, eight staff interviews were completed. Two had been conducted in 2012 as part of Phase I, immediately after ethical clearance. They had left the school, but their contribution as additional stakeholders was considered significant. Mr Sapphire had been the inspiration behind ZEST's initiation and Mr Silver was the first cohort Home-room teacher. The interviews were not digitally recorded because contact was made by telephone and email. They forwarded digital information to supplement archived artefacts and help establish the timeline for the evolution of ZEST. They were generous with their time in conversation and Mr Silver was able to meet for a brief coffee-shop meeting on a visit to Australia in 2012. The meeting was not audiotaped due to noise interference however, comprehensive journal notes were taken to include direct quotations about the role of the School Council, process of student selection and program initiation. These two early interviews also assisted the development of questions for Phase II. Journaled notes were archived in Appendix G (a) Mr Sapphire and Mr Silver were recorded as interview participants in Appendix G (b).

The third additional stakeholder interview with Ms Diamond, Head of the Exceptional-learners department offered a holistic view of the ZEST program. It was conducted with other staff interviews as Phase II in the student free days of September, 2013. As the head of the Exceptional-learners department Ms Diamond's interview was able to be held at school.

Staff interviews for Phase II took place at locations selected by the three Home-room teachers Mr Quartz, Ms Emerald and Ms Gold, and two specialist subject staff from Art (Ms Ruby), and Health and Physical Education (Ms Bronze). Times were negotiated so that interviews were able to run for at least an hour. Three staff members chose to make further contact after their interview to contribute additional information and student artefacts. The interview prompts (Appendix D) were similar to the topics used to question students at focus groups however, the order of questions varied markedly. Staff interviews were more open to digression that promoted interaction and explored topics of interest for deeper inquiry.

3.6.4 **Phase II Analysis**

Transcripts from staff interviews and student focus groups were coded for Phase II. Six constructs identified by the literature review as pertinent to this study, were used for initial coding. Analysis also included revisiting coded references revealed as attribute patterns in Phase I. Due to the nature of the semi-structured conversational methods used to collect data for Phase II, keywords mentioned frequently became pointers or indicators (expanded in Section 3.7).

In-text references to transcript quotes list the speaker followed by line numbers. Figure 3.7 for example, describes Ms Gold's (23-26) recollection of an interaction with a student quoted "that's a great idea we should try setting up the experiment together at lunchtime" from lines 23-26 of the interview transcript.
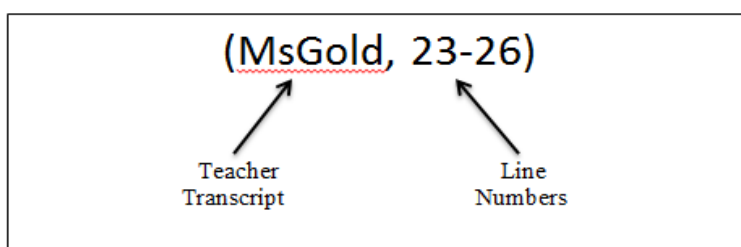
Figure 3.7. Transcript reference citation

Prefixes were assigned to each stakeholder to provide a clue to gender identity, although gender does not have immediate relevance to this study. Reference to Ms Gold for example, identifies her as a female teacher. Likewise, students were coded using gender specific names for example, a student named as Fred is male.

Student name coding also has time relevance. The first letter of each student name indicates the cohort year. For ease of referencing, each cohort has names starting with the same digit. For example: the first 2005 cohort all start with the letter A; B-2011; C-2012; D-2013; E-2014; F-2015. This means Fred was from the class graduating in 2015, with other members of his cohort being Fay, Florence and Felix. All interviews were taken within the same school term between July and August, 2012 so interview dates hold little relevance. Knowing which year students belonged to indicates recent or distanced departure from the program that may have influenced memory recall. Howe's (1990) studies on memory retention suggest that experiences that inspire positive emotion and engagement, lead to accurate long-term recollection.

Transcribing recordings personally within 48 hours after each interview greatly assisted the sensitivity of interpretation and consistent coding. NVivo (Bazeley, 2015) was originally explored to assist analysis however coding became an integral part of the transcription process, so data were coded manually as part of the process. Coding included subjective as well as objective elements, to reflect node coding developed by Saldana for NVivo (2017). Evidence was analysed and synthesised used the tailored analytical framework. Cleansed data has been stored on NVivo with the intent of returning for further analysis at a later time.

3.7 ANALYTICAL FRAMEWORK

The analytical framework developed to assess gifted adolescent wellbeing has a dual structure of objective and subjective elements. Adams (2012) argued that including both elements offered a holistic view that combined evidence from a variety of sources. The holistic view was required to comprehensively address the first research question about guiding principles informing programs for gifted adolescents. Collecting data from participants provided data for the second research question: *In what way did the program influence gifted adolescent wellbeing?*

The first scan of archives provided a priori knowledge for Phase I of the study. *Objective elements* from archival data included school records and two unstructured interviews with stakeholders who had initiated the program. The study adopted *a priori* realist position basing conclusions on deductive reasoning, observation and logical inference. Using qualitative techniques aims to achieve a rich, robust, comprehensive account (Denzin & Lincoln, 2011).

Subjective elements of motivation, giftedness and eudemonia were explored at length using Phase II interviews. Subjective analysis of participant perceptions and social-emotional state provided insight into the lived experience of what happened at Knott School using *posteriori* knowledge; the Latin term for 'what comes after'. A summary of the analysis process is offered to assist transferability to future projects:

1.   Phase I material were scanned to gain a sense of the data;
2.   Initial coding of both Phases identified six broad *constructs*;
3.   Quotations were grouped into patterns of *attributes;*
4.   *Word indicators* from transcripts revealed themes*;*
5.   Evolving *themes* were aligned with *patterns* to reveal meaning;

6.   Implied meaning is the foundation for discussed in Chapter six.

The analytical framework illustrates the structure used for collection and analysis of data. Two elements divide into six broad *constructs* to explore. Constructs were initially selected based on past studies of giftedness, adolescent learning and wellbeing. Phase I collection of archived material and school record files provided data for the constructs of health, co-curricular activities and academic progress, typical to a school setting. Constructs were deconstructed to reveal attributes as Phase I data analysis evolved. Figure 3.8 illustrates the two elements, six constructs and patterns as attributes.

Due to the nature of the semi-structured conversational meetings, keywords mentioned frequently by participants, became important pointers or 'indicators' that were themed beneath *attributes* for each *construct*. Although Phase II transcripts were more complex to analyse, they provided word indicators and vignettes that were rich in detail. Qualitative analysis offered deep insight into the wellbeing of gifted adolescents.
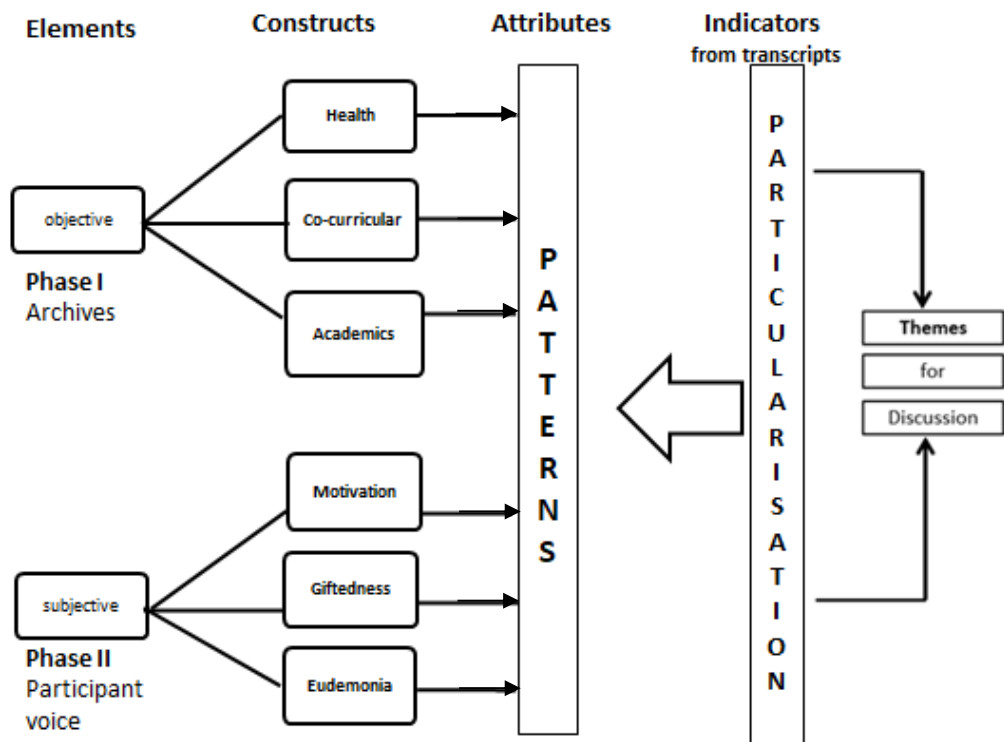
Figure 3.8. Analytical framework used to deconstruct data

Most importantly, Phase I data supported Phase II, for example, proposals for the development of the ZEST model found in Knott School archived documentation were initially explored as a priori knowledge. Posteriori evidence from indicators in

Phase II offered more specific particularisation that could be related back to the attributes revealed in Phase I. Motivation, giftedness and eudemonia were the subjective constructs selected from literature and Phase I data, to best reflect gifted adolescent wellbeing. A brief description of each subjective construct follows.

Motivation is a subjective *construct* coded in transcripts using *indicators* for competency, autonomy and student connectedness from data in Section 5.6. Collectively they are later grouped as *attributes* for self-determination, as a reference to Deci and Ryan's (2008) theory in the discussion for the second research question in Section 6.3. The term 'relatedness' from Deci and Ryan's theory has been viewed as connectedness throughout this document, to align with Bronfenbrenner's (2005) concept of interrelated networks, as an influence on wellbeing.

Giftedness was the second subjective construct included in the analytical framework. Dabrowski (1994) characterised giftedness based on development and behavioural attributes that Alsop (2003) referred to as intuitively valid and theoretically reliable. Assumptions about students displaying traits of giftedness and advanced intellect were made based on attributes affecting socialisation and wellbeing in other studies. Attribute coding included traits highlighted by Colangelo and Davis (2003) as over-excitability, sensitivity, quick wit, hyper-sensitivity, curiosity, creative and abstract ideas. Eide and Larsen (2008) were critical of the relationship between eudemonia and giftedness suggesting: "no single condition or characteristic is sufficient to bring about happiness" (p. 5). Their suggestion prompted the inclusion of personality traits, resilience and coping styles as attributes. Nevertheless, the inclusion of giftedness in the analytical framework acknowledges the significant influence that traits of personal identity have on adolescent wellbeing.

Eudemonia reflects personal emotion and life satisfaction. As a component of eudemonia 'happiness' was the most frequently referenced indicator for wellbeing in contemporary literature (Goswami, 2011; Veenhoven, 2008). Other word indicators were broad, including: calm, content, laughter, boredom, anxiety, caring, pride and a sense of equity, social justice and respect. Cumming (1996) named student engagement as an indicator for eudemonia. Seligman (2011) and O'Brien (2012) noted the importance of considering binary indicators to offer a balanced, realistic view of the phenomena with a developmental perspective. Searching for positive and

negative attributes included feelings associated with friendships such as popularity or isolation, and behavioural challenges faced by students.

Triangulation of data sources established rigour and reliability. Ideas were bridged between Phase I and Phase II offering a deep understanding and scope to substantiate claims. For example, the frequency of co-curricular participation noted from school files in Phase I was verified using open questions at student focus groups in Phase II. A priori knowledge was therefore supported and verified using posteriori knowledge.

3.8   SUMMARY OF STUDY DESIGN

The rationale behind this research study reflects many the sentiments of Knott School that prompted the initiation of the ZEST program model. The rationale, aim and goals found in archived documents are presented as data for the ZEST model in the next chapter. The collection and analysis of data used qualitative methodology for the development of an historical case study guided by Yin's (2014) explanatory ontology. A discussion of methodology provided justification for the research design and choices related to data management. The study seeks to create meaning from ZEST as an established social phenomenon that has the capacity to shape gifted program innovation. Completion of research for the study is timely, considering the state of transition for education in Australia and interest in inclusive education globally (Gilman, Huebner, & Furlong, 2009).

Case study evidence presented in chapters four and five may challenge a reader's preconceived ideas about gifted education and the wellbeing of adolescents. Historical case study methodology uses Yin's (2014) time-series analysis in Chapter four to present the program as Phase I data evolved chronologically. Constructs from the analytical framework are expanded in Chapter five, to organise interview data from Phase II. Direct quotations from primary data are used throughout to add authenticity to the case study. Figure 3.9 offers insight into the direction of inquiry for the chapters that follow.
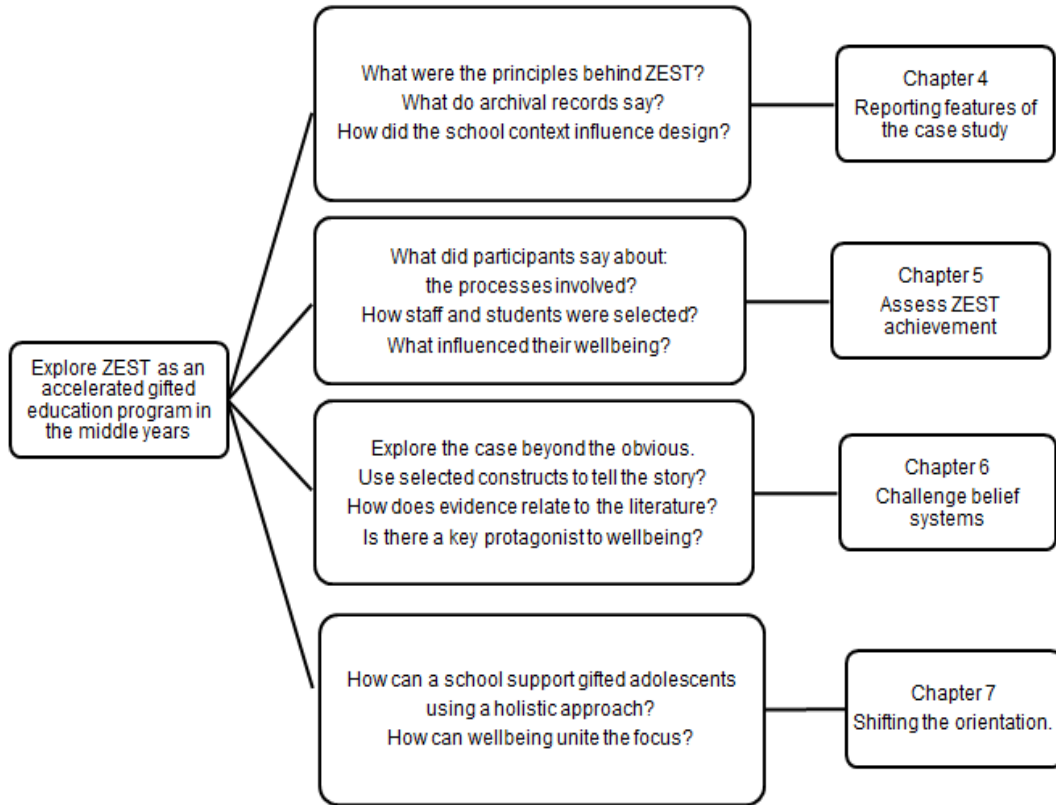
Figure 3.9. Direction of the inquiry

Chapter 4: **Phase I: Archival Data**

> There has been a deepening concern with levels of youth disengagement and recognition that students with high levels of potential, have been found to be particularly vulnerable. (3AA-PS, 2003, 215-220).

In the extract above, Mr Sapphire was garnering support for his vision to introduce a gifted program for Knott School. The passage was from one of many archived promotional documents from 2002 made accessible to this research.

The study was conducted in two Phases. Evidence for Phase I in this chapter has been collated from two early interviews with the program initiator Mr Sapphire and Mr Silver (as the first Home-room teacher), archival documents and program reviews from six consecutive years of the immersion program. Archived documents were coded alongside school records and artefacts to frame the blueprint for ZEST to address the first research question: *What guiding principles informed the development of a program for gifted adolescents?* Evidence from Phase I established a time line for ZEST and informed Phase II questions for participants.

4.1   INTRODUCTION TO PHASE I

This section formats the key headings using Dai and Chen's (2013) Paradigmatic Model introduced in Chapter 2.10. The framework is used in this chapter to examine ZEST from theoretical (why and what) and practical (how and who) perspectives. The reader is reminded about coding used to reference archives and a time line to show the retrospective nature of the study. Section 4.2 offers a synopsis of 'Why' the program was initiated, outlining its aim, vision and goals. The school context in Section 4.3 explores 'What' principles lay behind administrative processes and 'Who' (Section 4.4) were selected to participate. Section 4.5 clarifies 'How' ZEST responded to changes recommended by regular program reviews (Section 4.6).

The Progress map (Figure 4.1) shows how the chapter is structured using a Program Logic model with components and an interim outcome to explore archival evidence from Phase I. The diamond-shaped central 'components' have been interpreted using four questions to establish conceptual clarity for ZEST. The coded

data bank of Appendix G (a) offers a clear audit trail for documents referenced throughout the chapter.
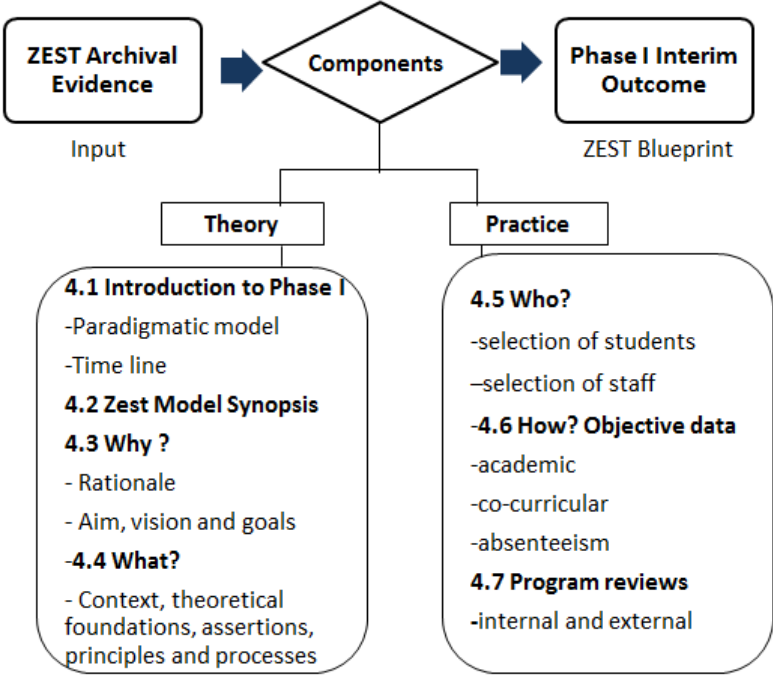
Figure 4.1. Chapter Four Progress map for Phase I

The central components respond to what Guba and Lincoln (2005) called paradigmatic controversies, contradictions, and confluences in gifted education. In the first half of the chapter, 'why' and 'what' explore theories that influenced practical decisions behind the ZEST model. Figure 4.6 in the second half of the chapter, offers a synopsis of 'who' took part and 'how' the ZEST evolved.

4.1.1 **Paradigmatic Model**

The Paradigmatic Model (Dai & Chen, 2013) provides a simple platform with the four questions used to establish coherence and relevance to ZEST. The model is used to organise headings in Chapter four to compare with other gifted education paradigms in Appendix C (a) and proposals for a revised ZEST model in Chapter six.

Dai and Chen's (2013) model in Figure 4.2 goes beyond the theoretical questions of 'what' (ontology) and 'how' (epistemology) common to a scientific paradigm, to question 'why' the program exists, and 'who' took part in the program.
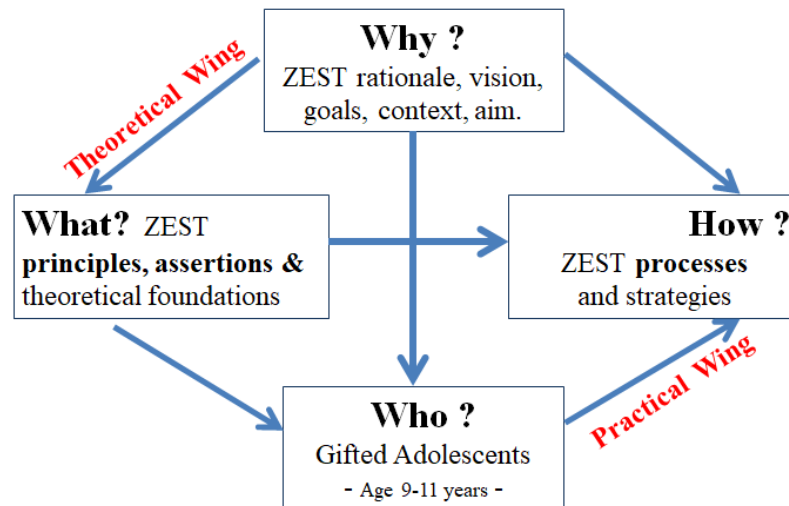
Figure 4.2. Paradigmatic model with components of ZEST

Arrows indicate the relationship between components. For example, *why* the program exists shows *who* was actively involved and *how* it was implemented.

4.1.2 Archive Coding Revisited

The reader is reminded about the coding applied to archived documents throughout the chapter. Reference has been made throughout the chapter to archived documents stored in a data base indexed using Appendix G. Documents were de-identified and coded to ensure confidentiality prior to filing. Coding in Figure 4.3 illustrates the chronological order that documents were collected followed by the allocated document code and interview source (name).
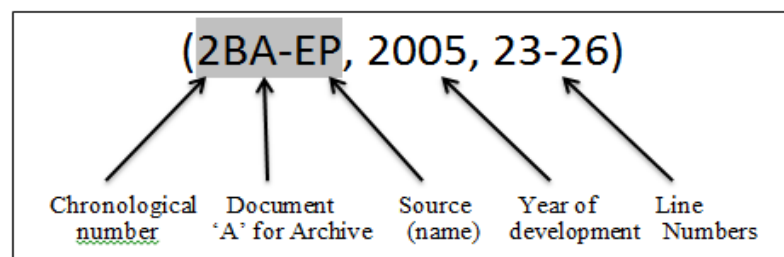
Figure 4.3. Coding for in-text referencing

In many cases the in-text reference appears as the shaded code (2BA-EP), since remaining information was not always available.

The conference paper excerpt (Figure 4.4) about the ZEST model offers reference to primary data that illustrates *traits of giftedness* and *autonomy* as a construct of motivation, using the reference to archive (27YA-PS, 20-21). Although undated, the document is presumed to be pre-2005 since it offers supportive arguments for the introduction of ZEST. Line numbers on the left-hand side offer

reference to the direct quotation. Handwritten attributes were written in the right-hand margin of the archived document. Using this text example, two themes broadly categorised traits of giftedness (highlighted) and strategies (underlined).

Figure 4.4. Coded attributes from archived document extract

Archival evidence included data related to the program time line, work samples to show program structure, spreadsheets to co-ordinate student profiles, and literature references to determine the theoretical foundations of the ZEST model.

4.1.3 Time Line

The time line in Figure 4.5 shows the sequence of preparation for ZEST 2002-2004, implementation 2005-2010 and the two phases of this study that followed.
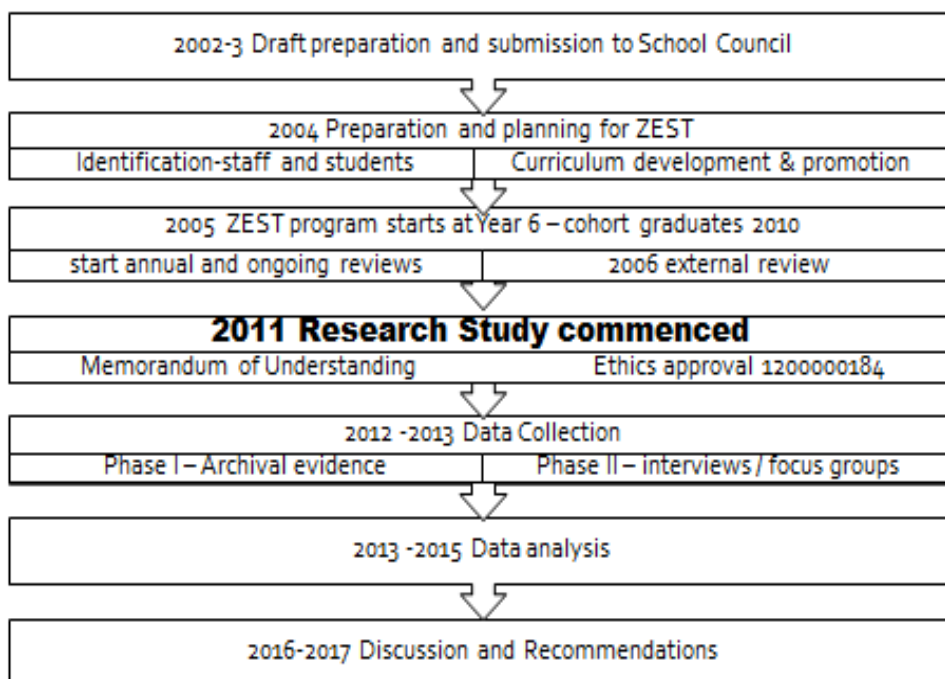
Figure 4.5. ZEST gifted program and study time line

The time line in Appendix A (a) offers greater detail to show the relationship between ZEST's initiation, progression and commencement of research. The first ZEST class graduated in 2010 marking the start of this research in 2011. Data revealed new questions that were able to be raised with staff and students at interviews for Phase II of the study. All data were therefore, classified as retrospective thus contributing to the historical nature of the case study. School records and published documents written for students, family, staff and school council provided a comprehensive archive of evidence for Phase I from 2002.

4.1.4 ZEST Model Synopsis

The ZEST model integrated three years of curriculum across two years. The first ZEST class compacted Years-six-seven-eight into two years of accelerated study. Rimm and Lovance (2007) referred to a similar process as telescoping. Students started in the first Year six cohort in 2005 then moved directly into the Year eight cohort after one year in the ZEST program. The Australian school year divides into four, ten-week blocks commencing in January, April, July and October, with a six-week summer vacation spanning December-January. New Year eight work commenced, in April of the second year. Students emerged from ZEST the following year 2006, into Year nine. Another ZEST class started in 2006 at Year six meaning two classes with accelerated curriculum operated in succession. The middle period of the two-year program (Figure 4.6 shading) began with the same unit the Year seven cohort would start with the following year.

Year 6-First Year of ZEST 2005				Year 8-Second Year of ZEST 2006			
January	April	July	October	January	April	July	October
Start Year 6 program. Building trust. Build curiosity	Review Year 6 and Year 7 concepts. Compact to finish quickly.	Extend units with problem-solving. Foster creative outcomes.	Start Year 7 program new units. Accelerate	Start Year 8 program with new cohort. Compact Yr 8 concepts.	Extend integrated units of Year 7 and Year 8 concepts. Accelerate learning.	Promote social activities with new cohort in class and activities outside.	Finish Year 8 program. Graduate to Year 9

Figure 4.6. Three years curriculum in two years

Units began in a similar way to the rest of the Year six cohort, but repetition was limited, classwork was compacted and completed quickly. When ZEST students reached their senior year in Year twelve they were a year younger than their peers; the youngest graduates in the cohort.

Another streamed class with high-ability students ran parallel to the ZEST class. It provided a highly differentiated program for high-ability students but no grade-skipping. The rationale for establishing the class was three-fold: high-ability students not choosing to take up the selection offer to join the ZEST class, as a transfer option for those not coping in ZEST and a place to draw students from when ZEST places became available through attrition. While these were the reasons for establishing the high-ability class to operate alongside ZEST, it is important to note that none of these scenarios ever occurred. In both classes, autonomy was encouraged using student centred decision-making, heavily scaffolded tasks and extended themes to build strengths, curiosity and creativity. Archived documents mentioned a range of co-curricular opportunities and liaison with mentors that were made available to students as encouragement to connect with others beyond the ZEST classroom. The parallel high-ability class joined some activities with the ZEST class in the first year. ZEST students were considered part of a higher cohort the following year due to grade-skipping, so connections were then made with the new high-ability class.

Year seven at the time was a year of review that consolidates Junior-school basics, with a small parcel of new curriculum. Consequently, in the immersion class the pace of work accelerated to extend skills with maximum challenge and capitalise on curiosity and personal topics of interest. The class program aligned with existing school-based events such as exams, sport and music carnivals. Guidance for the development and operation of the program came from established systems of education department policy, theory and the Knott School council (Section 4.4.2).

Mr Sapphire pointed out that early student assessments were necessary to indicate the capacity for class acceleration, while the problem-based student-centred learning approach enabled individual differentiation. Like-minded students were encouraged to work together on topics, to pool research and build collaborative skills. Examinations were the same as those used by the cohort, therefore assessment criteria sheets were written to allow for creative extension (Mr Silver, 27-28). Additional comments written separately as feedback provided insight into extension

work for gifted students. Ongoing affective domain testing assessed self-esteem, motivation, autonomy (Torrance & Sisk, 1997), the ability to cope and perseverance (Swiatek, 1995). Curriculum and pedagogical decisions shaped how students related and behaved. One student's description of a research assignment illustrated how staff used immersive strategies to stimulate curiosity in themed integrated units of work:

> Our interest didn't fade for the whole unit. We felt it, drew it, weighed it, cooked with it and rolled in it … then wrote about it and explained why it happened that way. We didn't ever just describe. (Daisy, 39-41)

Daisy's comment illustrates how the integrated holistic approach was used to expand experiential learning. The two-year duration of the immersion, meant that the class stayed together, and two classes ran simultaneously at all times. The two ZEST classrooms filled a freestanding highset building; with one class downstairs and the other upstairs (16NA-Z). While ZEST classrooms were positioned near other middle school classes, they operated separately. The location of the classrooms and differentiated coursework clearly set ZEST classes apart from the rest of the cohort.

It was intended that ZEST class numbers would be maintained at twenty-four students, the same size as the rest of the cohort. Over the six-year period observed for this study however, the ZEST class *mean* was nineteen students. One major structural change however, influenced student numbers in one cohort. The overall average, was reduced by a small class of only ten students enrolled in 2008 (Figure 4.4.1 demographics). The intake responded to annual reviews, changing enrolments from Year 6 to Year 5 without adequate time for promotion. In an early interview (15.11.12) Mr Silver defended the trend toward lower class numbers, as the result of careful screening of potential students. The program prioritised positive attitudes to learning and ability to cope with the greater demands of acceleration.

Course units differed from other Year-six Home-room programs due to the extension, acceleration and addition of Philosophy and Theory of Knowledge. In the latter years Mr Sapphire added Computational Thinking as a subject that integrated well with existing themes and interest in STEAM. STEAM integrated the subjects of Science, Technology, Engineering, Arts and Mathematics. This followed a perception that 'big ideas' provided greater purpose to learning since "gifted students were notorious for wanting deeper answers, and with full sincerity, asking the question: Why?" (26-27). As illustrated in Appendix G (c) students stayed together

with specialist teachers for Science, Art and Technology. They dispersed into different classes across the cohort for the electives of Language and Music and joined other classes to make a larger group for Health and Physical Education (HPE). Table 4.1 offers a consolidation of information about the ZEST model. The model presents a tabulated form of Dai and Chen's (2013) Paradigmatic model to enable comparison with the revised ZEST model in Chapter six.

Table 4.1.
ZEST model synopsis

ZEST model synopsis		
4.2	**Why?**	Percieved need to develop a gifted program for the middle years.
4.3	**What?**	Aim to achieve excellence in gifted education. Principles underpinned the program. Three assertions: strong theoretical base, ability grouped gifted class; program to balance academic and social-emotional development.
4.4	**Who?**	Gifted students identified using a battery of cognitive (IQ+135) and affective domain tests for adolescents aged 9-11 in Years five to seven. Staff with an interest in gifted education and ongoing training. Students identified for a parallel high-ability class - no grade-skipping.
4.5	**How?**	Gifted class completed three years curriculum in two years using compaction and acceleration to grade-skip. Figure 4.6 lists some of the processes and strategies used by ZEST.

Knott School had a department dedicated to enrichment based on ability, cultural diversity and special needs. The Enrichment department's philosophy (23VA-EP) supported individual strengths with differentiated programming. They advertised programs to improve engagement and attitude toward learning (4BA-Z, 2002). Mr Silver described the integrated delivery of themed units in the Home-room Class, as a cross-curricular model. He mentioned advice from the Association for Middle Level Education (Association for Middle Level Education, 2013) to include autonomy and creativity in the design of programs (22PA-EP, 2011). He hinted at a concern from staff not associated with ZEST, being critical of "the freedom to let

students create all sorts of projects" (49-50). He defended ZEST's open-ended approach saying "I don't think they (staff) realise the complexity of structuring individualised research projects, then justifying assessment to such a discerning audience" (52-53).

In an address to parents (5CA-PS, 2004) Mr Sapphire offered reasoning for not using the traditional gifted education model that focussed purely on academic success. Instead, he argued that the ZEST model prioritised student engagement by balancing academic and social-emotional needs. Curriculum design for gifted students mastered the basics then, enriched programs with effective acceleration, self-direction, social-emotional skill development and an orientation on the future to manage change (7EA-PS). In doing so ZEST identified with Schiro's (1992) learner-centred ideology and Rogers' (2002) notion of educating gifted students for life rather than the immediate reward of academic success (6DA-R, 2005). Units differed from other classes in their compaction, limited repetition and acceleration of curriculum with increased pace, complexity and challenge (8FA-PS). Additional opportunities offered to ZEST students are detailed in Section 5.6.2.

Opportunities available to the gifted class were justified as catering to their unique needs. Affective domain components written into units ensured a consistent focus on social-emotional development (15MA-EP). Regular visits to the faculties of a neighbouring university and visiting mentors provided academic extension not suited to age peers. The program was developed by Mr Sapphire, scrutinised by the School council and overseen in the latter years by Ms Diamond as Head of the Enrichment department. Mr Sapphire (4BA-PS, 2003, 98) consistently illustrated a firm belief that "the key question for educators is not *whether* to accelerate a gifted learner, but *how much.*" Work program artefacts and student e-folios illustrated curiosity and autonomy for creative outcomes. Contemporary methods used by the department in more recent times have included Gallagher's problem-based learning (2017), design-based learning (Darling-Hammond, 2008) and multi-disciplinary approaches to challenge-based learning (Johnson & Adams, 2011).

The most controversial decisions requiring justification for ZEST involved student selection, starting the program at Year six, entry tests, ability-grouping, acceleration and grade-skipping (18PA-PS, 2011). Evidence was sought to explore whether engagement increased by using strategies mentioned in this section.

4.2   WHY?

The rationale, aim and goals of ZEST reported in promotional documents highlighted a desire to enhance student potential (4BA-PS, 2001). Promotional presentations varied slightly for school council, staff and prospective family audiences. The School council was the governing body responsible for decisions regarding program organisational practice. Correspondence to the school council was well documented thus providing, a clear evidence trail. In one submission to School council (3AA-PS, 2003) prior to the implementation of the ZEST program, Mr Sapphire made an appeal for change:

> Keeping gifted students in a class setting established by chronological age only, severely limits their ability to reach potential. These students are effectively constrained in a fish bowl, a place that is too small for their abilities to expand, a place where the pace and level of work is not commensurate with their abilities, a place where there are few opportunities to relate to others of like mind. (180-184)

The establishment of the ZEST model as an ability grouped class therefore challenged parts of Marsh and Parker's (1984) Big-fish-little-pond (BFLP) hypothesis (25WA-PS, 1999) discussed in Chapter 6.4. In an address to school council, Mr Sapphire's power point presentation highlighted the virtues of ability grouping, as big fish occasionally needing to swim with other big fish (9GA-R, 1999). Mr Sapphire asserted his case for enhancing opportunities to extend gifted adolescent learning (4CA-PS, 2004). Research supported the initial proposal to change existing withdrawal and streaming strategies, arguing that the ZEST model would better cater to identified student needs (4BA-Z, 2002).

Presentations to families focussed on the program balancing academic and social-emotional needs (6DA-PS, 2005). Mr Sapphire's slides reassured parents: "So much promise rests in the hands of the gifted youth in our care. They need more than knowledge alone" (4BA-PS. Slide 9). He referenced a seminal text by Colangelo and Davis (2003) that outlined the nature vs nurture debate to highlight the important role of schools. Presentations to staff focussed on student engagement and the need for a well-scaffolded program to help gifted students to reach potential. Presentations mentioned enduring myths to inform the audience that gifted students were less likely to excel without assistance to demystify damaging myths.

4.2.1 **Rationale and Preparation**

Education globally has been challenged by the diverse and changing needs of society. In this context Knott School initiated ZEST in response to a perception that the needs of gifted students were not being addressed. Mr Sapphire believed a program catering for the needs of gifted students held widespread benefits for students, their peers, teachers and in the longer-term, the school community (9GA-R, 2003). The perception based on the observation of gifted students and a broad knowledge of research provided the rationale for the initiation of ZEST.

A published proposal to the School Council for ZEST's initiation (3AA-PS, 2003) was well-supported by numerous studies (Baum, Renzulli, & Hebert, 1999; Reis & McCoach, 2000). Reference to a Senate inquiry report (Collins, 2001) highlighted the lack of engagement and lost potential of gifted students as a tragedy. The report referenced Geake's (1999) ten-year report for the Senate Select Committee that detailed concerns about the under-achievement and early departure of gifted students from school. Proposals for ZEST catered to three characteristics of gifted students:

- The capacity to learn at a faster rate;
- The capacity to find, solve and act on problems more readily; and
- The capacity to manipulate abstract ideas and make connections.

The perception followed that existing programs were not catering to student needs and that a newly developed program might cater to both academic and social-emotional needs. The notion of balancing the program in such a way was supported by Seligman's (1995) studies of positive psychology and strategies for school-based change (Holz, Deizmann, & Watters, 1999). The rationale has since been strengthened by contemporary brain research, that correlates genetics and inherited traits with school outcomes and emotional states (Vinkhuyzen, VanDerSluis, Posthuma, & Boomsma, 2009). Approval from the school council allowed the development of ZEST as a customised program for gifted students in their early years of adolescence. The school also accessed government funding for professional development and resourcing to support the development and implementation of the program (3AA-R).

4.2.2 **Vision and Goals of ZEST**

An early long-term goal for ZEST had been proposed in 2002, three years prior to the program initiation, to develop sustainable resources and strategies of excellence "to provide a program that is rigorous and qualitatively different from mainstream curriculum, to meet the specific needs of gifted middle school students" (4BA-Z, 2002). In direct response, a recent reflective statement about achieved goals from Mr Sapphire's interview in 2012 read:

> In the way and to the extent that students are similar their curriculum should be similar. In the way and to the extent that students are different their curriculum should be different. (18PA-PS, 2012. 388-390)

ZEST's vision quoted in a 2004 information package for potential families described "a program that caters for the cognitive, social and emotional needs of gifted students in the middle years of schooling" with a goal to "strive for excellence in developing the whole person" (6DA-Z, Slide 3). The ZEST vision altered slightly for a presentation to staff as "a program that grows balanced individuals who can lead with intelligent direction and modelling" (4BA-R, Slide 2, 2004).

The implied hope was to develop school and community leaders. This vision provided an opportunity to "celebrate each person's contribution to the community" (Slide4). The school advertised an ethos of inclusive practice referencing Grossen's (1996) view of equity that catered to diversity in a school community. The implication followed in a submission to school council was that the ZEST model would accommodate the identified needs of gifted adolescents (5CA-PS, 2004). Practical short-term goals for the classroom presented to prospective parents (4BA-R, 2004. Slides 10-11) were to:

1) initiate educational opportunities for gifted students;
2) provide a peer environment that values intellect and talent;
3) allow active, cooperative participation for students and parents;
4) provide time, space and encouragement to discover unique abilities;
5) enable interaction between like- minded thinkers;
6) encourage gifted students to find their place in a global society; and
7) instil a sense of belonging.

A power point (6DA-R, Slide 6) for staff outlined the vision as being underpinned by three principles that informed ZEST's objectives:

- Equity – all students have the right to fair and equitable access to appropriate educational programs that meet their specific learning needs.
- Recognition of difference – gifted students are recognised as different from students of their own age in their speed of learning, the insightful quality of their thinking and their advanced ability in one or more areas.
- Educational excellence – all students have the right to appropriate educational programs that result in learning outcomes consistent with their abilities.

Although the first and third principles relate to all students, Knott School recognised a gap in their provision for gifted adolescents. Middle school policy of that time highlighted the advantages of collaborative approaches involving abstract thought, inquiry-based learning and creative problem-solving. In essence the principles adopted by Knott School reflected Middle School policy and the intent of Australian curriculum stated in the 2008 Melbourne Declaration (Curriculum Council). Although recently developed education documents mention wellbeing, strategies to address challenges faced by gifted adolescents are not explicitly stated in current guidelines (Australian Curriculum Assessment and Reporting Authority, 2016).

Goals were framed to inform key stakeholders of the program's intent, and to act as a checklist for program reviews. Interestingly, none of the goals directly mention academic achievement although academic and skill mastery was implied in the aim and vision for ZEST. In response to an annual review after the first year of ZEST, a new goal related to academic excellence "to recognise potential and strive for excellence" was added to a promotional booklet (5CA-PS, 2005).

4.2.3 School Context

Knott School is a large independent school with over 2,500 students and 200 staff. Its denominational, co-educational community comprises predominantly Caucasian English speaking day students. The school also houses boarders from rural Australia, Torres Strait Island and Papua New Guinea on campus. Although ZEST students were a subset of the diverse culture-mix of the school community, there were no boarders between the six cohort-classes observed for this study. This was possibly due to the language gap needing to be overcome by students as they assimilated into the middle years.

Knott School is situated in a high socio-economic suburb on the fringe of a city in close proximity to a university campus. Students are grouped by age into year-level cohorts, with sub-schools dictating policy about pastoral care, curriculum and assessment. The sub-schools started with a foundation year of Prep (children turning age five), Primary Junior-school from Years 1-5, Middle School children (Years 6-7), Secondary Junior High (Years 8-9) and Senior-school until Year 12 graduation.

ZEST was advertised widely from 2002 onwards. Promotional materials promised equity, balance, greater opportunity and increased experiential learning for gifted students (17OA-PS, 2006). Mr Silver conceded that the purpose of such a widespread promotion as being three-fold: ensuring minimum class numbers, the perceived need to recruit academic capacity into the school population and, to attract new families to the school. At least half of each ZEST class comprised new enrolments to Knott School. The remaining students were identified through recommendations from Junior-school teachers.

The first cohort of ZEST started in 2005, with an intake of Year six students. In 2005, secondary schooling in Queensland started at Year eight, meaning that these families needed to make an early choice regarding secondary school for their children. The ZEST program attracted new families with gifted students to the school for Year six-seven eight (9GA-R, 2003). From 2007, following recommendations from annual ZEST program reviews, the immersion shifted to compact Years five-six-seven. In 2015, movement in the structure of Australian education changed Middle School boundaries, to make Year seven the first year of secondary school (Australian Curriculum Assessment and Reporting Authority, 2016). Impacts of education reform on ZEST were beyond the scope of this study, since data had been collected for the six cohorts 2005-2010.

4.3 WHAT?

> Mr Sapphire explained: Placement of ZEST in the middle years means that
> gifted students gain an awareness of potential for strengths and weaknesses,
> before entering Senior-school. (18PA-PS, 2011. 100-101)

Mr Sapphire designed the ZEST model and was responsible for many of the early decisions regarding its evolution. His decisions were grounded in a sound research base that teachers used to justify decisions made for the program. Justification for targetting middle school students for the immersion was to assist them in their

difficult transition into secondary school (4BA-Z, 2002). He recognised that the needs of gifted students differed markedly from their age peers referencing Eccles and Wigfield's (1997) guidance on pedagogy for the middle years. The first ZEST group in 2005 created an additional (seventh) class. The heterogeneous group of students were aged between ten and eleven. Mr Sapphire's initiation of the program dictated rigorous student entry testing, the establishment of a new classroom and employment of Mr Silver as an additional teacher.

4.3.1 Aim of ZEST

Knott School's advertised aim was to achieve excellence in gifted education (3AA-Z, 2002). The program sought to capitalise on the traits of gifted students. Mr Sapphire (14LA-PS, 2005) explained to the school council, that ZEST staff possessed the qualities of "human gatekeepers who could provide educational opportunities". When questioned about the terminology, Mr Sapphire spoke of his staff as experts, whose empathy for gifted students implied an ability to develop individual potential. The context of his comment alluded to an unstated objective of the Enrichment department: to encourage broad-based professional development for all staff, build understanding and support the aims of targeted programs. (18PA-PS)

The school also chose to host seminars for the State Association for Gifted and Talented Children (14LA-PS, 2005) with leading researchers in the field of gifted education such as Dr Miraca Gross (5CA-PS). While this presented access to expertise, Mr Silver admitted that not many staff from outside of the ZEST program took up this professional learning opportunity. (22TA-EP)

The ZEST program was presented to the whole staff as an evidence-based innovation founded on current gifted education research (6DA-R, 2005). Programs using acceleration and grade-skipping by Plunkett and Harvey (1999) and Southern and Jones (1991) illustrated how curriculum for gifted learners could be accelerated to a pace not easily accommodated in a regular classroom. Morelock's (1992) journal article titled "View from within", Silverman's (1995) reference to complex inner experiences of gifted students and positive psychology research from Peterson, Ruch, Beermann, Park and Seligman (2007) were also shared (10HA-R, 2007). The aims of the program supported contemporary research that underpinned the principles of the ZEST model.

4.3.2 **Program Principles**

The program principles were not found to be detailed specifically in one place. Five interrelated principles however, appeared to guide decisions about the establishment and evolution of ZEST, summarized as:

1. Academic and social-emotional needs differ from age peers;
2. Identification of gifted students informs differentiation;
3. Inherited traits can be nurtured in a balanced program;
4. Ability grouping provides a supportive environment for gifted students; and
5. A gifted program attracts new families to the school.

In essence, the program challenged traditional programs, by balancing academic achievement with social emotional wellbeing. Using principles similar to these, Knott School aimed to satisfy the perceived needs of gifted students.

Knott School's beliefs about teaching gifted adolescents, were grounded in theory. The principles laid a foundation for program assertions that guided the program design. Three assertions about the ZEST model were informed by principles:

a) ZEST drew on a strong theoretical foundation to justify decisions.
b) ZEST identified and ability grouped gifted students to:
   - Foster potential;
   - Capitalise on asynchrony and characteristic traits of giftedness;
   - Use cognitive and affective domain tests for selection and monitoring;
   - Establish trust to provide a safe supportive environment.
c) ZEST supported the balanced development of gifted adolescents by:
   - Accelerating curriculum to satisfy high intellectual needs;
   - Reducing repetition, instead expanding challenge;
   - Satisfy social-emotional needs to increase connectivity;
   - Encouraging curiosity, experiential learning and challenge;
   - Promoting autonomy to sustain motivation and engagement; and
   - Enabling students to skip a grade to join an older social group.

It was evident that reference to theory was relied upon to build credibility and justify decisions for ZEST's inception and evolution. In a conference address, Mr Sapphire referred to the widespread practice of not accelerating gifted students as an international tragedy (7EA-R, 2005). He believed that given ideal conditions, individual strengths could be capitalised, to compensate weakness. He maintained

that research evidence enhanced program development suggesting that "Theories exist to keep practices visionary and practice keeps theory honest" (7EA-PS, 2004, 5-6). Mr Sapphire admitted however that developmental theories had only been able to address the development of talent in heuristic term by providing a model to analyse complex challenges that gifted students face daily (16NA-R, 2006, 65-68). Sternberg's (1998) Triarchic Theory of Intelligence was acknowledged as placing equal importance on cognitive, creative and psychomotor skills.

Ability grouping for ZEST was justified using references to documented studies in particular, Baumeister and Leary's (1995) study that linked the need for social belonging to motivation. In one referenced study students were grouped into two streamed classes: gifted and high-ability. The ZEST class incorporated compaction and grade-skipping, while the parallel high-ability class included extension without acceleration or grade-skipping. Both covered the same mandated curriculum that was extended to capitalise on strengths, curiosity and creativity. Repetition was minimised by compaction and the acceleration of curriculum, designed to stimulate engagement. Mr Silver described the themed units designed for the program at Knott School as "designed to ignite motivation. It seemed to be there in younger gifted students, but disappeared when they came to high school? Making school fun improved attitudes toward learning" (14LA-EP).

Balancing cognitive and affective domain components for the ZEST's program was achieved using advanced academic units of curriculum with practical elements for social-emotional development. Units offered enrichment, scope for autonomy, social development, and an orientation on future change that could be differentiated for individuals (7EA-PS, 2003). Paul and Elder's (2016) Elements of Reasoning model from 1992 and VanTassel-Baska and Brown's (2007) integrated themed approach informed the ZEST model. The themed approach incorporated all subjects shared by the class with the one Home-room teacher.

4.4 WHO?

The collection of historical data from archives for Phase I commenced in 2011. Data included telephone and coffee-shop interviews in 2012 from key stakeholders who had left the school. Information from this phase of the study informed interview questions for staff and students in Phase II. Each participant interviewed for this

study experienced direct involvement with ZEST. Forty-four interviews for Phase II were completed in 2013 with student focus groups and individual staff interviews, providing a representational sample of participants for this research.

4.4.1 **Demographics**

At the commencement of this study, the Principal gave permission for access to archives, staff and students associated with the ZEST program. Of 128 students from six sequential class cohorts 2005 to 2010, 28% (n=36) were granted parental consent to attend one of seven cohort-based focus groups. Table 4.2 provides class demographics for ZEST and participation in this study.

Table 4.2.

Student demographics by cohort

Enrol Year	ZEST immersion	Class Size	Gender Balance	Focus Group Participants	Retention to Year 12
2005	Year 6-8	19	10 M / 9 F	6	13 (68%)
2006	Year 6-8	22	11 M / 11 F	6	14 (64%)
2007	Year 6-8	22	13 M / 9 F	3	10 (45%)
	Year 5-7	21	10M / 11 F	7	19 (90%)
2008	Year 5-7	10	4 M /6F	6	10 (100%)
2009	Year 5-7	18	8 M / 10 F	5	18 (100%)
2010	Year 5-7	16	8 M / 8 F	3	15 (94%)
	Totals :	**128**	**64 M /64 F**	**36** (28%)	**99** (77%)

Key: M (male), F (female), # Number of students participating in focus groups.

Eight staff invited to be interviewed took the total number of participants interviewed to forty-four. Appendix G (b) lists coding for staff and students. Two teachers who had left the school after initiating the program were interviewed in Phase I to assist the compilation of a blueprint for the ZEST model. The remaining six teachers interviewed in Phase II were selected based on availability and involvement in the program. The eight individual staff interviews brought the total number of meetings to fifteen.

School records indicated that 128 students had been enrolled in ZEST over the six-year period 2005-2011. After seeking parental consent for student participation, emails of invitation were sent to 36 students. Students were invited to

join focus groups from their own cohort year however, several were absent on their scheduled interview day. Their enthusiasm toward being involved led to an additional mixed focus group being formed. This bought the total number of student focus groups to seven, each comprising three-to-seven students. Nineteen-male and seventeen-female students participated in the study.

The impact of a commitment contract and structural change to the student intake year in 2007 warrants attention. The entry age for students was lowered from age ten (Year six) to age nine (Year five) based on ZEST review analysis, meaning promotion for entry at Year five had not been a focus. The result was fewer applicants and a class size of ten. The commitment contract requested students remain after completion of the immersion, as a response to the significant departure of ZEST students in the first three years of the program.

The final column 'retention at Knott School' shows the number of students (77%) remaining at school until graduation in Year twelve. Comparing 'Class Size' to the final column reveals two findings. Retention rates rose from 47% 2005-2007 to 99% 2007-2020. The improvement in retention rates may have indicated a growing satisfaction as the program evolved however, review documents revealed the introduction of a commitment contract in 2007. The contract committed families to remain at the school for a period of time after completing the immersion. Higher retention rates in later years were therefore a direct result of the school's response to concerns identified in program reviews (discussed further in Section 4.7). Satisfaction and commitment to the program were explored through participant voice in Phase II, reported in Chapter five. In hindsight, retention rates for non-ZEST students may have been a useful benchmark.

4.4.2 ZEST Student Selection

Gifted students were screened using a battery of tests. Students identified as gifted were offered a place in the ZEST program. Acceptance required a written commitment to the two-year gifted immersion class. The class was designed to accommodate the learning profile of a gifted student, who was unusually curious, learned at a faster rate, enjoyed complex problem-solving, thought creatively and made abstract connections (6DA-R, 2005). This section briefly outlines screening tests and issues surrounding the selection of students for the ZEST class. Appendix E

(a) provides an overview of the test battery used for the first year of student selection. The list has a mix of cognitive and affective domain tests used to select students and to check progress. Appendices include samples of questions posed to parents E (b), staff E (c) and students E (d) are offered as part of the appendices.

In a report to School council Mr Sapphire referenced Campbell and McCord (1999) to support the proposal for using a mixed battery of tests (4BA-PS, 2004). The use of varied tests is validated by Cross, Coleman and Terhaar-Yonkers (2014) who warned that testing purely for ability implies a judgement of intelligence based on behaviour.

Traditionally many gifted programs have selected students based on objective grading from academic reports and intelligence quotient (IQ) tests (Kaufman, 2009). Knott School's documentation however, argued that academic performance alone did not give an accurate measure of giftedness for two reasons: under-achievers and the influence of overly-ambitious families (21SA-PS). Mr Silver (14-15) mentioned that claims of academic and co-curricular excellence made on enrolment forms were verified using school records. He went on to offer examples of parents who coached students to falsely elevate school results and gain entry to ZEST. Recommendations made by Junior-school staff and Enrichment staff who worked with all classes, were highly regarded. The mixed battery of tests provided diagnostic evidence of each student's capacity to negotiate academic challenge and cope with acceleration (8FA-R). Staff opinions offered insight into motivation, curiosity, work habits, and how students coped under pressure.

The mixed battery of tests used at Knott School therefore identified students capable of acceleration and those who were perceived to be under-achieving yet proficient. The academic test component included mathematical reasoning, creative writing, reading and Ravens Progressive Matrix tests (Raven, 2000) while ongoing tests that monitored the progress of acceleration changed as the program evolved. Qualitative assessments supplemented the initial quantitative test battery. Mr Silver highlighted the importance of final interviews with each family prior to acceptance. He sought assurance that families would provide support at home and trust staff to monitor the pace of progress at school.

Families were fully informed about the expectation, demands, opportunities and responsibilities. Acceptances were confirmed to establish a class list early

November, three months prior to the new school year. Applications to join ZEST came as a response to internal and external promotion. Advertisements outlined desirable student qualities as:

- having a strong positive self-concept;
- displaying academic excellence across most of the key learning areas;
- confidence to work autonomously with intrinsic motivation;
- possessing a high level of creativity;
- motivation to work autonomously, yet seek like-minded peers,
- demonstrating maturity and commitment; and
- being capable of independent learning. (4BA-R, 2004)

Nominations were received from families seeking entrance to the school and from identified students already attending Knott School. While the total intake over the six cohorts involved in this study had 64-female and 64-male students, Mr Sapphire stated that this was not planned. He assured me that there was no bias toward gender, or ethnicity. He was adamant that students were selected based on personal suitability criteria revealed through a variety of tests.

Figures 4.7, 4.8 and 4.9 offer insight into the value of using a varied range of test instruments by providing vignettes of three different students who were selected for the ZEST program. The first two students Adam and Dan were deemed under-achievers prior to entry.

Adam reached middle school by transition rather than hard work. School reports from staff described him as a behavioural challenge. In his primary school years, he scored well in competitions and achieved top rankings in State tests but did not work well in class and was not in the top 10% of the cohort. Due to his poor attitude and lack of interest in school, his parents did not inquire about the program. Teachers however, suggested that he might benefit from the immersion and acceleration to focus his interest. Adam's two-year immersion provided the challenge and skill he had always sought. In ZEST, he flourished beyond comprehension.

Figure 4.7. Adam's story

The personality profiles are based on meeting students at the focus groups, and staff comments about each individual. Dan's story of under-achievement in the next vignette differed from Adams description. The difference lay in personality traits attributed to asynchronous development and Dan's twice-exceptionality. Adam and Dan did not participate in the same focus group since each was from a different cohort.

Dan was asked to repeat a class in kindergarten (aged 5) to delay his introduction to the formalities of primary school. He was a patient listener, but his language and communication skills had not developed. His hearing had been tested to check for abnormalities. Dan entered ZEST at age ten. An entry report registered his demeanour as 'reserved with minimal communication' yet he watched others intently, comprehending action carefully before relating ideas to others. His language was advanced and eloquent. His problem-solving ability was above anyone else in the group and his ability to learn new concepts or mimic artwork, music and sport-related skills was impressive. He was obliging yet complacent, referred to by staff as 'quirky' and 'different' by his own admission. Dan blossomed exponentially very early in the secure trusting environment provided by ZEST.

Figure 4.8. Dan's story

The vignettes were selected as examples of students identified by teachers for their high level of engagement with the program. Ms Gold who taught Dan and Adam at different times in Year six, described them as students who appeared to be unhappy and under-achieving when they first started in the program. They were selected for ZEST based on a broad test battery of cognitive and affective domains. Based on their personality profiles however, they may have scored poorly on a purely intellectual or behaviour-based entry assessment.

In the final vignette, Briana demonstrates outwardly evident cognitive and social traits of giftedness. She would have been an obvious choice for inclusion based on her school results, behaviour, knowledge, and teacher recommendation.

Briana was a quiet middle school student full of surprises. She loved everything from art to music to sport and filled every day happily. Briana had many friends who all moved in different circles. It seemed there were not enough hours in every day to follow all of her interests. She showed a passion for the romantic period of music which took her further into the art world, and her passion for history and politics. Although very accomplished, Briana was humble about her creative talent and worked very quietly with different classmates, trying not to draw attention to her curiosity. Briana did not have a special friend or any particular special talent but seemed content to remain aloof and work quietly. ZEST took Briana beyond the satisfaction of academic achievement, to a new height that incorporated deep friendships and working collaboratively with others.

Figure 4.9. Briana's story

According to school reports and comments from Ms Gold, all three students flourished during the program. The vignettes therefore validate the inclusion of cognitive and affective domain tests. Encouraging ZEST teachers to add observational notes to reports periodically such as those offered by Ms Gold, supports Sternberg's (2016) endorsement of tacit knowledge and teacher instinct as authentic feedback, and an under-used source of reliable reporting by specialist teachers. The battery of tests was open to negotiation as the program evolved. The IOWA Acceleration Scale for example, was added to the 2007 test battery following an external review recommendation (7EA-Z). IOWA results enabled staff to justify refusal to accept students into the class, as placements became increasingly competitive. IOWA appears to be a popular test inclusion for programs that monitor coping with acceleration (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb, & Forstadt, 2009).

4.4.3 ZEST Staff

The selection process for students and staff was considered as vital to the success of the program. Mr Sapphire reported that passionate staff were selected for their nurturing approach to the challenges faced by gifted adolescents. Additional qualities in the brief were similar to those listed in Neihart's (2015) reference to desirable qualities for teachers of gifted students (7EA-Z, 2006).

The panel selecting staff for ZEST was made up of four people who had shown an interest in the education of gifted adolescents: head of the Enrichment department, a member of the school council, and two members of the Human Resource team. Positions were advertised internationally and applicants were selected based on their experience with gifted students and enthusiasm toward accepting the challenge (Mr Sapphire, 4BA-PS). Although formal gifted education qualifications were not a pre-requisite, high intellect, advanced communication and information technology skills were valued qualities (3AA-PS, 2003). Mr Sapphire (38-39) expressed an assumption that staff with a genuine interest in gifted education would be empathetic, enthusiastic about the program and accept school support for expanding their own professional skills as required.

While all staff were originally involved in an introduction to gifted education before ZEST was launched, teachers not involved in the program chose not to participate in professional development opportunities that were not compulsory. Not surprisingly, communication barriers grew between ZEST staff and students, and the broader school community as the program evolved. Limited communication therefore emerged as a concern that was able to be explored at interviews.

Although studies indicated a need to develop whole staff understanding of gifted education due to associated stigma (Gross, 1999; Torrance & Sisk, 1997) the school chose to limit extending professional development to ZEST staff. Mr Silver (EP-15.05.13) mentioned leaving meetings with "a compendium of strategies suited to student extension" (57-58). In the same interview he mentioned contemporary studies of that time that helped him use gifted traits such as curiosity and creativity, associated with asynchrony, to advantage in the classroom. Reference documents were cited from Rogers (2002), Schlichter (1986) and Diezmann and Watters (2000).

Three of the eight staff interviewed for this study had already gained formal gifted education training prior to ZEST. Four staff enrolled in courses to gain specialist qualifications. The remaining staff member Ms Bronze was an existing teacher at the school who had been appointed to take ZEST physical education class after showing an interest in gifted education. She described finding value in team teaching her gifted class with another class, to enable students to play team sports and take physical risks in the larger social group. However, after her second year teaching the ZEST Health and Physical Education classes, she spoke of frustration

with student behaviour and did not continue with the class nor undertake any professional development. She identified student behaviours that frustrated her, including: incessant questions about purpose of activities, clarification of details about rules for games, and students refusing to participate due to risk. Comments in program reviews about the type and adequacy of support for staff professional development were identified as questions for further inquiry beyond this study.

4.5 HOW? PHASE I DATA COLLECTION

Data collection for Phase I commenced in March 2011, following the signing ethical clearance (outlined in Section 3.1.2) and a memorandum of understanding between Knott School and the Queensland University of Technology (QUT) (Archived documents, files from the school management system and artefacts from staff were accessed. Digital files listing co-curricular involvement, academic records, and absenteeism were valuable indicators of student engagement. They implied school satisfaction and offered insight into wellbeing that was to be explored further in Phase II. Evidence for the three *objective* elements collected for Phase I (circled) are expanded in the next three sections. *Constructs* include academic competence, involvement in school co-curricular opportunities ad absentee records to indicate general Attributes and indicators that provided particularisation were able to verify and expand data at Phase II interviews. The figure is therefore expanded to include Phase II constructs. Figure 4.10 shows the structure of the analytical framework used to collect subjective and objective data using a progressive refinement of coding.
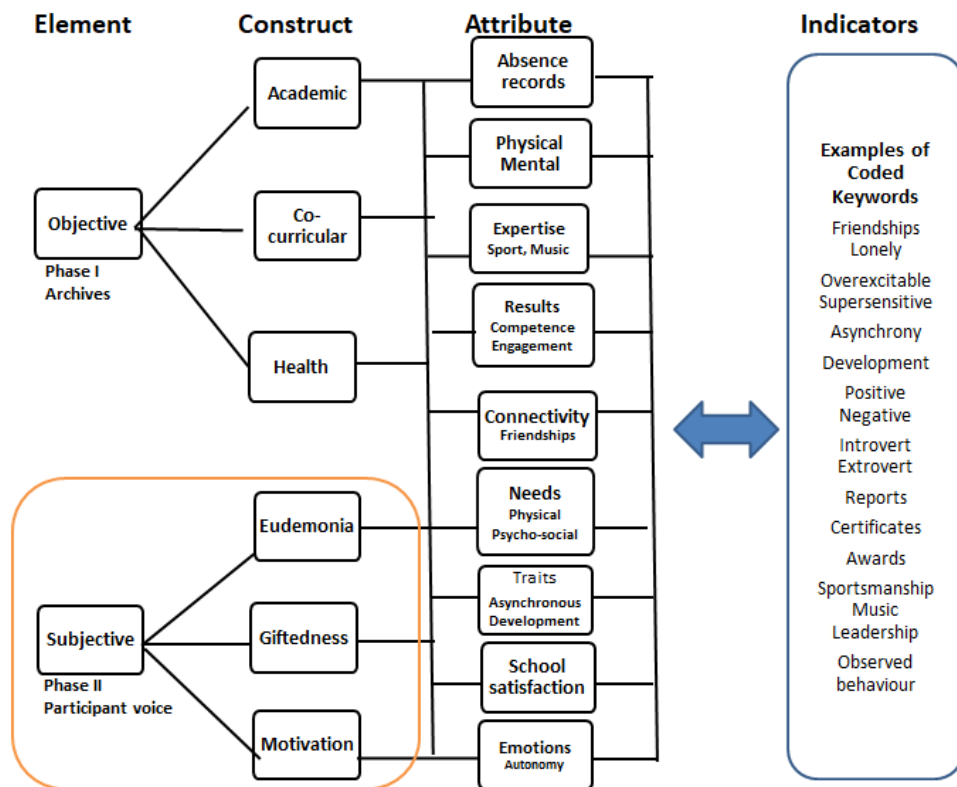
Figure 4.10. Analytical framework with attributes

Demographic lists and key dates were gathered from documents to establish a time line (presented in Section 4.1.3) that was developed as more details emerged. Evidence stored digitally was carefully coded to develop a comprehensive audit trail.

4.5.1 Academic Indicators

Numerous artefacts, e-folios (21SA-A) and archived reports (5CA-A) provided a plethora of information about the competence and advanced skill-sets of students. Mr Silver (23-24) mentioned the importance of testing for prior knowledge to document each student's stage of readiness for planning and acceleration (16NA-PS). The focus of documented assessments was problem-solving and project development. Differentiated curriculum was designed to meet the need of individual students so, a diverse array of projects was submitted to meet the same criteria for several of the assessments. Unlike other classes, ZEST units taught by the Home-room teacher were themed with cross-curricular content to combine several subjects into a single large assessment that allowed for creative outcomes (7EA-PS, 2003). Collected artefacts illustrated the broad scope of creativity possible.

Tailored projects were heavily scaffolded at the outset to introduce mandated content and outcome criteria reminiscent of Tomlinson and Moon's (2014) 'big idea'

concept for differentiation. Students were encouraged to negotiate research to include topics of interest, thus extending complexity and increasing autonomy (Mr Silver, 43-45). With a background in drama, Mr Silver introduced role plays to most units as an opportunity to practice social skills.

Mr Sapphire (13-16) referred to ZEST goals that placed importance on establishing trust early as a class, so students felt safe to interact and debate topics without being criticised by peers. With trust in place, the unit sequence followed:

a) introductory stimulus that led to vibrant, often over-excitable discussion;

b) debate and negotiated topics with highly structured guidelines;

c) collaborative work toward set assessment criteria;

d) open-ended opportunities to foster autonomy and creativity; and

e) present outcomes with a strict time line. (31-36)

Numerous examples of archived work samples are cited in Appendix H to illustrate the integrated approach of curriculum units. Appendices include elaborations for Science H (a), an application using the Williams model H(b), a history unit H(c) and English "Hobbit" unit as Appendix H(d). Units followed a similar mandatory sequence but included elements of choice to encourage autonomy and open-ended assessment.

The Year five environmental study of the Canadian wetlands modelled authenticity in its integrated approach. The unit started with a scaffolded study of facts, journal entries then digital connection to a class in Canada. Mr Silver (11IA-EP) had chosen the Canadian wetlands for their global significance and climatic difference to Australia. The class visited local wetlands and compare experiences about where they lived with the Canadian class (15MA-EP, 2006). A case study of the unit was published in Mr Sapphire's 2006 international conference paper (19QA-PS) to highlight the benefits of extension, opportunity and making connections beyond the classroom.

The mandated Year five 'First Australians' unit that followed was designed using a similar structure, to build on early independent thinking for autonomy. Appendix H (c) shows this unit as an application of the Williams Model (2010) favoured by Australian education at that time. Likewise, "A tale of two laws" (8FA-JB) unit used a similar integrated approach that extended to a theme of prejudice using a values framework published by the Education department (10HA-PS, 1990).

Reference was made to similar democratic processes that incorporated values, ethics and debate from Lockard and Pegrum (2007).

As the final example, Appendix H (d) excerpt from an English novel unit that began with the study of The Hobbit (7EA-JB) and finished with each student producing their own fantasy novel (12JA-EP). The promise of designing and home-publishing a fantasy novel through to production incorporated artistic illustration, mathematical problem-solving and reference to scientific and historic fact. As a finale and incentive to finish, authors were invited to share readings of extracts from the completed novels. As evidenced in Chapter five, students in focus group interviews reflected on long themed units with fond memories of rigorous challenge and satisfying engagement.

Greater student engagement was evidenced by the number of academic and skill competition prizes awarded to ZEST students during the program. Prior to ZEST many of students had not been identified as gifted due to their poor performance in Science or Mathematics competitions. In some cases, students were noted as not having entered school competitions, which may reflect a fear of stigma, lack of motivation toward extrinsic awards, or forced-choice dilemma. Competitions included games of strategy, University forensic competitions, Engineering competitions, subject-specific competitions and team participation in problem-solving competition in Da Vinci Decathlon, Tournament of Minds and Opti-Minds (13KA-R). Mr Silver proudly spoke of fostering relationships with like-minded peers beyond the school boundaries at 'Mind Change' as an annual interstate challenge.

Mr Sapphire expressed the satisfaction of watching great improvement in several students who Junior-school staff had identified as under-achievers. Students showed improvement in academic results and engagement with others in competitions by the end of the first semester (23UA-PS). He pointed out with pride that one had gone on to become school captain in his graduating Year twelve final year as the youngest student in the cohort.

In summary, unit planning acknowledged existing systemic guidelines to cover mandatory curriculum before extension and acceleration. Scaffolding offered direction with opportunities for collaborative research, multi-modal extension and autonomy for creative decisions. Student reports followed the standard school format to enable moderation of academic competence but personalised comments about

autonomy, attitude and co-curricular engagement were added to reflect progress in the affective domain. The large volume and range of assessment tasks were stored as electronic e-folios. Academic reports were combined with indicators for health to offer a broader picture of student progress, behaviour and wellbeing.

4.5.2 **Health and Absentee Indicators**

Absentee records were used to indicate general health since privacy laws restricted access to sensitive student records. Absenteeism for participants during the program was extremely low with very few days of absence, despite increased academic demands. The days of absence followed a trend however, for whole-of-school-day events. Questions about school satisfaction and what absenteeism might have looked like before and after the program were able to be pursued at Phase II interviews. For example, comments from students verified Mr Silver's (33-36) speculation that the absence from sports carnivals may have been due to social awkwardness, avoidance of large crowds, and students not being able to justify any purpose for the day.

Notes in annual program reviews about increased absenteeism post-ZEST did not indicate actions taken. A few cases of extended absenteeism after ZEST were explored using archived records (11IA-A, 2011). Absentee records (14LA-R, 2011) therefore provided objective indicators for student health, engagement and general satisfaction at school. In addition to absentee records, comments from participants about physical and mental health were noted. Particular cases of eating disorder and anxiety were reported across sources to substantiate claims. Students attending interviews appeared to have good physical health and silhouette shape. They were vibrant as they reflected on ZEST experiences. Co-curricular records were explored to gain further insight into student wellbeing. Questions about absenteeism and co-curricular involvement were raised for cross-checking in Phase II.

4.5.3 **Co-Curricular Indicators**

Strategies to integrate gifted adolescents with age peers in their cohort were not explicitly written into planning documents. It could be assumed however that broad sustained involvement in co-curricular activities during the ZEST program (28ZA-R, 2012) contributed to expanding friendship connections and social-emotional development. Annual reviews mentioned the need to encourage student involvement

in activities outside the class with two apparent intentions: to increase student friendship connections and to share information about ZEST with the community.

School data files provided an accurate record of student involvement in sport, clubs and music as co-curricular activities. Mr Silver (16-19) felt satisfied that the trust engendered within the ZEST class encouraged students to try a broad spectrum of skill-based activities (4BA-Z, 2002). Records verified high class involvement in a range of activities offered to Australian schools, including indicators for:

- Sport – soccer, basketball, netball, volleyball, sailing, gymnastics, tennis, cricket, softball, badminton, swimming, water-polo, rowing;
- *Competitions* –Maths, Science, Robotics, Reader's cup, Tournament of Minds;
- Music – chorale, choirs, instrumental, orchestral, band, quartet, ensembles;
- Other – debating, Duke of Edinburgh Award, Environmental Group; and
- Multicultural Group, Service and Faith groups, and Days of Excellence.

Some of the indicators were coded for several constructs, for example *competitions* listed as an indicator above.

Mr Silver (19-21) mentioned a resilience and greater self-esteem that students appeared to develop as a result of engagement with each other. He went on to make a connection to the large proportion of ZEST students holding leadership positions in Year twelve despite being a year younger than the cohort. Strong friendships established in the safety of the class therefore assisted social-emotional development however friendships beyond the class remained a concern.

Data evidenced a marked decrease in co-curricular participation post-ZEST (4BA-R, 2004). Age-based sport selection posed an additional challenge for students who had skipped-a-grade, since students were selected into teams with peers from the cohort below. Mr Silver noted that strong ZEST friendships were maintained outside school, but in many cases new friendships were formed at school. Situations requiring empathy from staff or peers included age differences in sport, social shyness, stigma associated with displaying exceptional skill, and gifted students having a genuine fear of taking risks for fear of experiencing failure and ridicule. Health and co-curricular indicators contribute to an argument for establishing broad support networks beyond the classroom.

4.6 ZEST PROGRAM REVIEWS

ZEST was highly responsive to constructive feedback from regular program reviews. Reviews gathered quantitative and, where possible, qualitative feedback from parents (24VA-Z), staff (27YA-Z) and students. The school response involved discussions with students and summary reports available for interested staff and parents (8FA-R, 2006). Reports to families (17OA-R) differed in depth and technical detail, to feedback prepared for staff (10HA-R), school council (14LA-PS) and education authorities (7EA-R). Internal reviews were carried out annually and external assessments were completed every four years, in 2006 (7EA-R) and 2010 (full report not made available). The most significant response to the reviews was a structural change in 2007 shown on the Time line in Section 4.1.3.

4.6.1 External Reviews

Policy guidelines for ZEST were revisited every three years following external reviews. Action plans for change in response to concerns about student wellbeing and program sustainability (18PA-R). External reviews were enriched by the expertise of an external assessor who compared the ZEST model with the professional standards from other gifted education programs (7EA-R, 2006). His mixed-method approach aligned indicators with published goals and objectives for quality assurance.

The 2006 external review offered recommendations that included the inclusion of the IOWA acceleration scale to the test battery, value in maintaining dedicated Home-rooms for the two ZEST classes and strengthening support networks beyond the classroom with professional development for staff (8FA-R). As with all reviews, an action plan was developed by staff, approved by School council, then enacted (10HA-R). Change was tempered by two distinctly different, but equally important motivations: balance for the academic and social-emotional development of students; and economic viability for the program (9GA-R, 2007).

The most significant structural change after the 2006 external review, involved moving student entry from Year six to Year five to address evidenced assimilation concerns (18PA-R). In the new structure students moved from the immersion into mainstream classes at Year eight. It was assumed that this was more successful due to the ability for students to blend into a large number of new students

joining the school for their first year of secondary education (30BB-R). A systemic change to Australian education in 2015 saw the alignment of all Australian States to start secondary school at Year seven. Comments on the influence of this change on units of curriculum were beyond the scope of this study.

Mr Sapphire delivered a paper to an international audience in 2006 that reported impacts of the program on student success (14LA-EP, 2006). It showcased the program design that balanced academic and social-emotional development and singled out challenges faced by students (15MA-EP, 19-25). Challenges of assimilation after the immersion were echoed in a journal article by Van Tassel-Baska and Brown (2007). They acknowledged school support, as an important measure for smooth student transitioning and program success. Ongoing challenges for Knott School summarised from an executive report (23UA-EP) follow:

- Complexities of student identification;
- Concerns about credibility of the program from the wider school community;
- Criticism of grade-skipping voiced by those outside the program; and
- Heightened student awareness of similarities, differences and potential that led to a greater desire to be accepted in an inclusive community.

The first three challenges led to recommendations to improve communication and professional development for inclusive practice. The final challenge signalled a need to reduce stigma and myths associated with giftedness to improve student transition into the mainstream. Reviews provided insight into the strategic delivery of goals to fulfil the program intent.

4.6.2 Internal Reviews

Annual evaluations contributed to the vibrancy of development for the ZEST model. Staff distributed quantitative surveys to parents and students in October each year so that analysis could be efficiently completed by the close of the school year early December. Reviews examined the effectiveness of program goals, and the influence on the academic and social-emotional development of students. Reviews explored:

a) To what extent has the program achieved stated goals?
b) Have syllabus outcomes been fully met?
c) How have parents and students perceived the educational experience?
d) What suggestions can be made for program delivery and management?

e) Determine relevance and consistency to 'Framework for Gifted Education' and 'A Nation Deceived' (Colangelo, Assouline, & Gross, 2004).

f) What are the implications for future directions to assist students as they enter Senior-school (possibility of vertical curriculum in the future).

"A Nation Deceived" has more recently been updated with "A Nation Empowered", outlined in Section 2.6.1. The practical nature of recurring themes referred to student selection, classroom operation, socialisation, and assimilation after ZEST (8FA-Z, 2006). Mr Sapphire mentioned value in gathering data for timely corrective action.

Constantly asking for parent opinion but offering limited return-feedback, was one possible explanation for the poor response from parents for this study. Two mail-outs of email requests seeking consent for student participation in this research study received a poor response (refer to Section 3.6.1). Internal review notes did not show an awareness of diminishing feedback as a shortcoming until responses to surveys diminished in 2009, four years after the commencement of the program. Recommendations from reviews relating to student wellbeing that were explored further in participant interviews as Phase II focussed on:

- Balancing time for study, co-curricular activities and reflection;
- Strategies for gaining self-esteem and acceptance from others;
- Appreciation for the social-emotional focus that supported wellbeing;
- Autonomy and independence offered to provide choice;
- Decreasing the focus on academic competitiveness to focus on personal best;
- Involvement in activities and friendships beyond the class; and
- Increase collaborative work to appreciate personal strengths in others.

One significant innovation resulting from these internal reviews was the introduction in 2007 of a 'commitment contract' to assure school retention rates post-ZEST. As mentioned earlier, on average half of each ZEST class were new families to the school, indicating a broader social issue of families actively seeking programs to accommodate the needs of gifted children. Minimal innovation post-ZEST to assist student assimilation was evident and noted as a point to explore further with staff.

Reviews indicated that although families were happy with the ZEST model, departures from the school after the program were high due to concerns of transition into the mainstream. This concern was also voiced by specific ZEST staff. For example, in the second review (18PA-R, 2006) Ms Gold wanted to "write more

social skill activities into units to help students cope with friendships" (118-119). Staff attributed high attrition in the third year of the program to ongoing concerns about support for students post-ZEST (32DB-R, 2008). In hindsight, better communication about the program including feedback from reviews, may have garnered more collaborative involvement from families and the wider school community. Review summaries were filed and shared on request.

4.7 SUMMARY OF PHASE I

A reflection of Phase I data, raised questions to be clarified and explored further at participant interviews in Phase II. Data collected showed the experiential learning opportunities experienced by ZEST students using school records of academic performance, low absenteeism, high co-curricular participation and two early interviews with Mr Sapphire and Mr Silver ZEST. The collection of demographics and reviews mapped evolutionary change to address the first research question about the principles behind ZEST.

The ZEST model was presented using Dai and Chen's (2013) Paradigmatic model that showed how contemporary studies and program reviews had influenced its theoretical base over time and to develop further questions for Phase II interviews. Phase II explores the achievement of goals and longer-term outcomes using participant voice. Prior beliefs about the needs of gifted students may be challenged as the case for a systemic approach to gifted education in schools is constructed.

Chapter 5: **Phase II Participant Voice**

> There are so many bright students, who are struggling or unhappy in
> mainstream classes just because they are seen by others to be different. As soon
> as they become adolescents, the potential blessing (exceptional talent) becomes
> a curse. (Ms Emerald, 84-86)

Ms Emerald's sentiment in the extract above reflects a perception shared by many staff and students in the study. ZEST was established by Knott School as an immersion program that balanced social-emotional development with academic demands. The first research question was addressed in Chapter four by presenting the principles behind ZEST. Phase II presented in this chapter adds explores the second question: *In what way did the program influence gifted adolescent wellbeing?*

Staff and student perceptions of the ZEST model were sought to gauge its influence on student wellbeing. Conversational discussion-style interviews were encouraged to enable deep inquiry into areas of interest. Ms Diamond asked an inspiring question early in her interview: "Can a gifted student really experience wellbeing in a mainstream class?" (37-38). Such a question alerted me to the possibility of interviews revealing predicted and unpredicted evidence. Using semi-structured interviews enabled deeper inquiry into participant beliefs about shared experiences laced with personal vignettes of memorable aspects of the program. The qualitative interview process allowed me to submerge myself as a researcher, into the vicarious experience. This chapter uses primary data as an invitation for the reader to experience the challenges and excitement shared by participants. Evidence from different sources across Phase I and Phase II will be triangulated to develop the discussion for Chapter six.

5.1 INTRODUCTION TO PHASE II

Protocols for qualitative data collection and analysis followed Yin's (2014) exploratory approach to develop an historical case study. Section 5.2 reminds the reader about the coding and grouping of subjective data in relation to the analytical framework. Section 5.3 uses time sequencing to compare experiences prior to, during and after ZEST. Section 5.4 shows how evidence was triangulated to organise data

ready for the discussion in Chapter-six. The Progress map (Figure 5.1) illustrates how interview data have been organised for this chapter.
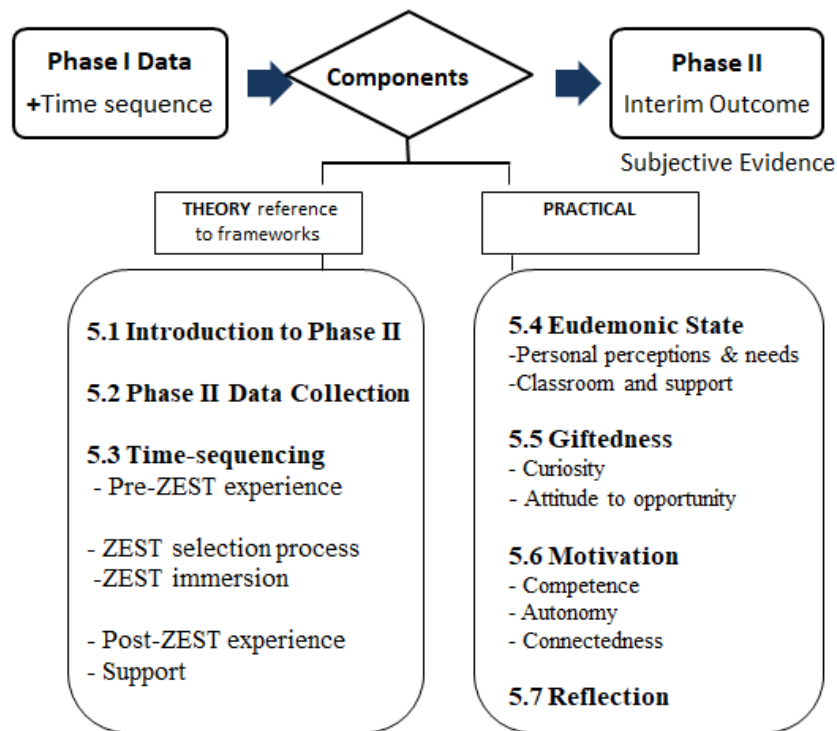
Figure 5.1. Chapter five Progress map for Phase II

Evidence informing the practical component, is presented in the second half of the chapter. Evidence is grouped into the three subjective constructs from the analytical framework to provide evidence of student eudemonic state (Section 5.4), the influence of giftedness traits on wellbeing (Section 5.5). Coding of primary data from transcripts revealed patterns between participant perceptions from different sources. Indicators for motivation (Section 5.6) relating to self-determination were noted due to the frequency of comments, prompting further re-grouping with secondary analysis as autonomy, competence and connectedness.

5.2   PHASE II DATA COLLECTION

A single quotation from a transcript was sometimes coded to align with several constructs. The example shows coded indicator words in italics: Mrs Emerald (176-178) pointed out "interest can be measured in any subject. The best measurement is counting the number of minutes and hours a student spends on an activity voluntarily." The word *interest* was coded as competence, while the word *voluntarily* was a clear indicator for a student's autonomous decision to act. Primary data could

therefore, be aligned to competence or autonomy in the discussion of attributes for motivation. This section opens with a reminder of data coding for direct quotations.

Example of **Full Coding** used to reference Staff Transcripts
(Ms Gold, 25-26)

Staff   Lines
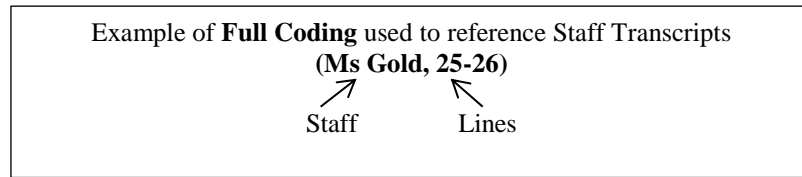
Figure 5.2. Staff transcript coding from interviews

Quotations from focus group transcripts were coded Figure 5.3 using student names.

Example of **Full Coding** used to reference Focus Group Transcripts
(Ellis, 46-48)

Student   Lines
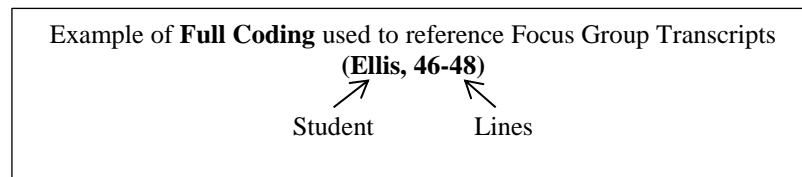
Figure 5.3. Student transcript coding from focus groups

Evidence in this section has been organised beneath the three subjective constructs from the Figure 5.4 analytical framework. Comments added to transcripts as context became indicators that contributed to analysis.
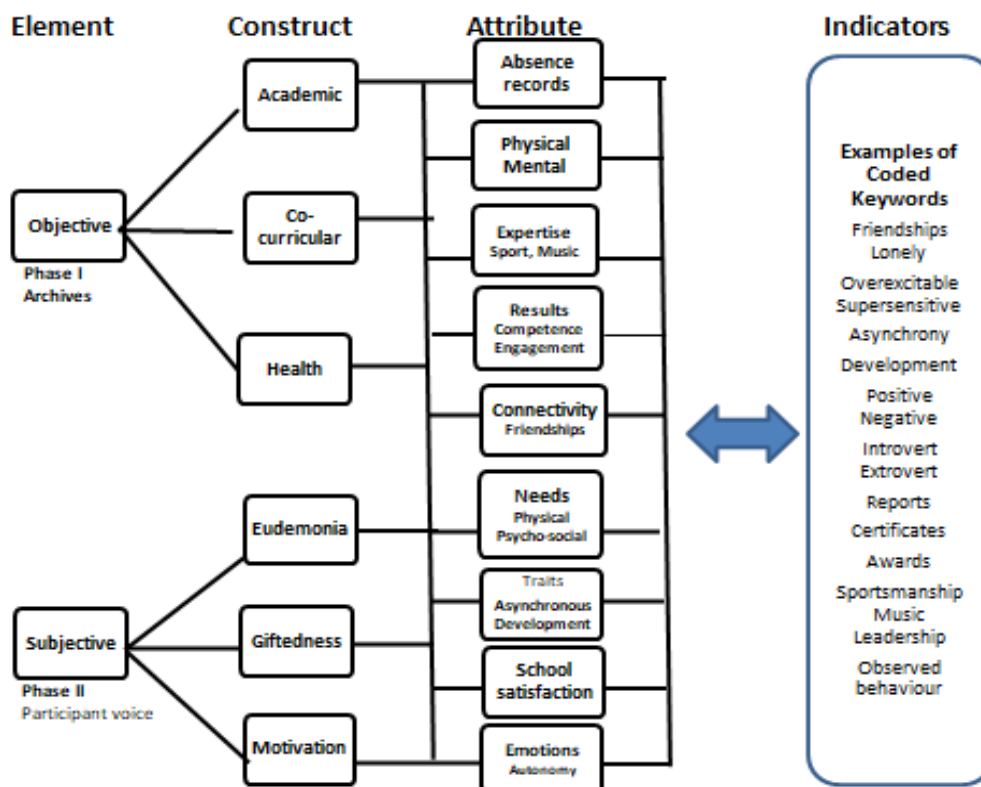
Figure 5.4. Analytical framework with indicators

Phase I objective data informed questions for participants in Phase II. Coded keywords in the right-hand box were chosen from a large bank of data posteriori

based on frequency of occurrence. Such particularisation assisted the grouping of direct quotations. Initial thoughts of organising data for this chapter beneath each question were altered when patterns appeared in the coding of attributes. As mentioned in Section 3.7 abductive analysis grouped indicators easily. Sources of data were connected using logical inference between attributes. Table 5.1 offers indicators that were grouped into themed attributes beneath each construct of the analytical framework.

Table 5.1.

Sample Indicators for each construct

Constructs	*What were the experiences of students engaged in ZEST?*
Subjective	**Indicators from contemporary transcripts as Phase II**
Eudemonic wellbeing	Happy, caring, content, satisfied, worthy, gratitude, trust calm appreciative and more trusting as a result of ZEST, confident, resilient, a sense of freedom.
	Bored, frustrated, apathy, anxious, pessimistic, moody, and poor attitude.
Giftedness	Over-excitable, hyper-sensitive, creative, curious, eloquent language, lonely, sad, forced choice dilemma, belonging, friendships, relationships.
Motivation	Autonomous, independent students with quiet peripheral engagement, intrinsically, extrinsic, driven social, needs are met, feels safe, empowered, challenged, not coping, depressed, withdrawn, school satisfaction.
Objective	**Indicators from Chapter four archives as Phase I**
Academic	Competent, sets realistic goals, reports, artefacts, certificates, encouraged by staff to achieve prizes and certificates.
Co-curricular	Connectedness, engaged, involved, sport, music, leadership, clubs, artistic, volunteers, service, likes to assist, withdrawn, poor sportsmanship, alone.
Health	Physical signs: illness, absenteeism, silhouette(shape), eating disorder.
	Mental signs: stress, depression, agitated, nervous, reclusive, anxious.

Data from Phase I coded as academic records, is used in the following example, to supplement analysis for Phase II. Consent was sought from parents of all students using two rounds of emails that returned 28% positive response. When staff' were

asked about possible reasoning behind the limited response from parents, Ms Diamond (134-137) revealed that families had become reluctant to complete reviews due to the frequency of surveys and limited release of feedback to families:

> At the start, parents didn't mind giving feedback when they could see a benefit. We have done a lot of reviewing though with minor changes that may not have been very visible to families. Their feedback guided our curriculum but really, they didn't get much formal response from the school about how helpful it was.

Due to the semi-structured nature of interviews, responses to interview questions were randomly scattered throughout transcripts. Participants shared retrospective stories laced with personal vignettes of what they valued. Originally it was proposed that students be randomly selected for the study. The limited number of responses from parents however, meant that all students who were given consent to participate were invited. Such triangulation of sources added rigour to the research, leading to this point being raised in the discussion of limitations in Chapter six.

The focus of evidence for this chapter are therefore the three subjective constructs (being measured) from Phase II, and detail about the measure itself. As one example, Brenda (35-39) was asked how she felt about the accelerated pace of study? The concept is a feeling (subjective). The response gave insight into behavioural intensity and voice inflection (subjective); but in this example validation of student engagement with ZEST was established through deeper questioning "when did you notice the increase in the pace of learning?" Brenda's response provided a more defined timeframe (objective) that could be cross-checked against archived evidence from school records, journal time lines and other participant responses. In this instance, deeper questions revealed that work was accelerated after base knowledge was pre-tested and when the teacher deemed that individual students were ready to progress.

Students responded quickly to emails and showed enthusiasm toward participation and the opportunity to reunite with friends. Focus groups for each of the six cohorts being studied totalled nineteen male and seventeen female student participants (n=36). Due to absence on meeting days, several students attended a seventh meeting to accommodate their desire to participate. Concerns about the group being from differing cohorts alleviated when students behaved in the same way as other focus groups. All students participating in the study were deemed gifted for two reasons: the rigorous selection process for ZEST entry, and tenacity shown in

the completion of two years of accelerated curriculum. Each comfortably reflected on ZEST as a shared experience, while relating personal vignettes of before and after.

5.3 TIME-SEQUENCED EXPERIENCES

Data were organised for analysis in the sequence of which they occurred. Vignettes of experience before, during and after ZEST offered valuable comparative states of wellbeing. This section argues that the protective class environment and balanced ZEST program supported the needs of gifted adolescents while they were in the program. Students recalled painful memories of teasing, rejection and isolation pre-and-post-ZEST. These experiences were in sharp contrast to the feelings of confidence, inner calm, acceptance, and belonging students felt during ZEST.

5.3.1 Pre-ZEST experience

Early accounts of life at school before joining ZEST reflected challenge and social disharmony that grew as students approached adolescence. Students offered accounts that indicated a feeling of difference between themselves and their age peers. This feeling influenced how students felt, and were treated by others, that influenced personal attitude and motivation. Carol (560) mentioned disliking her previous school so much that she took many days of absence. Academically students mentioned a lack of challenge and boredom pre-ZEST that stifled development. In Fred's words:

> One of the ways I coped with being bored before ZEST was to focus my energy on lots of hobbies. I'm just happier when I'm learning something new. When I was working on a new project (in ZEST) I could spend days just researching. It was great finding friends and teachers who thought the same way. It's amazing how satisfying it is when you're really interested in what you're doing. It just made me feel happy. (61-65)

Fred's smile and demeanour as he spoke reflected genuine gratitude. Cara admitted (23-24) "I was much happier here than in primary school. I met friends quickly in the class. I didn't really have very many friends before at school". She later commented on the perceived stigma that she and others felt: "some people were offered positions to join but didn't want to take them up because of the image. They just wanted to stay with their friends but they also thought they might be picked on" (170-172). Therefore, student evidence suggested that pre-ZEST experiences did not provide conditions conducive to learning or school satisfaction. Students indicated that they

joined ZEST looking for challenging curriculum, and the opportunity to work with like-minded peers, but found the greatest benefit to be the authentic social relationships and a chance to be themselves.

Ms Gold (444-445) felt that gifted students reflected wellbeing in their attitude toward school and learning, "A lot of the students came into the program very complacent about study and with sad, difficult and often lonely pasts". She was proud of units of work she had designed to stimulate curiosity and creativity using inquiry approaches that she hoped would kerb boredom.

5.3.2 Careful Student Selection

The identification of students interviewed for this study centred on an assumption of giftedness. Students had been selected for ZEST using a rigorous identification process that assessed their competence and ability to cope with demands of a rigorous program. Evidence presented in this section highlights the effectiveness of the selection process and benefits of the carefully considered process. The inclusion of students suspected by Junior-school staff to be academically under-achieving was controversial. Ms Diamond despairingly admitted that teachers who did not support ability grouping would "only recommend students who could prove that they could reach academic benchmarks on standardised tests" (163-165).

Students joining ZEST underwent a comprehensive battery of tests that assessed the cognitive and affective domain (Appendix E). Ms Diamond admitted to being confident about recognising gifted students by observing 'virtues' as indicators. She supported the test regime however, saying "experienced teachers can clearly identify students as gifted because they (students) think differently. Testing provided justification to support the choices we made" (162-163). Likewise, Mr Quartz felt that gifted students were likely to be identified by behavioural traits whether they were part of a program or not. Mr Quartz assisted students by encouraging them to recognise similarities with others, rather than focussing on differences.

Despite the established rigour of testing, procedures for students to gain selection to the ZEST program were relaxed on two occasions. For each cohort, a place in the class became available due to family transfer and the school's requirement to maintain class numbers. The original plan to select students from an established parallel class of high achievers (with no acceleration) was not viable,

since students had settled into well-established friendships. In both instances students were accepted mid-term without undergoing the full battery of tests.

Carmen's late entry to the class presented challenges to staff and students. Friendships were tested as she moved between groups. She had poor study habits and struggled with the accelerated curriculum, showing signs of low self-esteem, stress and poor behaviour. Concerns were documented in meeting notes and annual reviews, noting detrimental effects on the class (14LA-A). Ms Gold empathised with students needing to quickly adapt to classroom challenges, who:

> arrived into the class mid-stream and were thrown in with gifted students who were so exuberant and flying high … it would have been quite intimidating. Work pace was powerful and the quality of work extremely high. (123-124)

Teachers were surprised when established protocols were waived for a second time the following year. In a letter of concern about accepting Ernie, Mr Silver (19QA-EP, 2007) wrote "I feel that introducing a new student at this late stage will change the class dynamics and alter goals able to be achieved in the longer term". Breaking the foundation of careful selection visibly upset staff and led to class disharmony that compromised wellbeing for all concerned.

On reflection Mr Quartz pointed out that both of the late arrival students had poor general attitudes toward learning, maintaining that although each of the students showed some gifted characteristics, "they would not have gained entry if they had done the full battery of tests. Student attitudes toward learning were a stumbling point completely overlooked" (86-87). Staff envisaged the additional academic coaching students had needed to pass exams in the past, would have been detected by the full battery of entry testing. Ms Gold contemplated on the detrimental effect to the student's self-esteem, and why each had trouble fitting in:

> She (Carmen) was extremely over-excitable and immature emotionally. Ernie had trouble fitting in for a different reason. He was heavily into social justice, and it was his intolerance of other beliefs that made him very difficult to get close to. He hadn't actually learned how to respond well socially. He was asynchronous in that he was cognizant of strong ideas but lacked the social-emotional skills of expression. (423-430)

Staff indicated that neither student was suited to the program and neither, should have been accepted. Both Carmen and Ernie struggled to cope with program acceleration and were behaviourally disruptive. Ms Emerald (141-142) pointed out

"students who considered themselves high-ability but actually weren't, appeared quite selfish, precocious and arrogant to others". Carmen was removed by her parents just prior to completing her second year. Commenting sympathetically Ms Ruby added (227-228) "We all tried to help but the experience was quite detrimental to the child and created havoc in the group". Ms Bronze quipped "it was important for the class and the teacher to dance to the same rhythm" (59-60). She felt that cohesion was very strong in the 2009 cohort, reflecting:

> the second group I had were quite different to the rest. They gelled together so well. Nobody left the group and there were no late arrivals. It certainly made it possible to extend the class further because they trusted and supported each other right through. (92-95)

Students were aware and affected by the disruption caused by the two late entry students. Ellis who appeared to have a very caring nature, expressed annoyance:

> there were just a few who really didn't fit. Most of us were happy to be there and prepared to do the work. We enjoyed everything we did. There were just a couple who weren't happy. Ernie in my class had a different attitude and no-one wanted to work with him because he just didn't ever get anything done. I don't really think he knew how to do it. (269-272)

In the same focus group discussion, Emma added "he didn't seem to have any motivation to join in. I didn't want to work in a group with him (Ernie) because he made things harder. That's really what it takes. Motivation is really about attitude. I just didn't understand why he was so switched off?" (285-288). In another focus group Fred (228-229) forcefully asked his group to recall "one obvious member who just didn't belong. I think some people should not have been accepted into the class. Ernie just didn't fit and tried to go against the system." Fay added supportively:

> He wasn't a nice person. He stayed to the end then left the school as soon as ZEST finished thankfully. He would never have survived the ridicule going out into the other classes. He acted smart but really was just different in small ways and not very smart at all. (238-240)

Testing became mandatory after annual review reports noted the disruption caused by Carmen and Ernie. This section therefore highlights the value of balanced rigorous testing for program integrity. Thorough testing supported staff decisions to select and group students who would cope with the demands of the program.

5.3.3 **ZEST Immersion**

Evidence in this section offers insight into the identification of gifted students, and strategies used ZEST evolved. The ZEST model summarised in Section 4.3.3 was responsive to program reviews and evidence of improved student outcomes. The Head of the Enrichment department Ms Diamond made many of the decisions regarding ZEST after the departure of the program initiators, Mr Sapphire and Mr Silver. Ms Diamond admitted "unfortunately gut instinct can no longer play a role in how we select students, It is no longer adequate to just tick a box" (156-158). She Diamond defended ZEST stating:

> We have groupings for special education and we really need those programs. Why on earth do we not support the right of every child with special needs to receive an appropriate education? The fact that gifted students are expected to cope on their own is probably the most critical issue facing us right now. We cannot help them (ZEST students) reach their potential until they are recognized and their talents are respected. Difference is acceptable if social etiquette allows it. (168-172)

The justification for student selection gained importance as positions became limited and competitive. Competition led to greater testing formality, discussed at length by Ms Emerald, whose comments summarise feelings toward gifted students:

a) "Some Junior-school teachers were not bringing the best out in children and therefore overlooked the potential of gifted students with poor behaviour" (263-264);

b) "Teachers were critical of acceleration and would not recommend the program to parents" (176-177);

c) "Teachers outside ZEST did not have access to selection data, so some were critical when under-achievers were selected" (154). In every case, ZEST provided a turning point for students to reassess potential;

d) "Parents who pushed their children with extra mentoring outside school were easily revealed when student tests gave a true reading of aptitude" (226-227);

e) "Students in the school who did not comply with social norms were often labelled incorrectly as gifted because they were 'different'" (157-158);

f) "Places for existing Junior-school students were not offered until all testing was complete since the intake of competent students from outside the school was hard to predict" (90-91);

g) "The words *gifted* and *failure,* just don't sit well together. Parents have been known to drive to school to deliver assignments they have completed for their children!" (220-221).

Ms Emerald implied that some staff outside the program made judgements based on myths about giftedness and were openly critical about the selection of students. She felt that "training in gifted education makes it very easy to identify and work with truly gifted students. It certainly helps when you teach them because they respond to learning in a very different way" (141-142). Commenting further on selection:

> Having the cognitive ability to deal with the acceleration of the program did not necessarily make them (students) an ideal candidate for the class. They needed a positive attitude, an ability to cope and a willingness to explore their own differences. (78-80)

Students identified as under-achievers prior to entering ZEST, were monitored carefully. Ms Gold described addressing under-achievement as "an unwritten personal objective, after witnessing so many suffering students in the past" (49-50). In a conversation about selecting gifted under-achievers for the program, Ms Diamond showed concern for gifted students that they may have missed:

> We do have a problem with under-achievement in our gifted teens. We see them coming through brilliantly from primary school, so know what they are capable of then they just disappear from the radar in the mass of students (pause) … I think it would help if they worked in class in small like-minded groups, but socialised with a wider range of people outside. It would just give them more of an opportunity to understand themselves; and where they fitted into the broader scheme of life. (253-269)

In a disappointing admission, Ms Diamond referenced ZEST students under-achieving post-ZEST: "I'm sure I could take out the bottom fifty students in senior at the moment and pick out half a dozen who were our very high achievers" (454-455). Staff comments in this section have indicated that gifted students were happier and more engaged in the ZEST immersion. Student talents were identified and extended by staff , using curiosity to advantage in the safety of the class group. Similarities were valued over difference, to develop strong connections. Students had more opportunities to develop an adolescent identity and practice authentic relationships.

The argument for ability-grouping gifted students into the class to cater for specific needs was strongly supported.

5.3.4 **Post-ZEST experience**

After the two-year accelerated immersion students moved into a large cohort of twelve classes with new Home-room peers one year older than themselves. Evidence presented in this section identifies re-entering the mainstream as the greatest challenge to wellbeing. Examples of alienation and unrealistic expectations discussed in this section explain the use of defence mechanisms for the next section.

First, alienation came from an adolescent social etiquette norm of a peer-expectation for 'sameness'. Ms Emerald mentioned being aware of Baumeister and Leary's (1995) studies of belonging and the "advantage in students being more aware of similarities, rather than difference" (25-26). On contemplation after the interview, this advice would benefit any student seeking inclusive behaviour for assimilation. Assimilation in the context of this study refers to the journey students followed as they established new social groups after the immersion. Transition refers to the preparation made for students to enter mainstream classes. Mr Sapphire referred to a responsibility to provide a transition process so that students could assimilate into a new cohort. Ms Emerald (144-146) admitted "mainstreaming demands a range of social skills that a lot of gifted students have not yet learned. They fall further behind in their social skills because of group rejection. It's incredibly stressful for them". Alienation was identified as a barrier that prevented students from realising potential (Fogarty, Games, MacCann, & Roberts, 2010). ZEST addressed alienation by recognising student behavioural traits attributed to asynchrony and establishing trust early. The rejection experienced as students emerged from ZEST prompted forced-choice dilemmas (Section 2.4.4) evidenced in the next section.

Second, unrealistic expectations reflected a lack of empathy. For example, Mr Quartz (152-153) noted that "One of the problems with mainstreaming gifted students is that many teachers view gifted students as similar, rather than recognising potential benefits for the whole class in acknowledging their diversity". Mrs Diamond admitted:

> The gifted groups definitely need challenge and high-order thinking skills. Some
> staff just don't know how to incorporate these to the level of extension required.

> They are afraid of having different groups working on different activities at the same time. (388-390)

Ms Bronze admitted that many in her Senior-school staffroom lacked an understanding of gifted student needs. Mr Sapphire described inadequate scaffolding, of curriculum, fear of failure and an unwillingness to seek teacher assistance as additional sources of stress that threatened student wellbeing. Of concern was that expectations from staff and peers posed as many challenges as the unrealistic standards that many gifted students placed upon themselves. Furthermore, students described being hesitant to seek assistance for fear of being noticed. Clifton described teachers in Senior-school:

> They had different methods that were very rigid. We were all just in one class with all sorts of abilities and there were set timeframes to get very simple tasks done. It was very easy and really quite boring. Often we learned the same thing several different ways and I couldn't really see the point in repeating it. The fun was certainly taken out of learning for me. (466-468)

Likewise, Edgar admitted "most of our friends and even teachers outside ZEST, had no idea what we had done (during ZEST). There was no threat if they didn't know that I had been in the class. I definitely avoided talking about ZEST after I was out of it!" (234-236). Dallas recalled "If you were associated with the class, then you were expected to do brilliantly. I didn't go that way because I wanted to have friends. It would have been hard. I just wanted to be normal!" (575-577).

Although many ZEST students chose to establish new friendships once they left the immersion, some maintained contact with ZEST friends outside school hours. This strategy avoided associations at school that may have attracted stigma or rejection amongst peers. Students were secretive about their involvement in the program was Ellis (67-68) admitting: "there is no way I would have talked about ZEST that year to my new friends. It would have been social suicide". Ellis went on to admit that being part of ZEST was no longer a problem in his senior years. Bianca (133-134) had also stated "in senior year levels, being good at something is valued … it helps with friendships. In Middle school you just had to hide and not be too good or bad at anything". Hearing these comments explained why students were so enthusiastic about discussing ZEST in the safe company of fellow-ZEST students.

Table 5.2 compares ZEST with student experiences post-ZEST.

Table 5.2.
Transition and assimilation

Contribution of ZEST to wellbeing:	Implications after leaving ZEST
Established trust promoted - confidence - safety - sense of belonging.	Less support removed sense of safety. Students were less willing to share gifts, talent and ideas making collaborative work challenging.
Competence increased challenge and skills improved.	Motivation, curiosity and experiential learning reduced.
Improvement in: - eudemonia and happiness - school satisfaction - attendance	Forced-choice dilemma was a concern. Identity was challenged. Social-emotional needs seemed more important than academic success.
Students took psychosocial risks in the safety of the class.	Students avoided risks that might be perceived as leading to failure.

Edgar who had left ZEST only two years prior to the interview valued his 'weekend' friendships saying "We had so much in common and became really good friends quickly. Nobody seemed overly competitive because we all just worked together (pause) I still spend a lot of time with them outside school" (75-77). Questioning the 'outside school' tag Edgar admitted that his new friendship group at school were unaware of his association with the gifted class. Other focus group admissions came from Felix who recalled "Some people from my class who tried to keep ZEST friendships at school were really rejected by new friends" (79) Sensing a similar discomfort of being associated with ZEST, Celia said: "There was quite a lot of stigma about being part of the program if you stayed with friends. I learned quickly that making new friends was just easier" (167-168).

Ms Diamond expressed concern aiming for program balance when "It was important for high school teachers to realise that academic excellence in their specific subject is not the benchmark for giftedness" (456-457). Ms Gold (262-264) noted pressure from fellow staff: "Senior-school teachers were sometimes critical of us for having students come through our enrichment program. They are critical saying that students didn't 'fit the mould' in Year eight when they are thrown into the bigger pool". ZEST staff therefore suggested that teachers not directly associated with the program were unaware of the ZEST vision and showed limited understanding or empathy for gifted students. Such evidence reinforced an argument

for professional development to provide a broad understanding of gifted adolescent needs, expectations, and how to adequately differentiate curriculum.

Staff commented on increased student absence post-ZEST, mentioning cases of students suffering from eating disorders (two requiring hospitalisation), depression, physical and mental signs of stress. This information was gleaned through staff recollections and student self-reporting as medical records were not accessible due to ethics. One significant *student* reference to absence the year following ZEST was followed up with Donald in his focus group. He was a quiet student, who offered comments about his absence without prompting when the topic was raised with the group. He admitted concern over friendships and feelings of inadequacy after ZEST, describing taking a long family holiday in Year nine because "it was the worst and loneliest year I remember at school" (57-58). He went on to describe experiences with like-minded friends found in the immersion class as his happiest memories of school. Absentee records checked following the interview revealed three consecutive weeks of absence for Donald in Year nine. His post-ZEST absenteeism illustrated unhappiness and a reduced desire to engage at school that was shared by others.

A summary of time-sequenced experiences revealed similarities between pre-ZEST and post-ZEST experience. Post-ZEST vignettes were more frequent and emotive. This may have reflected peak-end-rule, but there was a sense of greater intensity due to the stage of adolescent development. The first two years after ZEST presented the greatest challenge however with maturity, students reflected on the experience with positive memories, with all admitting they would recommend the experience to others. Participants indicated a feeling that the lack of support from the wider school community aligned with a lack of understanding about giftedness and the program. Examples of stigma, loneliness and barriers to learning were common in vignettes of life before ZEST, while evidence indicated that the ZEST model improved engagement and general school satisfaction. Without the security of a supportive school environment, the stigma of being identified as gifted, widened learning-gap, loneliness and associated defence mechanisms returned. The life of students post-ZEST therefore differed markedly from age peers. The social challenges associated with assimilation were accentuated due to the change of cohort and larger range of classes and teachers. Evidence has established the first two years

of assimilation into the mainstream post-ZEST as a time that challenged the wellbeing of gifted students.

ZEST's aim to satisfy needs using a balanced approach appeared to improve student wellbeing. Adverse reactions toward gifted students highlighted the value in establishing a supportive school network. The role of a broad school network would be to build a tolerant awareness of similarities and difference. Analysis of interview transcripts began with coding for three constructs from the analytic framework that are explored in more detail: eudemonic state in Section 5.4, the relationship between giftedness (Section 5.5), motivation (Section 5.6) and a reflection on Phase II evidence in the final section.

5.3.5 Stress Management and Support

Being identified as gifted in the school community outside the ZEST classroom triggered a range of defence mechanisms. Stress management strategies developed as a response to academic and social-emotional challenge helped students to cope. An article by Versteynen (2001) was cited in archived College Council meeting notes to point out an awareness of challenges that changed gifted adolescent behaviour (4BA-PS, 2004). Examples of forced-choice dilemma, humour and avoidance of risk were used by students to relieve stress.

Students faced forced-choice dilemmas, consciously hiding talent and intellect from their peers. Carol (129-131) admitted "a lot of ZEST students struggled with friendships after ZEST… There was just a fine line between knowing when to contribute to a conversation and when to stop talking". The strategy adopted by many students post-ZEST was to disguise any affiliation with ZEST to establish anonymity. Fred had recently joined mainstream classes and was keen to voice his strong desire to conceal any association with ZEST from new friends:

> We're in Year nine so Campsite has been a huge change socially... everybody was treated equally and nobody knew where we came from … I found that I mixed with all new people and afterwards, I sort of morphed into this new person. (191-193)

Campsite was an outdoor education retreat that Knott School operated for all Year nine students. The five-week program was in a rural setting where students were not permitted access to phones, listening devices, or computers. The experience provided an opportunity to practice relationship-building skills and shared challenges in the

context of a mixed group of fifty students. Students rose every morning for a 6.00am jog/walk then completed farm chores before breakfast. Formal lessons were limited, although there was a structured program of life-skill activities.

The controlled environment provided an opportunity for all students to contemplate identity and friendships. Reflections of Campsite gave insight into the student's assimilation experience post-ZEST, into the mainstream school population. Mr Sapphire's meeting notes to School council described an intentional focus on trust between student-staff and student-student as vital in the first few weeks to prevent students hiding their skills:

> many of the gifted students had become uncomfortable about their own personal traits as they approached adolescence. They were really quite skilled at masking any aptitude. (21SA-EP, 16-17)

The phenomenon of forced-choice dilemma was raised in a conversation with Mr Silver showed an uneasy concern for students struggling with friendships outside the class. He provided a direct example of forced-choice dilemma, suggesting that he had observed gifted students hiding their talent, skills and identity to make friends. He actively taught skills that nurtured a sense of belonging using:

> an analogy of superheroes to help students cope with any feelings of difference. It made an interesting comparison because I referred to each of them as having different 'super powers'. I used the example of Superman not always choosing to wear his cape and spandex suit. He didn't want to be seen as 'Superman' all the time. (61-64)

> In using the 'Superman' analogy, Mr Silver offered students a strategy to reconcile difference and reveal skills with discretion.

Nevertheless, students experiencing safety in the immersion spoke of forced-choice dilemma beyond ZEST (Jung, McCormick, & Gross, 2012). Students chose not to speak about their association with ZEST, changing friendships after the immersion to appear *anonymous* in mainstream classes. Carl (66-67) admitted that he would not ask questions in class because of a perceived threat from staff and peers "if you asked too many questions in Science, you were just shut down by the teacher (pause)… and jeered at by everyone else". The following defensive behaviours were coded from student transcripts: dressing alike, mimicking (peer behaviour), risk avoidance, humour, failing tasks, sitting alone, and not answering questions in class.

Ms Diamond reflected on student protective behaviour with her observation that some students chose to associate with low-ability, like-minded peers to assure safety: "Profoundly gifted students have been known to spend their school lives around needy students who could have a 50-point IQ gap. It was the least threatening option for them socially and they probably felt appreciated" (476-478).

Humour was used as a defence mechanism to diffuse situations and reduce tension. Wit and humour were evident in focus group conversations; and acknowledged by staff as a common occurrence in class. Ms Gold summed up her students as "quick-witted, abstract and very clever" (100-101). Mr Quartz admitted to using humour himself frequently as a strategy to invoke abstract thinking and capture student attention. Several students were complimentary about Mr Quartz banter, with Ellis recalling:

> Humor was a great part of the class. It was really clever. Mr Quartz was so good at making jokes in context ... Most of the time we understood each other but the humor was quite different to anything I'd ever experienced. (324-325) … Later Ellis added … the jokes were always quick and quirky in class. It was dangerous to try to make a joke outside with other friends though. After I left ZEST I learned very quickly not to try. It was never received well and it was best just not to try. (334-336)

Neville, Piechowski and Tolan (2013) pointed out that the humour of a quick-witted gifted adolescent might often be misunderstood by age peers.

Avoidance of risk was a defence mechanism noted by the Sport teacher Ms Bronze. She recounted stories of student aversion to physical risk-taking in sport classes, alluding to students fearing failure, judgement and criticism. She admitted to being confronted by well-framed debate-style arguments offered by students not wanting to participate: "One boy refused to try activities (repeatedly in class sport lessons) because he felt incapable. What's more, he told me that he had assessed the risk as dangerous and could not see any point trying" (Ms Bronze, 30-32).

Ms Bronze admitted that her frustration originated in her inexperience with gifted students, "they simply refused to participate until I could tell them what direct benefit the activity offered. They demanded to know the purpose!" (28-29). She referred to students as uncooperative and frequently argumentative. She observed that students were reluctant to participate, but content to join teams and train as reserves, describing them as "happy being passive observers" (27) when they joined

with other classes. She reasoned that "being gifted, a year younger and smaller physically for many of the students was socially isolating for sport" (33-34).

> Avoiding risk by not participating, denied students the ability to achieve new skills. She admitted "It was a whole year before I really started to be able to predict how they might react" (15-16). Many lessons played out like a mental game where I was kept constantly on my guard, waiting for them to invent new twists and turns in the rules (18-19). Integrating strategies of high-order thinking allowed students to negotiate rules and boundaries, calculate risk led to greater engagement and new skills. It highlighted the value of fostering an understanding of gifted adolescent needs through professional development. Absentee records at whole-of-school event days and post-ZEST indicated a desire not to socially engage (Section 4.5.2).

To summarise, defence mechanisms used by students pre and post-ZEST were learned, protective behaviours for gaining acceptance into friendship groups. Evidence indicated that forced-choice dilemma was intensified in the first two years following the immersion. Evidence of challenges and under-achievement brought on by forced-choice dilemma verified the ongoing concern about under-achievement and early departure from school. Research therefore strengthens the argument for identifying and engaging gifted adolescents, to realise potential and to advance talent. The argument for staff professional development is also strengthened, to enable teachers to recognise defence mechanisms in student behaviour.

Support remained a concern despite the school vision and rationale referencing the unique needs of gifted adolescents. Support was strong within the class relationships but did not extend to the wider school community. Evidence offered in the last section illustrated the successful development of strong relationships in the ZEST class that in many cases did not continue at school after ZEST due to forced-choice dilemmas (Jung, McCormick, & Gross, 2012). Staff recalled difficulties establishing support systems due to their ongoing commitment to new classes each year. They suggested that students could have been better supported by increasing awareness offering professional development to staff outside the program. This section constructs an argument for a holistic approach to gifted education that incorporates a whole-of-school approach.

School support was flagged as important from the outset of ZEST and it was raised repeatedly in annual program reviews. The virtues of carefully selecting and

grouping students were supported by Rogers (1991), Silverman's (1995) grouping for emotional support, and Seligman's (1995) studies of happiness. Students reported diminished support from staff and friends post-ZEST as they struggled to assimilate back into mainstream classes. ZEST staff were busy catering to new classes, so had little time to offer assistance. Review documents noted that teachers beyond ZEST had received no professional development.

Staff attributed social challenges and rejection faced by gifted students, to asynchronous development. Mr Quartz pointed out that gifted students possessed identifiable traits that created challenges for acceptance into friendship groups whether they were part of a specialised program or not. In the sanctuary of ZEST however, concerns about being identified as gifted were outweighed by the advantages and support provided by the program. Stigma and labelling however appeared as a major concern pre and post-ZEST, leading to the adoption of defence mechanisms. Social challenges may have been alleviated with greater support or a whole-of-school approach to wellbeing with a focus on inclusive behaviour.

The ZEST model was endorsed by the school council and those associated with the program. ZEST staff showed concern however, about the culture of the school and lack of support from the wider school community. Ms Emerald admitted to overhearing teachers referring to gifted students as 'fortunate' and 'enjoying the recognition' (70-71). They attributed criticism to a lack of understanding that led to a lack of respect for students and the program. Mrs Diamond noted that "the lack of support was not outwardly prominent, but undermining and sinister" (141-142). Ms Bronze (46-47) admitted that Senior-school staff and students lacked an understanding or interest in giftedness that often led to sarcasm toward student 'difference'. To offer support for coping with acceleration and to encourage student engagement, Mr Silver constantly moved students around the class for group work:

> Grouping within the class changed constantly. Which group would students decide to join? really depended on the unit of work and their personal interests. They were hesitant to join groups beyond the class because trust had not been established. I could see it was risky for them to show skill or enthusiasm (22TA-EP, 2011. 52-54)

Mr Quartz admitted that transitioning out of the immersion:

> involved a lot of acceptance from the cohort they were entering. We tried to prepare them (students) for some of the situations they may face – particularly

because they were younger. Leaving their friends behind had been a bit of a learning curve for a lot of them at the start. We tried to show students outside ZEST that the program was there for a reason but they didn't seem to understand. In hindsight, we should have worked more with the teachers. The students really needed support from them. (351-355)

Triangulating co-curricular data with interview data indicated that for two years post-ZEST students, resisted activities that drew attention to their skills. Students who had left the program for several years were more willing to take calculated risks in joining new groups and activities, indicating the development of a greater resilience and higher self-esteem with the maturity of age. The notion of a desire for anonymity was frequently raised by participants, supporting the Coleman and Cross (2014) view of giftedness as a burden or liability rather than a blessing or asset in their lives. Cadelle expressed a desire to be *invisible* after ZEST, saying:

you were not treated well if you were identified as having been a ZEST student.

I just wanted to remain anonymous. Sometimes I wished I could be invisible. If somebody brought ZEST up in conversation, you knew you were heading for trouble. (141-143)

Ellis (81-82) echoed "I won't talk about anything to do with ZEST with anybody who had not been in the class. You don't tend to get a good reaction". Realistic expectations discussed with Ms Emerald, referenced the *tall poppy syndrome* as a re-emergence of an ancient Latin motive of intolerance and jealousy:

I think there are a lot of tall poppies who are constantly cut down to blend in with the other poppies. Ironically in our society gifted athletes seem to get a lot of attention and people seem to get a strange enjoyment, watching people fall off their pedestals (make mistakes), and when they do they are laughed at. People have high expectations of bright children who 'fall' easily and are made to feel bad. They are often bullied and criticised by peers when they seem a little different. They're sometimes even disliked by their teachers who don't understand how to handle their unusual behaviour and they're blamed for not conforming. A lot of teachers are guilty of this without realizing it. (Ms Emerald, 150-159)

Ms Emerald added "with the tall-poppy threat removed in ZEST, students gave themselves permission to achieve" (216-217). The tall-poppy reference reflects Elliot and Covington's (2001) motivational theory of students approaching or avoiding situations to avoid stress or fear of failure, and to build inner strength and autonomy.

Staff described many examples of over-exuberant presentations beyond normal expectation. Students suggested that these were accepted as the norm within ZEST but were not well received in mainstream classes after ZEST. Darcy recalled:

> I hated the talks we had to do in Year nine in front of the class. If anybody's (talk) was too good and they used props, others would make fun of them later. There was certainly no incentive to do the kind of presentations we did in ZEST. The ZEST class was quite competitive and going the extra mile was appreciated. It hasn't been like that since. (277-280)

Referring to the same class presentations, Carl recounted (186-187) "Since then (ZEST) I don't like presenting talks. I planned my English presentation really well so I could dress up to hide, and have my face covered so I didn't have to look at anyone". A sentiment mirrored by Bianca (272-273) **"If yours (presentation) is too different, then others would laugh. It's not safe to stand out in any way".** Dan (324-325) sat quietly nodding in agreement and when invited to speak added "I suppose being quiet is my survival tactic". He affectionately described noisy times in the busy classroom, as a great opportunity to listen and gather ideas.

Daisy (72-73) described her embarrassment when successes were highlighted publicly admitting: "Teachers (outside ZEST) really expected us to do well if they knew we had some ability. Expectations were awful. I hated the word potential when it was used to poke me". In contrast Ms Gold (114-116) admitted to measuring student potential by engagement, behaviour motivation, autonomy and lastly, results. Her comment concurred with Renzulli and Park's (2000) work on drop-outs, quoted in a Power-point presentation to staff, to describe raising awareness of potential as important for motivation, but not as a final outcome (6DA-R, 2005).

Participating in the interviews gave students the opportunity to reunite and reflect on fond memories. Carl (447-448) stated "my real friends were in ZEST. I didn't really make new friends outside the original class until after Year ten when being smart didn't seem to matter as much". Annual reviews had a recurring theme of concern about student assimilation. Darcy explained that acceptance and making new friends became easier in Senior-school:

> It was a total reassessment of who I wanted to be seen as. I hung out with all ZEST friends until last year (Year ten). It seemed like a safe and easy thing to do. This year I have new subjects and a whole new group of friends. It's just a

practical proximity thing. Attitudes towards people who 'achieve' are different

now we are in senior. (412-415)

Students nodded in agreement as Felix (73-75) shared "it was great inside the class, but ZEST students were super-ostracised as a class outside". Ms Diamond observed:

innate interest and the right attitude are what ignites passion, and that's what motivates gifted students to reach great heights. They just need help along the way to endure the hardships and to find direction. (188-190)

Teachers acknowledged that specific learning needs were more easily satisfied when students were grouped as a class. Ms Diamond noted the social, intellectual and eudemonic benefits:

social skills often come from the opportunity to associate with *like* minds. Students build confidence when they don't feel alone. Then they can take the skills they learn out into the wider world to practice. You can't start with *unlike* minds and expect them to achieve fast, fantastic results. It just creates confusion. (295-300)

Staff acknowledged the rewards of teaching an accelerated program to a class of gifted students but noted the complexity of managing asynchronous development. Grouping students meant that asynchrony and prior knowledge, were able to be acknowledged and compensated. Mr Quartz identified the potential threat of being labelled gifted as "making them appear to be on a pedestal when they don't want to be" (239). Students from each focus group echoed a shared sense of relief once they settled into ZEST. The classroom provided a relaxed, safe learning environment to try new ideas and skills. Students described feeling able to talk openly and 'be themselves' in supported groups. Mr Quartz reflected:

Students got the most out of doing the big projects where they could head off in their own direction and finish with a creative end product that they were proud of and happy to present. Sharing with an authentically interested audience eliminated the risk of being jeered at. (273-276)

Grouping like-minded students together for ZEST reduced challenges to socialisation attributed to asynchrony as expressed by Carol:

Really, I think the best thing of all was that we had our own personalities. We had this common indescribable thread between us. We knew we could go up to anybody in the class and have a conversation. There was warmth in their understanding. (553-555)

Ms Diamond admitted "A lot of our successes are reliant on helping a student to have the right attitude and desire to progress" (294). She recalled being "blamed for Year eight students not 'fitting the mould' socially when they re-joined the mainstream" (54-55). Carl perceived that:

> Some teachers in Senior-school seemed to not like the ZEST students and treated us as though we were expecting them to give us more work. If we answered too many questions we were showing off, but if we were too quiet we weren't trying enough. (301-304)

From the outset, staff raised concerns about stigma and labelling that might occur from grouping the students as a class (Ms Diamond, 230-231). Numerous ZEST staff mentioned fielding questions from Secondary teachers about immature behaviour distraction and the poor attitude of students emerging from the ZEST program. Ms Diamond attributed the criticism to a lack of adequate differentiation and understanding of unique needs. Mr Quartz admitted that organisational skills were a component that he needed to include for students in his Home-room program:

> They needed to learn to slow down their thinking to plan and organise before they started a project. Rounding off at the end was also an issue because they kept finding more to research… and digress. The criteria and scaffolding at the start of each unit needed to be very specific. (431-434)

ZEST staff indicated that students coped well with compaction, accelerated work and raised expectations. Ms Gold (537-538) observed "the gifted students work much harder with boundless energy when they are together. It is quite restrained when they are in a mixed ability group". Ms Diamond (93-94) explained "Rather than working from the simplistic concrete to general (inductive thinking), students used quick deductive reasoning skills". The art teacher added "Students made fascinating connections transferring knowledge to new situations easily" (Ms Ruby, 325). Mr Quartz described his 2009 cohort as the most satisfying, due to minimal interruption and the stability of no new arrivals:

> I'd come to know these guys well, spending time with them before they came to me. They stand out in my mind because the class was filled with brilliant students from the beginning so there were no newcomers or students who left. They were genuinely happy and very few had days off school. They supported each other and knew no limits so it was hard to end any activity to move to a new unit. I integrated work as much as possible so that all disciplines fell within

the same theme and I think it worked really well. We still covered what the other classes did but went so much further. (415-522)

Middle school philosophy behind the integration of curriculum as themes and student-centred learning were recognised. Each moved to a higher level of learning however, due to acceleration and the extended depth of coverage in the ZEST class.

In summary, ZEST's two-year immersion provided a safe physical and psychological setting for gifted adolescents. Participants reported positive experiences of trust, harmony and minimal stress with an elevated desire to engage in learning. They supported grade-skipping but had reservations about the support and isolation of the class. Not involving the wider school community, left the class vulnerable to criticism based on a lack of understanding of its intent. Although students were competent intellectually, Section 5.3.4 evidenced the necessity for coping strategies as students transitioned from ZEST to the mainstream. Students were seeking understanding and acceptance from the wider school community. Without support, gifted students experienced social and emotional assimilation challenges that affected identity, wellbeing and academic outcomes.

5.4   EUDEMONIC STATE

The ancient Greek philosopher Aristotle recognised the eudemonic state of students, as the active pursuit of potential and social sharing of ideas. Over the past century, gifted education has prioritised academic achievement, to the neglect of sharing personal potential and ideas (Coleman & Cross, 2014). Programs that balance academic and social-emotional development place value on the eudemonic state of students. The relationship between the inclusion of social-emotional factors in ZEST course planning and the eudemonic state of gifted students was hypothesised (6DA-Z, 2004). The proposed relationship influenced student engagement and wellbeing.

During the focus group interviews, students were asked to reflect on feelings of happiness, how they viewed themselves, perceptions of their own potential and whether they felt their needs had been satisfied by ZEST. Words indicating need satisfaction came from conversations about friendships, socialisation and school experiences. Teachers voiced a general belief that ZEST promoted authentic friendships that brought laughter and happiness to their classes. Seligman's (2011) positive psychology inspired the inclusion of broad indicators about emotion, relationships and aspects of meaning. The inclusion of negative comments revealed a

balanced view of eudemonic state. Social-emotional wellbeing indicators for eudemonia referenced:

- Positive emotion – happiness, homesick, deep contemplation;

- Affection – shy, sweaty palms, admire, respect, fond memories of gratitude;

- Intense social relationships – trust, acceptance, rejection, loneliness;

- Self- assessment - inside-outside balance, calm, anxious, image;

- Enhanced sensory reference to taste, sound, colour, visuals; and

- Meaning indicated through ideas, heightened awareness of surroundings and beautiful things, empathy and risk.

Views from staff and students therefore illustrated ZEST's development of a positive eudemonic state for ZEST students. Participant interviews revealed eudemonia mentioned frequently in personal perceptions about the program.

5.4.1 **Personal Perceptions**

The most poignant reference to eudemonia was revealed in the final five minutes of focus group interviews. It was assumed that the conversational mode of delivering questions had helped students to relax and develop an understanding of the study's interpretation of wellbeing. ZEST ran independently in its own building in the middle school precinct, using adapted middle school curriculum. Students were therefore, clearly identified as being part of the program. My prediction that this would cause concern was disproven by unanimous student support for the program.

A Cantril Ladder Scale from the Gallup-Heathways Wellbeing Index (Evers, et al., 2009) used in the final minutes of focus groups, registered student responses to four questions. Students reflected on their own personal wellbeing at two nominated points in time: *during* ZEST and *now* at the time of the interview. They were asked to imagine a ladder with steps numbered from 0-5 whereby the step closest to the ground '0' represented the worst possible scenario and the top, as the best.

In every focus group, the result for perceived wellbeing while students were in the program was higher than their current state of wellbeing. This quick response assessment made at the close of a lengthy focus group validated comments about eudemonia and school satisfaction that had been alluded to throughout the interview. Responses from the cohort of students who had just left the immersion the previous year (now in Year eight) showed lower ratings of 'current happiness' (Question 2). It

was anticipated that this may have been due to an increase in social challenges they were experiencing.

Amongst others, Dallas (303) alluded to inner turmoil in conversations about assimilation and needing assistance for up to two years after ZEST. When asked about the most memorable aspect of ZEST, Dan's reply echoed many students' feelings when he admitted "just being accepted as part of my own group at last (pause) and actually enjoying coming to school" (535-536). To me Dan's admission provided a large piece from the puzzle of data that illustrated the contentment and sense of belonging that ZEST provided. Earlier in the interview, he shared "I just felt happier. Schoolwork just seemed to happen without any real stress. Nobody even thought about being mean to each other!" (48-49). The final tag resonated a deeper level of threat from his experience prior to ZEST that had been raised repeatedly by students. He added "Some people just don't understand (about sharing ideas in mainstream social groups). It's pretty scary how mean they can be… and I'm talking about the teacher as well as some of that group! So when people in power don't understand, it's not worth even trying" (Dan, 82-84). Questions asked in the final minutes were:

1) How happy did you feel when you were in the program?
2) How would you rate your happiness now (this year, not just today)?
3) Did you feel you could 'be yourself' as part of the program? (esteem) and
4) How would you rate your wellbeing for the year that followed ZEST?

A fifth question not listed on Figure 5.3 "Would you do it again?" revealed a resoundingly positive response. The figure illustrates a summary of responses registered after the departure of the largest focus group of six students. Responses from this focus group were indicative of a trend across all groups.

Responses were written on each Cantril Ladder Scale by the interviewer immediately after the departure of each focus group. Personal responses appeared to be deeply considered, appearing contemplated and honest. Fred had a slight grin on his face when he described ZEST students *"everyone in our class were the same, pretty normal! It just depends what you view as normal?"* (409-410). Darcy shared "I didn't feel different because I was with friends*"* (211-212). ZEST students clearly recognised the similarities they shared with their peers as adolescents but were also very aware of their differences.
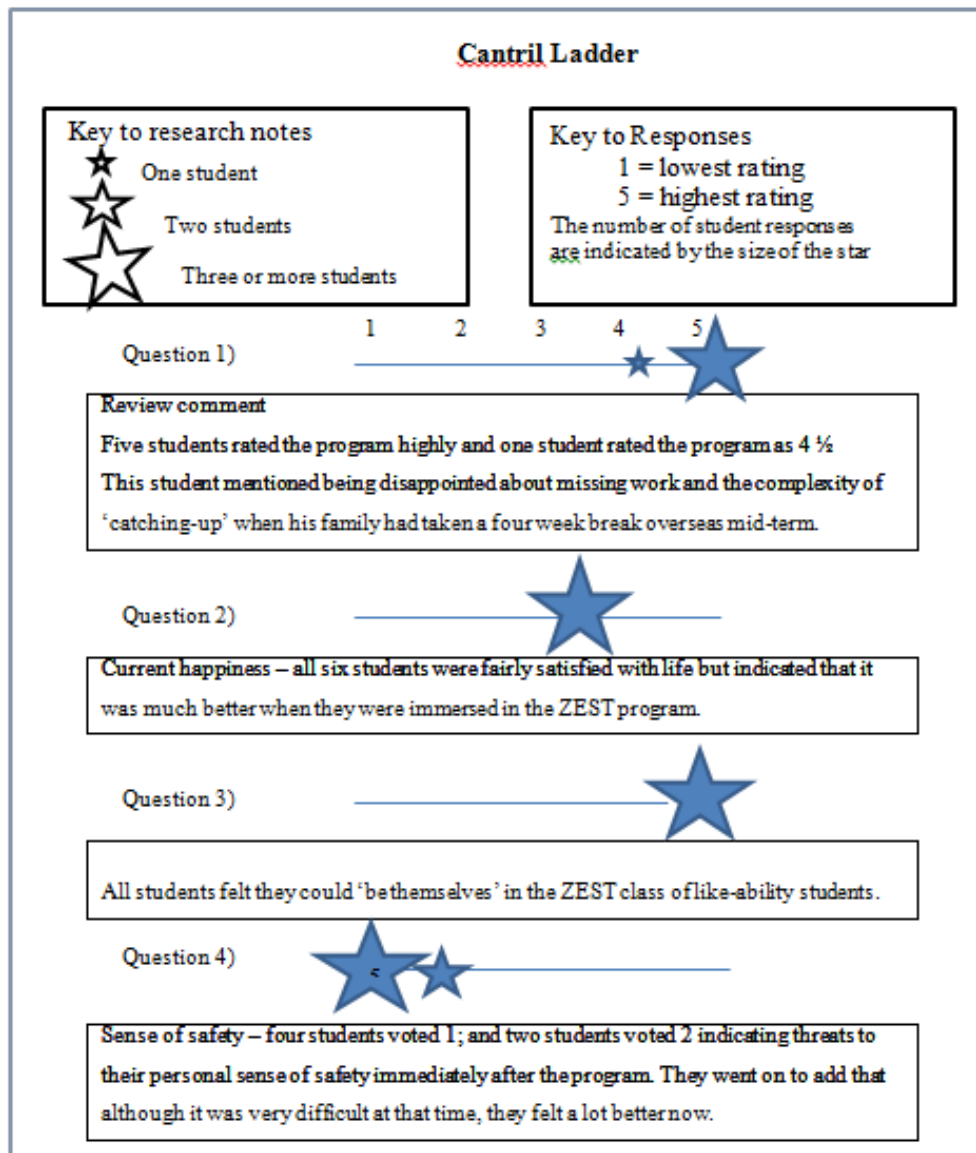
Figure 5.5. Cantril Ladder student responses for one focus group

Brenda provided an example of a threat that she experienced, because of how she felt she was perceived "We didn't mean to be exclusive but I know that some saw us as elitist. Talking to any ZEST students for me was always safe and fine. We thought alike". (72-74) Edgar described how he thought people outside the program viewed ZEST "I think they saw it as less fun, more intensive. I would have been bored doing what they did – it actually made school fun" (194-196). Challenges experienced by students captured in the words of a poem, are reproduced as Appendix I (a) from Mr Silver's e-folio. The poem expresses the anguish of a gifted student seeking acceptance, at school. He mentioned that students were more enthusiastic and expressive when they reflected on personal friendships, values and feelings, than

achievement. Aside from personal perceptions, how ZEST catered for student needs at school provided further insight into each student's eudemonic state.

5.4.2 Satisfaction of Needs

The rationale for the development of ZEST showed an awareness of asynchronous development altering gifted adolescent needs. To achieve their objectives, Knott School initiated the gifted class to accelerate curriculum for two years and thereby skipping a grade. When asked whether the program achieved its intent of satisfying the needs of gifted students, ZEST teachers initially referred to records of student academic progress and involvement in co-curricular activities for increased engagement. Further questions about program balance revealed strategies used to satisfy social-emotional needs.

For the analysis of transcripts, needs were coded using constructs from Maslow's hierarchy (1999). Evidence showed that grouping students by ability was as important as grouping by interest for activities within the class. Grouping was used to develop trust, a sense of belonging and a classroom environment in which gifted students could safely share ideas. The classroom environment was conducive to engagement that Fred acknowledged:

> We were always doing similar things in class. A lot of us had very similar interests, so we were able to just stick together which made us all pretty happy… Everybody just had such great ideas. ZEST followed them through so that we had so many different experiences – I think we did much more than the other classes. (414-417)

The goal for students to develop authentic friendships with like-minded friends was fulfilled in the class however the safety provided by the group presented an unexpected challenge for teachers. Students resisted establishing friendships beyond the class where psychosocial safety was perceived as a threat. This finding provides an argument for a whole-of-school approach to inclusive practices that build tolerance and understanding for diversity. Table 5.3 lists short quotations from primary data to illustrate the satisfaction of needs. Numbers indicate line references from each transcript.

Table 5.3.

Evidence reflecting the satisfaction of needs

Needs	Student Responses	Staff Responses
Physical	Basic physical needs of food, water and shelter were met at Knott School.	
Safety	"I felt safe" Bronte 194. "I didn't want to stand out" Daisy 141.	"peers could be very cruel when students excelled" Ms Gold 170.
Belonging	"just being together" Celia 21. "I was happy to sit alone" Albert 68. "having friends at last" Felix 75. "I didn't want to mix with anyone outside class" Fred 300. "The challenge was not academic at all, it was definitely social" Cara 175-176.	"others did reject them" Mr Quartz 249. "asynchrony caused serious social problems" Ms Ruby 223. "takes time to integrate and realise benefits" Ms Gold 173.
Self-esteem	"trying new sport was a challenge" Alastair 129. "we just want to be accepted as normal" Celia 76. "I was far more confident in myself" Edgar 174. "I felt like I knew where I was going at last" Carl 93.	"Achievement did matter to parents" Ms Diamond 166. "They mastered new skills out of pure self-satisfaction" Ms Gold 327. "They were so creative" Ms Ruby 36.
Self-actualisation		"I wonder if they can ever achieve inner peace?" Ms Emerald 157.

Although these direct quotations are taken out of conversational context, they provide a snapshot of the frequency and range of references to need satisfaction. Trust between a student and teacher fostered reciprocal respect. Darcy expressed his appreciation shown for their diligence saying:

> We were trusted a lot more. Sometimes we assessed ourselves and each other. We actually wrote our own criteria sheets for some assignments so we knew exactly what we had to do. The other classes weren't trusted to do this … and I haven't been given the same opportunity since I left ZEST. (52-55)

Establishing trust between students early enabled them to build authentic relationships, ignite curiosity and try new skills in the safety of the supportive class. Ms Emerald pointed out that trust and ability needed to be gained before privileges were offered to students: It meant work was able to progress to high-order levels of thinking:

> Just because they were extremely bright, did not mean they were organised. I was surprised how much scaffolding and direction they needed at the start of

each new theme. We developed ideas together and they needed to prove to me that they were heading in the right direction before I could let them research independently. I asked them to report to the group often so that peer feedback could also offer direction. (90-95)

Associated with the establishment of trust and psychological safety, was the notion of feeling safe to take risks in front of the group. The Physical Education teacher Ms Bronze mentioned an objective of encouraging students to confront risk by trying new skills of physical activity. She showed integrity when she reflected on her experience with classes, saying that students with advanced intellect assessed risk for activities quickly, before committing to involvement. Studies by Landis and Reschly (2013) supported her view, maintaining gifted adolescents cautiously assessed risk, prior to engaging physically, conversationally and emotionally.

In summary, data provided ample evidence to indicate an elevation of eudemonic state through the satisfaction of needs. Sense of belonging appeared to outweigh talk of achievement or concerns about stigma associated with being identified as gifted. Need satisfaction therefore influenced student wellbeing, work ethic and engagement. Ms Emerald (176-178) pointed out "interest can be measured in any subject. The best measurement though, is counting the number of minutes and hours a student spends on an activity voluntarily". Evidence therefore supports the establishment of the ability grouped class to enhance a student's autonomy, thus improving their personal eudemonic state. Adolescence provides an important step of need satisfaction and inner balance in the journey toward attaining self-actualisation.

5.5   GIFTEDNESS

Giftedness is not an obvious inclusion in an assessment of wellbeing. It has been included in the analytical framework for this case study however, because of the influence that traits of giftedness have on the wellbeing of adolescents. When asked whether ZEST achieved its intent of satisfying student needs, teachers referred to objective evidence of student academic progress, absenteeism and program balance. Conversations soon revealed aspects of curiosity and keen interests reported in Section 5.5.1. In Section 5.5.2, opportunities available to students as part of the ZEST model are outlined since staff mentioned goals, possibilities and potentials frequently. Asynchronous development and low latent inhibition are raised. Section 5.5.3 mentions stress management evidenced as defence mechanisms that changed

the way students behaved. Support available to students is outlined using transcript coding relating to the school ethos, social environment and peer support programs.

5.5.1 Curiosity

ZEST satisfied gifted adolescent curiosity that drove a desire for challenge. Teachers with an understanding of asynchrony used curiosity to increase the depth and pace of work. Objectives for harnessing the worth of curiosity were not stated in programs however, each teacher alluded to using curiosity to drive learning and engagement. Reflecting Herbert's (2010) belief that curiosity inspires learning, Ms Emerald remarked "I think that giftedness is a bigger idea than just having an interest. Interest is driven by curiosity, but curiosity enriches creativity. It makes sharing ideas and new experiences possible" (183-185) When Fred was asked why he had joined the program he admitted that his parents and teachers had encouraged him to apply, but that it was his decision. He was curious yet cautious to find out how the program ran:

> When I heard about ZEST, I asked other students who were leaving the program and they said it offered more chances to explore your own ideas. I liked that concept. (32-33)

Mr Silver explained that curiosity meant students enjoyed subjects like Philosophy to help them see the 'big picture' and purpose behind what they were doing. Without prior experience with gifted education, the physical education teacher Ms Bronze found curiosity difficult to accommodate "They asked incessant questions. It was hard to get activities started some days". (35-36) She reflected on heated debates about purpose and the need to justify all aspects of a new unit:

> They (students) just wanted to understand the background, purpose and meaning of life! If you have a gifted student who pulls you up on a fact in a new section of work in front of the class, you could take offence at them undermining you. It could seem like they were being smart in a negative way. I know that they just like all of their facts to be in line and totally accurate. It would be incredibly daunting, so I can understand where teacher fears come from. (396-401)

Ms Ruby described one student who always worked too quickly on his art projects:

> 'I'm finished, I'm finished' he would say. He got used to me answering 'now hold on a second. Let's just look at this closely'. You could see his mind ticking over. He'd snatched some ideas then be off again embellishing his work. A lot

> of time was spent keeping him on track. Once he got started, it was often hard to stop him at the end of a lesson … or even at the end of the unit. (88-92)

Similarly, Ms Emerald mentioned the complexity of coping with student excitement "when they started a new unit of work they went off on all sorts of tangents" (239-241). She went on to say that she was inspired by their 'insatiable enthusiasm' giving an example of students continuing research long after units had been completed at school. Fred (285-286) showed this eagerness combined with frustration when he said "some assignments uncovered so many questions that we just had to leave unanswered". These comments indicate how student needs were satisfied, and Csikszentmihalyi's (1997) notion of flow was reflected in optimal experience.

5.5.2 Attitude to Opportunity

Opportunities were made available for the ZEST class in return for diligence. Delia recalled the privileged use of classrooms allocated to senior classes (193-196) "I just loved going across to art and science. The rooms were filled with amazing creations of works-in-progress. Even the posters on the walls gave me ideas!"

In 2006, thirty of the forty students from the Year six and Year eight ZEST classes attended the Asia-Pacific World Youth conference in Taipei (16NA-R, 2006). Mr Sapphire's strategy for selecting committed students who would fully engage in the experience involved the submission of an application that creatively expressed a desire to join the delegation (15MA-EP, 2006). Applications were assessed based on creativity, attitude toward the challenge and enthusiasm shown toward attending. Responses ranging from paintings to role plays, poetry, mathematical reasoning and board games were assessed by a panel of staff. The canvas flooded with haiku, included as Appendix I (b) illustrates the originality of one students' artefact response.

Students remaining at school completed an alternative project-based creative program delivered by guest presenters. Some of the presenters remained connected to the program as mentors. Mr Silver described students being challenged by problems that required analytical solutions, posed by artists, engineers and visiting university lecturers (22TA-EP, 2011). All students involved in the conference and alternate school program were encouraged to try new experiences outside established fields of interest or mandated curriculum. To continue the global friendships after the experience, classes were enrolled in a virtual school for the gifted to share online learning experiences.

Staff mentioned however, that comments were made about experiential learning available to ZEST students. This indicated that the widespread publicity of the program and its philosophy did not provide enough clarification for the school community. Criticism of the program raised perpetual myths of elitism and favour that VanTassel-Baska (2013) maintain, continue to haunt the paradigm. Alienation therefore posed a threat to the wellbeing of ZEST staff and students. Alienation was also experienced by the parents of gifted students as indicated by Ms Diamond:

> It's hard for some parents to talk about their gifted child with their friends because they are treated as though they're showing off. It's safer not to start the conversation about any of their achievements… it's also a problem when parents just rave on about their children as though no other child exists. (428-432)

Staff conceded that a broader understanding from the wider school community about gifted education could be part of the solution.

Low latent inhibition (LLI) was alluded to when Ms Ruby (275) admitted to spending additional time carefully planning her art classroom stimulus material since "students were just so sensitive and easily distracted. I would make small additions each lesson to build the ideas. This seemed to help them not to be overwhelmed with stimulus". Her reference to LLI reflected Weiner's (2010) definition of a student's inability to block multiple stimuli. Ms Emerald (257-259) cautioned "students need to learn to recognise their heightened awareness and compartmentalise sensory input. They are so much more susceptible to drifting off task". The value of recognising traits of giftedness supports an argument for identifying and grouping students, so that professionally trained staff can capitalise on appropriate learning opportunities

In summary, students were granted greater trust, autonomy and control over decision-making within scaffolded differentiated tasks. Staff trained in gifted education used student curiosity and asynchrony to drive intrinsic motivation as part of their accelerated learning strategy. They managed low latent inhibition by minimising stimulus to control over-excitability (described in Section 2.4.3). Conversely, untrained staff struggled with co-operation, incessant questions and socially-unacceptable behaviour. The absence of professional development for senior staff post-ZEST therefore added to the complexity of student assimilation through raised expectation.

5.6 MOTIVATION

As established by the discussion so far in this chapter, wellbeing associated with eudemonic state (Section 5.4) and traits of giftedness (Section 5.5) were satisfied by the ZEST model. This section focussed on motivation includes elements of self-determination as defined by Deci and Ryan (2008). Gifted students provided evidence of a strong desire for student *autonomy*, new learning (*competence*) and indicated an understanding of the value, in making connections with others. Although archive documents in Phase I indicated objectives for the gifted program to develop autonomy (Section 5.6.1) and competence (Section 5.6.2), *connectedness* had not been included as part of the ZEST model. Gifted students became very connected within the ZEST class however students faced challenges beyond the program. Consequently, evidence relating to friendships in the ZEST class (Section 5.6.3) and across the school setting (Section 5.6.4), have been treated separately in the presentation of evidence.

In summary, indicators for motivation drew on archived data from Phase I about co-curricular involvement and absenteeism that were able to be expanded at interviews. The balanced ZEST model appeared to provide school satisfaction that was not present pre-ZEST or post-ZEST. Based on the analysis of data, this study therefore argues that a balance between autonomy, competence and connectedness is required to satisfy the needs of gifted adolescents.

5.6.1 Student Autonomy

Autonomy is the first of three constructs for self-determination. For the purpose of this study, autonomy implies independence and freedom from external control or threat. Confidence and autonomy were fostered in the ZEST program by setting goals with clear scaffolding and encouraging mutual respect. Indicators used to code autonomy in the transcripts included: independence, sense of belonging, respect, mentors, trust, calculated risk, balance, calm, voluntary, freedom, sharing, engagement, expression, creative, driven and intrinsic or extrinsic motivation. Mr Silver suggested that although autonomy was a goal for many adolescents, it held particular importance to gifted students. Mr Sapphire wrote:

> Results suggest that gifted students have a preference for challenge due to high levels of innate curiosity, persistence, interest, independent mastery and when stigma was removed, high levels of self-esteem. Self-belief, the

intrinsic value of learning and a positive learning focus were therefore important to foster for students to gain autonomy. (27YA-PS, 2006. 19-25)

Mr Sapphire observed that gifted students: "became more motivated by a desire to learn and improve themselves personally rather than the desire to be better than other students in the class". (3AA-PS, 2003, 540-543) He went on to explain that this phenomenon was not widely used to advantage by staff outside the program. This study observed that ZEST staff however, capitalised on traits of giftedness. As a motivational strategy, Mr Silver introduced units with group discussions and role plays then offered students opportunities negotiate progress and pursue tasks independently. Ms Emerald prioritized clear goals and structure for each new unit:

After the initial excitement and establishment of goals, I showed them the scaffolded sequence of tasks and there would almost be a busy silence. Most of my activities were heavily structured at the beginning, then quite open-ended to allow for creative solutions. The whole class, were so creative. (41-44)

Ms Emerald observed that students were not competitive, but acutely aware of each other's talents and were inspired by excellence: "students rarely sought recognition". (122-123) She maintained "gifted students don't need to be forced. They don't need to compete. Most of them just really enjoy learning". (205-206) She indicated that students were self-directed, motivated and satisfied working independently, although they willingly participated in lively discussions as a group at the start and conclusion of each unit. Ms Emerald said "it would often start with individuals calling out, but soon spread to the whole group. Some would sit quietly for ages in contemplation then they would jump in with a myriad of thoughts". (39-41) Felix provided verification when he shared: "Some classes did get loud, but when work had to be done, everybody just got on with it". (103-104)

ZEST staff described students as having an intrinsic mastery orientation toward learning. Ms Gold (241-243) celebrated "it was like opening the gate to allow the responsibility for learning to be shared rather than totally teacher directed. Independent work was the obvious path to take with gifted students. They were so curious". She set open-ended tasks since "ZEST students made abstract connections and could solve complex problems in astoundingly creative ways". (367-368)

Fred shared a perception of autonomy as students filled being engaged with purpose:

It (the pace of learning) was quite fast but manageable. It (ZEST) made learning really quite interesting and stimulating. It made me feel alive. The challenges

were great. From grade five to seven there was quite a big change. We started

out just doing assignments together then we moved to working on independent

projects that we could really design ourselves. Criteria were the same but the

projects were so different. There were certainly some more difficult things but

we always got them done…and it didn't really seem like work. (295-301)

Mr Silver (15.11.12) maintained that one of the strengths of ZEST was the ability to celebrate unique talent by negotiating personal goals and tailoring learning to individual needs. He expressed a pride in extending students beyond their existing fields of excellence to try new skills. This was evidenced by Edgar when he shared:

Well I guess we covered lots of really different topics so it opened my eyes to

what was possible. I tried things I certainly wouldn't try in front of a class now.

It made me look at things differently as if there was always more. (341-343)

Later in the conversation Edgar mentioned the expansion of ideas influencing his career decisions "Exposure to so many ideas helped me to see what I didn't want to do too. That meant I could steer to what I liked (pause) I'd like to be an engineer and I've known that since Year seven" (346-347). Year eight was the year that Edgar's class left ZEST to enter the mainstream. In the continued conversation he attributed his surety to conversations about purpose and direction during ZEST. Students therefore, expressed a positive attitude toward goal setting and the accelerated pace of work because of the additional degree of autonomy and direction it provided.

Several ZEST themes, notably the development of a fictional book and another on Canadian wetlands continued for six months, concluding with highly creative differentiated assessments. Reflection on the English book unit revealed Edgar's pride, distilled by his autonomous pursuit to publish the completed work:

Everybody wrote their own novel as a short story. It was so different to

anything I'd ever done before or since. We wrote it, illustrated it, worked out

Chapter layouts using mathematics and had to make our own decisions all along

the way based on what we liked in other novels. Then we printed it to read to

the class. (134-137)

Staff used a student-centred approach to promote autonomous learning then encouraged a sharing of ideas to show pride and connect with others. Artefacts in Appendix D (b) from staff show how autonomy was developed using trust, mutual respect and the ability to negotiate the design of student-centred activities. Ms Diamond (291-293) acknowledged however, that despite well-established goals, gifted students shared a relaxed attitude toward organisational skills that extended to

organising their own research. This highlighted a need to monitor progress carefully and provide clear scaffolding. She negotiated personal goals and time management plans to place responsibility for learning on each student. Mr Quartz (82-84) pointed out that prior to ZEST students had heavily relied on intuition, observation and memory, so the differentiation in ZEST curriculum provided a new level of learning.

Mr Quartz offered a strong view about leadership, peer-tutoring and mentoring. He suggested that gifted students who became autonomous thinkers made thoughtful, intelligent leaders. He acknowledged that although skills to assist others were learned quickly and gifted students had knowledge to share, the process was not beneficial:

> Students were rarely asked to mentor in my class. We used the strategy occasionally to practice sharing, reflection and communication. Students would sometimes help friends voluntarily as an extension to their own learning. They bounced ideas off each other so well. I believe that the students are here to learn new things for themselves' though - not to teach. (Mr Quartz, 294-297)

Mr Quartz had observed that gifted students were often asked to mentor struggling students in mainstream classes under the guise of promoting socialisation. He cautioned that this strategy was detrimental to the academic progress of the gifted adolescent. Ms Gold commented however, on the value of visiting mentors to assist:

> it was valuable using adult mentors to extend them (gifted students). Sometimes it helped them to slow down, listen and think. They needed to respond and practice two-way communication. They really only practiced patience when they mentored their peers … but it wasn't well received by their peers. (Ms Gold, 189-193)

Beyond academic achievement, the establishment of trust meant teachers could enable students to negotiate choices in classroom and assessment tasks. Greater opportunities were offered for autonomy to be expressed. Ms Diamond (67-68) indicated that helping students to gain autonomy through making decisions, was a step toward the development of confidence and resilience that they needed for social interactions beyond the classroom.

Cadell illustrated this when he shared a vignette about soccer: "Always being at training on time was important to the coach so I liked to be there on time. The others teased me, but in the end, it meant I did have extra time with the coach and I think it improved my game" (110-112). Cadell assessed his needs and purpose for

acting, then balanced his decision against the stigma and consequence attached to his action. The event had been four years earlier, so raising the recollection implied that it had made a strong impression on his memory. Others in the focus group nodded in support as he spoke, as if to empathise with his predicament. Clifton followed with a similar admission that reflected less self-determination "You learn very quickly to be quiet in Senior-school. Talking just attracts attention." (124-125).

In summary, indicators for student eudemonic state were coded using terms such as: happy, quietly studious, excited, challenged, independent and satisfied. The use of these terms was consistent with terms related to Deci and Ryan's self-determination theory (2008) and its reference to autonomy, competence and connectedness as motivators highlighted in Table 5.1.

5.6.2 Academic Competence and Skill Expertise

Cognitive needs were met through accelerated programming. Ms Gold admitted "I would always have an extra activity up my sleeve because if they (students) were switched on, it was dynamic. The pace of learning was incredible". (175-176) Indicators used to code competence included: pride, interest, awards, achievement, reports, excel, prodigy, mathematical genius, abstract ideas, safe (to be myself), acceleration, grade-skip, differentiate, challenge, pretentious, perfectionist.

Improvement in school academic results after one term in the immersion, were noted from archived reports. Indicators from Seligman's (2011) PERMA acronym of positive psychology in this section are Meaning and Accomplishment. Meaning was expressed as goals and purpose, while comments relating to accomplishment were able to be triangulated with data from school reporting and co-curricular participation files. Improved attendance, engagement and results for students in the first term of ZEST prompted acceleration soon after for each cohort. When students were asked about the pace of learning, Clifton admitted to asking older ZEST class members (in Year 7) how hard the work would become:

> The Year seven class seemed to really love all the work they were doing. It was quite inspiring in a weird way, and it was infectious. It impressed me. I suppose we were like that by the time we got to Year seven. (94-96)

Clifton's apprehension to join the program was reflected by other students, but Clifton showed the initiative to seek greater meaning prior to his commitment. Ms Gold expressed her commitment to satisfying the unique needs of gifted students:

If you come to school with skills already mastered, then you can get really frustrated when there is nothing new to learn – it gives a poor impression of what the school represents. Gifted children look forward to school, but then when they get there, they are disillusioned. They just want to learn something new. (308-312)

Understanding competency requirements was important, since transcript references were frequent, covering themes of:

- Curiosity, quick wit, and bouncing abstract ideas quickly;

- Creative and elaborate reflection of vignettes;

- Intense focus on truth, facts and correctness;

- Interest in problem-solving enticing each other with inventive ideas;

- Deep reflection and introspective thought of values, morals and ethical topics.

Ms Diamond (522-524) admitted that "the biggest threat to wellbeing is that many gifted students feel that they have to do a lot of extra work to be able to achieve the goals that they want". This perception was addressed for the ZEST class by shifting the focus of ZEST goals from academic competitiveness and expectation to *personal best* accomplishment (5CA-R, 2006).

In addition to school mandated academic subject reporting, ZEST students were also monitored quarterly using IOWA progress tests and student social coping skills tests that used similar methods to a study by Swiatek (1995). Mr Quartz felt that markedly improved academic results for Darcy were worthy of comment, since Darcy had been identified as an under-achiever prior to ZEST (22-23). At focus group interviews Darcy's gratitude for being part of ZEST was clearly evidenced by his enthusiasm for working with like-minded peers "when Ben started on his astrology project I abandoned mine to follow his lead. It was an amazing journey we took together that term!" (215-216). Evidence from this study has indicated that shifting the balance to include competence and social-emotional aspects of development, helped motivate students to appreciate the benefits of being at school.

5.6.3 Classroom Connections

One of the enduring memories gained through interviewing students for this research was the empathy, respect and trust shown among participants. The promise of confidentiality was made early in each interview and the students responded with a relaxed flow of conversation. They were interested and courteous. They did not

speak over each other and were caring enough to seek opinions if a member of the group sat quietly in contemplation. Perceptions shared freely with a sincere and vibrant exchange prompted mature responses beyond the gifted student's chronological years. Darcy (224) mentioned 'trust' for each other, as an ongoing benefit of being associated with the ZEST class.

Gentle interjections to maintain semi-structured question format were well received. Ms Gold (35-37) insisted that grouping students by ability as a class was as important as grouping by interest for activities within the class, to provide students with basic physical and psychosocial safety needs.

The series of staff interviews were performed in the term following student focus groups, providing an opportunity to ask staff about student's candid reflections. Mr Quartz (101-102) explained "an ambience of camaraderie, trust and respect had to be established early in the program to encourage students to be themselves". This was so much easier to establish with gifted students". Ms Ruby included building trust, resilience and social skills in her art program laid a foundation for students to share ideas safely, with less fear of criticism and an acceptance of constructive feedback. Ms Gold reflected on meeting a new class for the first time:

> Many expressed sadness about the period just before entering the program. This meant that building trust early was important and they soon bonded to support each other. They seemed to share similar stories despite the different backgrounds they came from. So, although there were great differences between them, there were also kindred spirits. (443-448)

Socialisation in the ZEST classroom was considered by Ms Ruby to be "healthy and lively" (25). Throughout the transcripts, staff referred to traits associated with asynchrony that affected student friendships, using a variety of adjectives including: unique, different, quirky, intense, excitable, moral, perceptive, opinionated and hyper-sensitive. The most distinguishing traits of giftedness coded frequently across interview transcripts were: quick response, wit, eloquent language, sensitive, friends, lonely, isolated, happy, sad, engaged, trust, social and co-curricular activity. The ability to socialise challenged students pre-ZEST and post-ZEST thus limiting opportunities to develop authentic friendships. Reminding me of a gifted student's eloquent conversation, Mr Quartz said:

> Sometimes because of the grown-up conversations, people forget that they're still children! They don't always act on their instincts. As teenagers, part of the

peer expectation is to challenge and push the limits. Sometimes their intense criticism, or judgment is a result of deep thinking and a set of highly developed skills, yet their delivery can be socially unacceptable. (51-55)

When asked if students might have found their same like-minded friends without the program, Darcy replied thoughtfully:

It would have been hard to see their true colours. ZEST allowed us to be ourselves right from the beginning. I think our personalities may have drawn us together if we had met by chance somewhere along the way (pause) well you just have to be careful when you are making new friends. (454-460)

The main theme emerging in this section was the importance of relationships to gifted adolescents. Awkwardness in being able to relate to others challenged the development of self-determination. The main ZEST provision for psychosocial needs was grouping by ability to practice social skills with like-minded, like-ability peers in the class, before experimenting beyond the class (5CA-R). Building self-determination enhanced the social skills and autonomy required for academic progress. The balanced approach provided valuable social habits that were challenged once again, for at least two-years following the immersion. The transfer of skills needed practice and further support in the mainstream.

5.6.4 School-wide Connectivity

Evidence in this section about friendships and connections across the school community is supported by objective data from school records about co-curricular involvement. Early promotional documents indicated that assisting students to develop social connections was part of the goal of balancing the program (4BA-Z, 2002). Bronfenbrenner's (2005) notion of interdependent social networks was used to explore interconnections and student engagement. Positive psychology indicators from Seligman's (2011) PERMA acronym revealed in this section relate to **E**ngagement and **R**elationships.

Staff observations provided good insight into student socialisation, for example Ms Emerald (69-70) recalled often seeing Fred on playground duty saying "he is always with just one of his ZEST friends, never anybody else". Information from Fred's focus group interview supported her description of strong friendship allegiance, and co-curricular records were viewed to gauge Fred's interests and school involvement with others. Few ZEST students were found to extend contacts widely across groups however, instead preferring what Lave and Wenger (1991)

referred to as peripheral participation in situated learning. Watching from the peripheral enabled fewer learning opportunities than full engagement in an activity. Student trust, attitude toward engagement, and motivation to learn determined the number of connections made by each student.

Mr Quartz (75-77) believed that developing an action repertoire to incorporate social skills was part of his role. He viewed connecting students as having the wider purpose of extending experiential learning:

> Playing with Lego robots attracted a large group of interested boys at the lunchtime club, but not all of them were gifted. Robotics was available to all students to increase socialisation with like-minded students who were not necessarily of like-ability. Creating new friendships through common interests was the key (258-261)

Strategies used to broaden social groups included inviting other classes to robotic activities, joining co-curricular lunchtime activity groups. Classes combined with others in the cohort for Health and Physical Education and Languages. Ms Gold admitted that when students from other classes visited their classroom there was little interaction "they just arrived and played with our equipment while the ZEST students watched on. It didn't have the desired effect of integration". Dan described unsuccessful attempts to integrate students:

> Mr Quartz tried to invite other classes to join us but it really didn't work. Once a week other classes from our grade would come down to our classroom. They were a year older and we didn't really know them. They just came in, used all our games and equipment, and we just stood awkwardly watching. (20-22)

He added later (44-45) "I don't think anything would have worked. We were happy just being together. Being in ZEST with my friends was really the only time at school that I felt comfortable just being myself". As suggested by Makel, Wai, Putallaz and Malone (2015) the intellectual gap between gifted students and their peers widen at adolescence. Conversations about friendships described awkward social encounters that led to social-emotional issues. Darcy shared:

> I didn't start socialising with the people in the older grade until we actually left the program- even though they tried very unsuccessfully to bring other classes in Year six. Year seven wasn't so bad for us when they joined us. Sometimes I felt that it made us look even more different to them. (137-139)

Dan admitted (35-36) "I never did good work when the other class came to visit because they thought it was hilarious that we like to do the work. I just used the time

to make new friends". Similarly, Emma contributed "we just needed to learn who they were in other classes, so we could recognise them as our group. We didn't really want to join them and stand out – they definitely saw us as different" (187-189). . In a separate interview Emma contributed:

> It was hard to imagine leaving the class while we were in it. We just needed to learn who they were in other classes; to recognise them. We didn't really want to join them and stand out – they would see us as different. (187-189)

Ms Gold (98-99) indicated that she was surprised by an unspoken threat that was issued toward gifted adolescents, when too much enthusiasm or curiosity for learning was shown in mixed ability groups. Ms Diamond noted the need for trust since:

> Gifted students were intellectually mature, but they needed a lot of encouragement to become more involved in co-curricular activities socially in lunchtime groups, sport or music. Many other students their age had lots, of established friends in lots of groups, so drifted freely between co-curricular activities. Gifted students were not as keen to try new things in front of others for fear of failure or looking silly. (420-423)

Grouping students by interest in the wider school community in co-curricular activities capitalised on curiosity. Clubs, sport and music groups operated as subsystems within the school to encourage socialisation and offer a sense of belonging. ZEST students however, were not supportive of establishing wider connections beyond the class. Multiple sources of evidence endorsed that being together as a class established resilience, needed when students were recognised as gifted. It became evident that a broader understanding of similarities and differences attributed to giftedness has as much importance to gifted students as for the wider school community. Trust with staff and peers, was an important factor in engaging students fully. They extended learning in trusted groups, by taking calculated risks. Heightened engagement was evidenced with descriptions of happiness, student enthusiasm and minimal absenteeism.

Ms Emerald recognised that "one of the benefits of students engaging more with school was the increased experiential learning that led to more socialising with others. It definitely helped with their maturity". (178-179) Earlier in the interview she had maintained "successful students were those who had extraordinary social skills. They took calculated social risks and interacted with people from all walks of life". (86-87) These were poignant words that influenced my thinking about

exploring how connectedness influenced student wellbeing. Ms Diamond explained her rationale behind widening social circles as:

> Students question deeply and become quite concerned about their identity and where they belong. Everybody solves complex issues in different ways, but students who are well socialized, talk about it more. It's a problem if you are exploring your identity on your own from a passive, watchful stance. (256-260)

In a similar conversation, Ms Bronze referred to combined activities with other classes as "extending their social repertoire". (63) Ms Emerald's suggestions for socialisation included music groups, sporting groups, cultural groups and links with other classes. She admitted that:

> Encouraging students to join co-curricular groups was a hidden agenda for me. With just a little bit of encouragement and support, they would try anything. Their biggest fear was being laughed at and for some just trying something new was a risk that they were not willing to take if it meant that they could fail. They tried things together in small groups and it made a huge difference to their confidence. Their conversations about shared experiences were really valuable and encouraging for others. (194-199)

During ZEST, students were hesitant to extend friendships beyond the classroom. Efforts to combine the gifted class with others in the cohort were thwarted for two reasons: lack of support from the wider school community, and an unwilling attitude from students who were content with close classroom friends. Connecting with the wider school community was made more complex by unpredictable attitudes shown towards gifted students by others and a lack of acceptance for the program.

Ms Diamond admitted "The lack of support for the program was not outwardly prominent, but undermining and sinister" (141-142). Showing positive support, Ms Gold: "When they (parents and School Council) support us, it makes us work harder. Primarily, we're helping the students with how to learn, rather than subject matter". (228-230)

Synergetic records indicated significantly less engagement in co-curricular activities post-ZEST. In one focus group, Alastair and Alice (168-193) engaged in a conversation about skill-experiences that they would not usually have tried, and that gave them confidence post-ZEST. Mr Quartz observed that when students tried new skills they preferred to stay together:

> Students in my classes were encouraged to join a singing program, play handball and other physical games outside together at lunchtime. These weren't

things they would have normally chosen to do so they were very hesitant, until they realized they could join as a group … It took the fear out of trying new things and they learned a lot about themselves in the process. (233-237)

In a reflective conversation in support of grade-skipping, Bronte suggested that she "could not imagine socialising with her original primary school friends from the year below now" (193-194). Carol's comment reflected many of the student responses:

Age mattered to a lot of my friends through those ZEST years. By the time you get to senior, some have been held back and others have grade-skipped in some subjects, so it all just evens out. The difference between Year eleven and twelve is minimal, so age doesn't seem to matter as you get older thank goodness. My friends now range from 16-19 years old. There are a lot of people who aren't seventeen like us, so they can't drive or drink in public yet either! (158-163)

Coding for connectivity included discussions of whole-school community days, resilience building, broad-based leadership programs and a range of co-curricular activities. It explores the notion that the quality of relationships influences connectedness and academic success, since improved academic outcomes were evidenced after only one term in ZEST.

In summary, the nature of gifted students was evident behaviourally, without testing or ability-grouping. In their search for identity, seeking a sense of belonging was strong. Students were happy to be selected for the program, describing benefits that negated concerns about stigma, experienced pre-ZEST. Conversely, referring to their post-ZEST experience, students indicated concern regarding transitioning, labelling and mainstream assimilation. Evidence therefore indicated that although students found cognitive and affective domain balance through the program, ongoing support was warranted post-ZEST.

Staff and students fully endorsed the benefits of grade-skipping however, based on evidence participants did not endorse skipping a grade without systemic support. Evidence about friendships and co-curricular involvement has illustrated the benefits of students developing a broad range of friendship connections at school. Data support an argument to encourage engagement at school to improve school satisfaction. School satisfaction is as an important component of wellbeing that improves healthy development and academic outcomes. Evidence from this section, has shown that poor connections between gifted programs and the wider school

community result in diminished support for staff, students and programs. This highlights the benefits of using a systemic approach that builds connections.

5.7 STAFF INSPIRED STUDENTS

Vignettes from student focus groups clearly validated the important role that teachers played in student motivation. Evidence supported current research about class strategies (Section 2.5) and the strong influence of passionate, well-trained teachers on student engagement and learning outcomes (Section 2.7). Slide 2 (6DA-R) from a presentation to staff indicated passion behind Mr Sapphires initiation of the program: "No human being can force another to learn. No human being can force another to take advice. The decision to learn is the possession of the learner, not the teacher. The teacher can only invite. Success depends on the strength of the invitation".

Evidence from students suggested that the high involvement in co-curricular activities during ZEST, registered in school data capture files, were the result of staff encouragement. Dan recalled (50-51) "I didn't even know that I would like the violin, let alone play the guitar and flute. We were encouraged to consider opportunities that we would not normally have tried". Dan had come to the program as an exceptional pianist, and this passion had limited other experiential learning. He added:

> It was hard trying something new as you got older because people expect you to know what to do and know the skill before you start. I'm really glad we tried so many things (pause) I haven't done any new activities since ZEST. (370-372)

Mr Quartz commitment to his teaching role was mentioned in several focus groups. Students were impressed when he joined their activities at lunch time spontaneously, playing handball, starting a robotics club, and singing with the choir. Students came to his class with a history of varied individual interests but left with a passion for many more new interests due to his inspiration.

Compliments about Mr Quart's enthusiasm as the first ZEST Year seven form teacher, were frequent. Darcy proclaimed that "Mr Quartz was just the best teacher. We did it all. I actually looked forward to going to school to see what he might come up with next!" (105-107). His inspiration touched each of the students in a different way, with Fred relating "I think lots of the class joined the choir because of Mr Quartz. "We also tried lots of different kinds of music!" (107-108) Darcy added "I really enjoyed the boys' choir because Mr Quartz ran it" (109). Dan smiled admiringly as if at Mr Quartz: "He doesn't look like somebody who would enjoy

singing or playing sport, but he did it all". (341-342) Cara said excitedly "Our form teacher (Mr Quartz) was amazing. He just seemed to understand the way we were … as if he could predict our thoughts … so he was always one step ahead of us and we loved that about him". (31-32) The passion shown by Mr Quartz toward particular activities had an infectious influence on student engagement.

Students were immersed in ZEST for two years and although most of the quotations relate to their Home-room teacher, other ZEST teachers were also mentioned with respect and admiration. Evidence therefore supported research that highlights the passion shown by teachers as a major influence on student engagement (Churchill, et al., 2011; Hattie, 2003; 2012).

5.8   REFLECTION ON PHASE II EVIDENCE

As the researcher I was moved emotionally, by the honesty shown by participants as they reflected on ZEST. Staff expressed appreciation for the opportunity to have their views heard without judgement. Students were enthusiastic at the prospect of coming to focus groups to reflect on their shared experience, commenting spontaneously and often, about influence of passionate inspirational teachers. Academic and social-emotional challenges were alleviated during the ZEST program.

Students revealed their greatest challenges however, in conversations about the two years following the immersion. Concerns for the ZEST model were documented in annual reviews. Learning through the evolution strengthened academic and social-emotional facets of the ZEST model. The wider school community were not adequately equipped however, to support students leaving the immersion. Students openly described the stress of unrealistic expectation, their willingness to change behaviour to avoid stigma and gain friends, purposeful under-achievement, and how it felt to fail for the first time. Behavioural traits attributed to asynchronous development led to the use of defence mechanisms for forced-choice dilemmas. Staff felt challenged to replicate opportunities for autonomy, differentiated units, and support student learning when students were trying to hide their potential from peers. The development of self-determination and balance were temporarily lost as students changed their focus post-ZEST to the satisfaction of basic psychosocial and physical safety needs.

Although quotations in Table 5.4 are out of context, they show the range of comments from different sources illustrating the three constructs of self-determination featured in this chapter.

Table 5.4.

Triangulated evidence reflecting self-determination

	Student Responses	Staff Responses
Autonom	"I loved having the freedom to research in new directions" Dan (121). "We got to publish our own book" Edgar (120).	"With trust came progress" Mr Quartz (337). "They were so curious" Ms Ruby (98). "Intrinsic motivation returned when they felt safe" Ms Gold (336).
Competence	"I loved maths but thought it was the only thing I was good at" Emma (100). "Everyone was the same by senior" Cara (121). "The science in the new grade level was so much more interesting" Dallas (187).	"I urged them to take risks and extend their boundaries" Ms Bronze (32). "Senior staff labelled them as young and immature based on physical stature" Mr Quartz (319).
Connectedness	"For the first time I felt that I had a friend to talk to" Fred (97). "They tried to encourage us to make friends outside the class but we didn't want to" Celia (135).	"I could move groups easily within the class. They were all good friends" Mr Quartz (72). "We invited other classes to visit our room, but they did not move beyond their friendship circles" Ms Gold (260).

This chapter has used primary data to assist the reader to experience ZEST vicariously through participant voices. Presenting evidence as an historical case study encourages further active interpretation of the Knott School ZEST model, based on the evidence presented. Direct quotations have been offered for the reader to weave threads of evidence into a tapestry of new insight to consider the discussion in the next chapter. Moments of highlight were expressed in the enthusiasm shown by participants wanting to share their story and the respectful comments shared by students about the passion and understanding shown by their teachers. Teacher energy appeared to be infectious, spreading to students as a highly productive work ethic that promoted experiential learning.

The next chapter returns to the two research questions. It defines wellbeing for a gifted adolescent, placing value on establishing self-determination and offers insight into recommendations. Phronesis development at this point in the study is

used as a visual step toward the development of recommendations. Phronesis is a Greek term that refers to the accumulation of wisdom or what is known to help make sense of a phenomenon (Thomas, 2015). Figure 5.6 visually consolidates evidence and theory gathered to address the two research questions. Its value lies in its use to process thought into a cohesive whole. Theory elements highlight concerns that will be addressed in the Chapter six discussion.
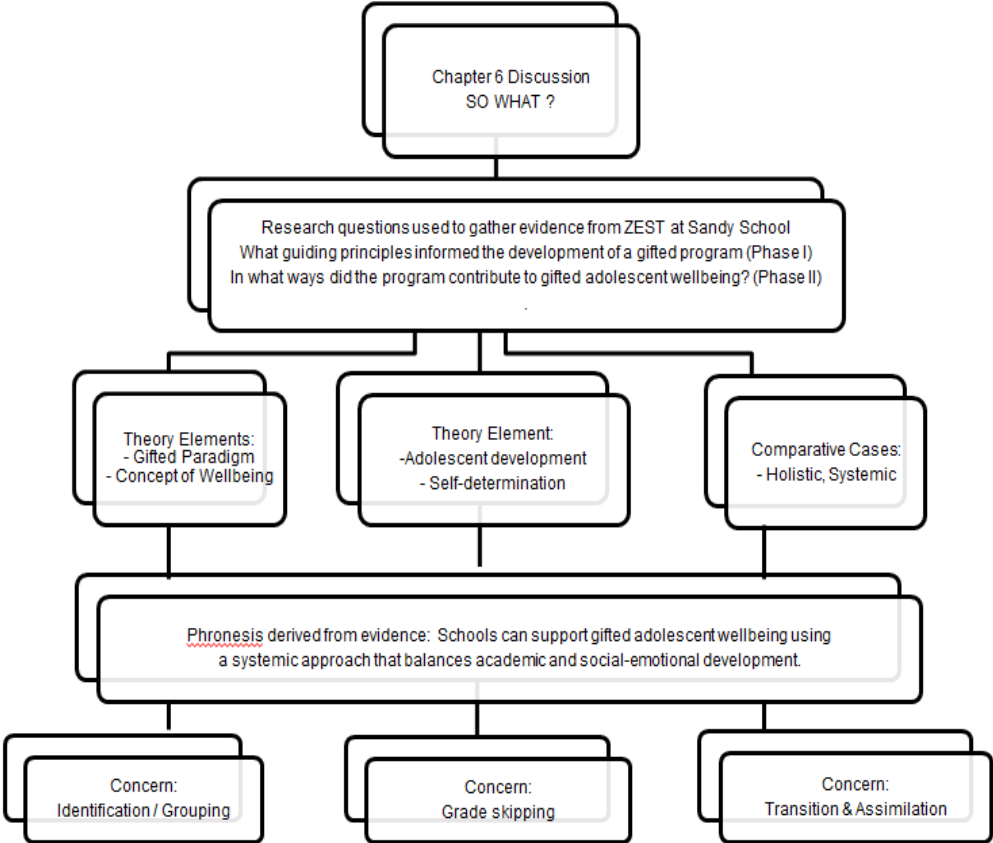
Figure 5.6. Phronesis development

Evidence from this study suggests that the solution to assisting gifted adolescents in a school setting lie in a broad systemic approach. Extending the knowledge of staff and peers about gifted adolescent wellbeing suggests a whole-of-school approach. Research and evidence from this study suggests that school concerns relating to initiating change include: identification, ability grouping, grade-skipping, acceleration, transition and assimilation. A triangulation of evidence from different sources in the next chapter strengthens an argument for revising the ZEST model to address identified issues. The 168 archived items of data (Appendix G) and fifteen interview transcripts collected from Knott School have been analysed qualitatively as a foundation for the recommendations made in the next chapter.

Chapter 6:   **Discussion**

"They constantly explored pathways and ideas with an insatiable ZEST."
Ms Emerald (31-32) delivered these words with an enthusiasm that reflected her passion for teaching the gifted class. ZEST is the pseudonym for the gifted program at the centre of this case study, selected for its alignment to wellbeing, enthusiasm, drive, anticipation and energy. In positive psychology ZEST is one of Seligman's (2011) twenty-four signature strengths, with courage as a virtue. The rationale for the commencement of this study is similar to the reasoning behind Knot School starting ZEST: out of concern for the wellbeing of gifted adolescents. The program responded to a perception consistent with Heller's (2003) Disharmony Hypothesis. by assuming gifted adolescents had additional needs not met by existing programs that prioritized academic achievement. One of the additional needs was a courage required to develop and authentic identity by resisting forced choice dilemmas (Jung, McCormick, & Gross, 2012). Traits of wellbeing and giftedness made up the analytical framework introduced in Section 3.7. The ZEST case study positions the reader to explore two research questions:

1. What guiding principles informed the development of a program for gifted adolescents?
2. In what way did the program influence gifted adolescent wellbeing?

6.1   **INTRODUCTION TO THE DISCUSSION**

The initiation of the ZEST program coincided with the emergence of positive psychology. Interest in the influence of wellbeing on student outcomes has grown through this focus. The ZEST model however, included social-emotional outcomes in their balanced program. The wellbeing lens used to explore the shift of focus responds to a gap in research.

Section 6.1 reflects on the theoretical framework that underpins the study. A discussion of the first research question and principles of ZEST in Section 6.2 uses data and current literature to establish links with the framework. Analysis indicated that a range of proximal, schoolwide and systemic factors influenced gifted adolescents. Section 6.3 addresses the second research question recognising value in balancing academic and social-emotional development for gifted adolescents. The

analytic framework revisited in Section 6.4 summarises the triangulated findings from Phase I and Phase II of the study. Section 6.5 exposes discrepant findings related to student identification, the assimilation of students into a new cohort and grade-skipping. The Progress map in Figure 6.1 graphically illustrates how topics are organised.
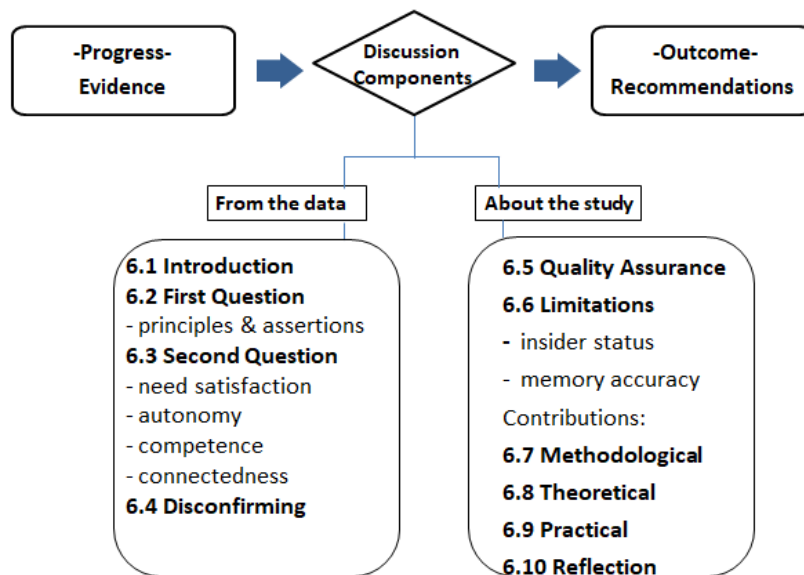
Figure 6.1. Progress map for the Chapter six discussion

The second half of the chapter reflects on research process and methodology. Quality assurance in Section 6.6 examines insider status and memory accuracy as influences on validity that were predicted and managed. Section 6.7 offers quality assurance, followed by limitations of the study (Section 6.8). Methodological, theoretical and practical contributions lead to recommendations for change.

A scan of Phase I data for the first question established ZEST as an ability grouped program that sought to balance the developmental needs of gifted adolescents to improve outcomes. Phase II participant interviews highlighted student need. Conversations about gifted adolescent needs and influences on wellbeing placed value on competence, autonomy and friendship. As a result, Deci and Ryan's (2008) self-determination (SD) theory was adopted as the motivation for school satisfaction. 'Relatedness' from the original SD theory becomes 'connectedness' throughout this study to place value on Bronfenbrenner's (2005) theories of social networking. The study began by exploring broad networks that might influence gifted adolescent wellbeing using Bronfenbrenner's ecological lens. Further analysis revealed indicators about unique needs related to giftedness and motivation for adolescent learning. Staff skilled in positive psychology and gifted education

capitalised on student traits of giftedness to improve competence, autonomy and encourage friendships (SD). Figure 6.2 shows how research questions in the centre of the illustration align theory with practice.

Key Existing Theory	Research Questions	Practical evidence
Bronfenbrenner (2006) viewed influences systemically as networks	1. What guiding principles informed the development of a gifted program?	a) Students were influenced by a range of systems.
Maslow (1993) Gifted adolescent needs differ to their peers.	2. In what ways did the program influence gifted adolescent wellbeing?	b) Skilled staff aware of student needs could use gifted traits of students to advantage.
Seligman (2011) P.E.R.M.A		c) Positive psychology informed a program that balanced social-emotional and cognitive needs.
Deci and Ryan (2008) Self-determination theory.		d) Self-determination constructs were identified as significant.
HPS (WHO, 2013) framework to group influence on students.		e) Student support is dependent on various systems.

Concerns

Identifying giftedness, ability-grouping as a class, dynamic interaction, finding balance, assessing wellbeing, asynchronous development, transitioning to mainstream, staff professional development.

Figure 6.2. Theory into practice

Findings from this study defined wellbeing for gifted adolescents as a comfortable state of physical and mental health that satisfies needs by balancing self-determination. Self-determination was assumed to be the process by which a person controlled their own need satisfaction and was therefore, influenced by others. The constructs of competence, autonomy and connectedness adopted from Ryan and Deci's interpretation of self-determination, were recognised as necessities for a dedicated program that might sustain the wellbeing of gifted adolescents.

6.1.1 **Triangulation**

Phase I insight about gifted adolescent wellbeing was gained in a search for the principles behind the program. Phase I evidence was validated in the second round of analysis, using subjective data from interviews in Phase II. Commonly coded indicators therefore linked data from different sources. Table 6.1 illustrates how the

triangulation of objective constructs from the analytical framework (introduced in Figure 3.9) built bridges between the two study phases.

Table 6.1.

Triangulation of data sources using common indicators

Objective Construct	Phase I indicators from archival documents	Phase II indicators from interviews:
Academic	Artefacts, reports, certificates, prizes	Competence, setting realistic goals, accelerate curriculum.
Co-curricular	Involvement in sport, music, leadership, clubs, artistic, service, volunteering, clubs.	Network, interests, service to others, music, sportsmanship, isolation, alone, disengaged.
Health	Absentee records, annual review reports - mention of stress levels, anxiety and coping.	Physical signs: illness, body shape. Social-emotional signs: agitated, nervous, exuberant, reserved behaviour, extreme sensitivity, stress, frustration.

Improvements in academic progress, increased co-curricular engagement, minimal absenteeism (health concerns) implied that students were happy at school. The value of triangulation between Phase I and Phase II data was illustrated in Donald's vignette shared in Section 5.3.4. In brief, Phase I student absentee records showed that student attendance during ZEST was close to 100% however, a long absence for Donald was noted in the year following ZEST. This finding was explored at interviews without drawing direct attention to Donald, by speaking generally to the focus group about absences from school. Donald openly referred to his year after the program as his worst: "they split us up into all different form (Home-room) classes. That didn't really work though … I was really happy when my family decided to take me on a holiday ... I was definitely happier in ZEST". (56-59) Donald made further reference to the period of overwhelming loneliness that led to the family decision to take an extended holiday.

A second example of triangulation offered, compares two interview sources. When Daisy (595-596) was questioned about lunchtime activities at a focus group interview, she mentioned the enjoyment of sitting alone to contemplate, saying that she "enjoyed the friendships but also the privilege of freedom to take time to reflect". She recalled strong friendships that she had not experienced prior to ZEST, so in

context the statement showed that Daisy felt supported by the program. Coding words attached to the text included alone, freedom, friendship, autonomy, support. The word 'alone' was also attached to a transcript from Ms Emerald (268-270) with Daisy's name. Ms Emerald showed concern about Daisy appearing alienated, often sitting alone and looking pensive. Triangulating data from two interview sources offered deeper insight into Daisy's intent. A staff member had shown concern and interest in her wellbeing. Table 6.2 shows indicators for the three subjective constructs from the analytical framework, to illustrate a response to research Question 2: *In what ways did the program contribute to gifted adolescent wellbeing?*

Table 6.2.

Triangulation of subjective data for analysis

Subjective Constructs	Phase I indicators from archival data	Phase II indicators from interview data
Eudemonic wellbeing	Form teacher reporting on engagement, behaviour, identity development and challenges.	Happiness, caring, content, calm, worthy, freedom, gratitude, trust, appreciative and more trusting as a result of ZEST, confident, resilient. Bored, frustrated, apathy, anxious, pessimistic, stress, depressed, moody, poor attitude, withdrawn.
Giftedness	High academic results, Awards, Certificates	Over-excitable, hyper-sensitive, creative, curious, eloquent language, artefacts, creative, expertise, feels safe. Lonely, sad, forced-choice dilemma, belonging, friendships, relationships.
Motivation	Form teacher reporting on engagement, co-curricular and absenteeism.	Independent, autonomous, engaged, needs are met, intrinsically motivated, driven, attitude, elaborate reflection, empowered, talent. Challenged, or not coping, does not show gratitude, poor attitude, lonely, pensive or reliant on extrinsic motivation.

During the analysis stage, indicators from both phases of the study were grouped into themes. Indicators grouped as autonomy, competence and connectedness (friendship) provide attributes for the construct *motivation*, discussed in Section 6.3.

6.1.2 **Findings Overview**

The following existing theory as supported by research evidence:

(a) Adolescent:

- Needs differ from other age demographics;

- Seek autonomy, yet value sameness in social groups;

- Are influenced by proximal, school and wider systems.

(b) Gifted adolescents:

- Have additional needs and challenges due to asynchronous development (are over-excitable, hyper-sensitive and prone to low latent inhibition);

- Use autonomy to satisfy curiosity and creativity;

- Are intrinsically motivated toward intellectual challenge;

- Engagement increases by ability grouping like-minded peers.

(c) Ability-grouped gifted class provided:

- Differentiation and individual programming;

- Balanced academic and social-emotional need satisfaction;

- Greater student engagement in school activity and social interaction.

(d) Outside an ability grouped immersion class, gifted adolescents:

- Face forced choice dilemmas that change their behaviour (Mask talent and identity to gain acceptance into social groups);

- Seek trust and assess psychosocial risk before engaging;

- Intellectual gap with age peers is considerably wider.

(e) The wider school community at Knott School:

- Imposed high expectations on gifted students;

- Did not adequately differentiate tasks in mainstream classes;

- Were reported as being unaware of the additional challenges faced by gifted adolescents.

There was a stark contrast between school satisfaction during and after ZEST. Section 5.6 provided evidence of the intrinsic motivation stimulated by ZEST when students experienced trust, support and acceptance. Academic outcomes for gifted adolescents in the middle years improved when social-emotional needs were acknowledged. Enthusiastic vignettes shared in focus groups showed the enthusiasm students felt. Although stories of ZEST were positive, the mood changed as students reflected on post-ZEST experiences of frustration, alienation and loneliness.

The ZEST model had been embedded into an existing system, but participants did not indicate a sense of support or belonging.

Grouping gifted adolescents for two years helped to stabilise an inner turmoil that appeared to be associated with asynchronous development (Section 5.3). The ZEST program's safe, trusting environment made it possible for students to realise potential and establish positive social relationships. These were not present after the immersion or in the wider school community.

The following points summarise evidence from Phase I and Phase II of the study, to indicate that Knott School provided for the wellbeing of gifted adolescents. ZEST supported health and academic outcomes by recognising:

- a strong theoretical base to justify the gifted program design (Phase I data);
- principles to adopt and guide evolutionary processes;
- grouping by ability to motivate student engagement;
- engagement with opportunities to improve student attitude toward learning;
- an improved attitude to school led to personal wellbeing;
- each individual's eudemonic state influenced personal relationship skills;
- connecting socially across boundaries was encouraged to expand opportunity;
- opportunities to extend competence, autonomy and connectedness; and
- employing passionate, empathetic staff.

ZEST staff provided support and access to meaningful, relevant and challenging opportunities evidenced in Section 5.5. Student curiosity and traits of giftedness were used to advantage to lever creative responses from well-structured cross-curricular units of study. To summarise the effective aspects of the ZEST model:

- Ability grouping to allow acceleration and grade-skipping;
- Achievable goals and aims allowed creative open-ended objectives;
- Cognitive and social-emotional development were balanced;
- Attitude of gifted students toward learning and opportunities improved.

Knott School were working to further improve the ZEST model by:

- Adherence to selection protocol for entry to ZEST;
- Attitudes toward gifted students regarding expectations;
- Ability of all staff to differentiate learning adequately; and

- Social tolerance for traits of giftedness, for example over-excitability, hyper-sensitivity and curiosity.

Program reviews in Section 4.6 and interview comments (Section 5.6.4) revealed students resisting networking beyond the ZEST class, thus insulating communication about the program. Participants indicated that others outside the immersion appeared unaware of the additional challenges and inner conflict faced by gifted adolescents. Embedding the class into the existing school system was a structural innovation that required support from the whole school community to sustain program benefits. Specific findings are detailed for each research question in the next two sections.

6.2   FIRST RESEARCH QUESTION FINDINGS

The principles behind ZEST underpin the discussion of the first research question: *What guiding principles informed the development of a program for gifted adolescents?* The robustness of these principles was examined through conversations with participants. The principles and processes behind ZEST summarised in Figure 6.3 illustrate how the program evolved. In the revised ZEST model detailed in Section 6.8.3 principles remain resolute but changes to the original ZEST model processes are recommended to sustain the program and enhance gifted adolescent wellbeing.
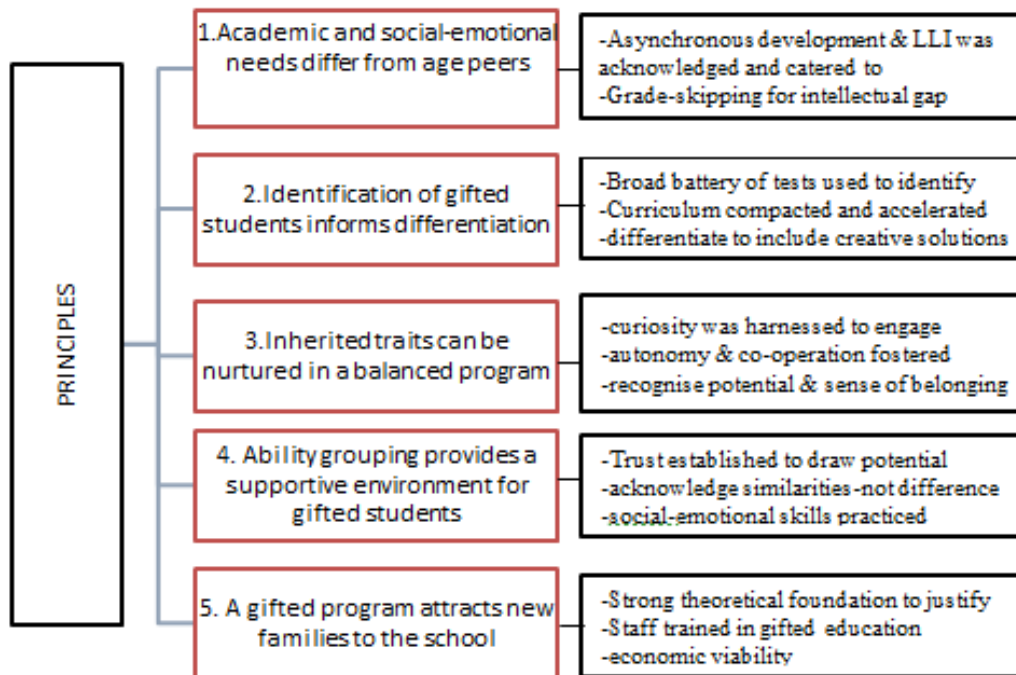
Figure 6.3. Five principles informed the processes

The first principle recognized the widely held belief of staff from Knott School, that gifted student experienced additional challenges to their age peers. The ZEST model provided a safe, trusting environment in a class that balanced academic and social-emotional needs, and set realistic expectations. Staff involved in the program evidenced capitalizing on asynchronous development and traits of giftedness (Section 5.4.2) first introduced in Section 2.4.2. Five interrelated principles presented in Section 4.3.3 guided the establishment and evolution of ZEST.

The second principle acknowledged value in the careful selection of students to enable acceleration and grade-skipping. From the views expressed on student identification in Section 2.4.6, Knott School clearly supported the identification of students as gifted by establishing the ability-grouped class and assigning teachers willing to extend traits of giftedness. Value in the rigorous enrolment process (refer to Appendix E) was verified on two occasions with staff and student wellbeing being seriously challenged when the test battery had not been fully applied (Section 5.3.3). One ZEST promotional document described differentiation for gifted students as the use of "individualised basics, appropriate enrichment, effective acceleration, self-direction, social and emotional skill development and an orientation on the future to help manage change" (7EA-PS). This principle supported the accurate identification of students to adequately inform differentiation.

The third principle offered support to gifted adolescents by balancing social-emotional and academic opportunities. Staff acknowledged that cognitive development was only part of the purpose of education. Placing value on balance distinguished ZEST from other programs that have focused on traditional scholarly ideology and outcomes. The analytical framework developed to assess gifted adolescent wellbeing revealed student appreciation for the challenging curriculum and autonomy. Review reports noted that young students needed support to face challenges, as they transitioned into mainstream classes with older peers.

The fourth principle focused on ability grouping and structural change that held benefits for staff and students. Year seven was traditionally a year of consolidation for primary school thus enabling acceleration for students who mastered the basics quickly. Curriculum was able to be compacted and accelerated to skip a grade prior to entry to senior school. Staff achieved goals to improve student attitudes and engagement. They acknowledged differentiation paradigm outlined in Section 2.4.7 that extended talent and creativity as part of the ZEST model.

A fifth principle related to attracting new students to the school program. Research about students seeking an identity, making decisions about autonomy and social engagement helped to inform the decision to place ZEST in the middle years at Knott School. Families concerned for the wellbeing and academic outcomes of their gifted children joined the class with the promise of a supportive program. The evidence of support being so important to families was in enrolment figures. Knott School had assumed that families benefitting from the program would stay after the two-year immersion, to share improved student outcomes with the school community. At least half of the ZEST class families had relocated to enrol at Knott School following acceptance into the program. However, concerns about a perceived lack of ongoing support emerged quickly as students returned to mainstream classes.

Internal reviews of the program noted that the academic challenge and social-emotional support that students experienced in the immersion class needed to extend post-ZEST (Section 4.6.2). Participants described staff and students as being unaware of the additional challenges faced by gifted students post-ZEST. Student comments indicated that this was not adequately addressed, referring to the first year after ZEST as the gifted students most challenging time at school. Concern over ongoing support, was evidenced by families relocating to other schools. Staff voiced frustration over the introduction of a commitment contract in 2007 to stabilise student retention rates, echoing a need for greater support (Section 5.6.4). Broader empathy and inclusive support therefore, emerged as a key to retention and program sustainability.

The principles underpinning ZEST were based on research of that time. Review reports about the program indicated that the ZEST model used a strong theoretical base, ability grouping and balance to improve wellbeing and academic progress. Any future revised ZEST model should therefore keep elements deemed effective by participants but adjust features of concern. The ZEST model aligned with Seligman's (1995) five PERMA pillars by fostering Positive emotion, Engagement, Relationships, Meaning and Accomplishment reflected throughout the interview transcripts. Students were encouraged to realise their own potential. Evidence showed students who felt supported by the school, reciprocated with greater involvement in school-related activities.

6.3 SECOND RESEARCH QUESTION FINDINGS

Phase I archival document findings combined with Phase II interview data to address the second research question: *In what way did the program influence gifted adolescent wellbeing?* The response to this research question was predicated on an assumption that the wellbeing of students could be assessed using Phase I and Phase II evidence, and the analytical framework developed for this study (Section 3.7). In the process, the concepts of giftedness and wellbeing for gifted adolescents were clarified.

Frequent reference was made to indicators for self-determination (SD) in Section 5.6 from staff interviews and student focus groups. Students prioritised autonomy, friendships and placed a high value on academic challenge and skill competence while they were part of the ZEST program. This supported other SD studies, particularly Deci and Ryan's (2008) theory introduced in Section 2.5.2, that have highlighted the value of fostering self-determination for gifted students.

Table 6.3 shows how evidence from Phase I and Phase II contribute to the discussion of SD. Absentee records for example indicated the physical and mental health of gifted students (Section 4.5.2). This evidence was supplemented by student recollections of wellbeing on a Cantril ladder in the final stages of focus groups. Researcher journal notes about the demeanour of students on the day of interview were added to transcriptions. The sum of evidence revealed that the ZEST program provided motivation to engage at school and general satisfaction for wellbeing.

Table 6.3.

Relationship between data and self-determination

Chapter Four Archives - Phase I	Chapter Five Interviews - Phase II	Chapter Six SD constructs
4.5.2 Health, absenteeism 4.6 ZEST Program reviews	5.4 Eudemonic wellbeing 5.4.1 Cantril Ladder 5.6 Motivation	6.3.1 Autonomy
4.4 Who? Selection 4.5.1 Academic records 4.5.3 Co-curricular expertise	5.3.3 Identification tests 5.5 Giftedness traits 5.6.2 Motivation	6.3.2 Competence
4.5.2 Health and absenteeism	5.3.5 Stress management 5.6.3 Motivation	6.3.3 Connectedness

Motivation was a recurring theme throughout Chapter five. Deci and Ryan's (2008) macro-theory for motivation contributed three indicators to the discussion of SD. Triangulation of data from different sources suggested balancing autonomy, competence and connectivity to address the needs of gifted students. It was posited that balancing SD could occur within a gifted class and across the wider school community, to establish a shared inclusive approach to wellbeing.

6.3.1 **Autonomy**

Autonomy was not quantifiably measurable but evidenced as student engagement throughout Chapter five. Links made between what students viewed as needs in Section 5.4 and when they experienced eudemonia or autonomy (Section 5.6) reflected similar correlations made by Diener and Chan (2011) between happiness, autonomy and wellbeing. The contribution autonomy makes to life satisfaction was a global phenomenon recognised by the OECD (2012). Table 6.4 shows the implications to wellbeing, of catering to student autonomy.

Table 6.4.

Contribution of autonomy to wellbeing

	ZEST contribution to wellbeing:	Implication:
AUTONOMY	Encouraged to display talent.	Reduced inner turmoil
	Class trust, respect and autonomy.	Safe to excel and try new ideas.
	Students were challenged to try new skills with calculated risk.	Students calculated risk, acted independently and tried new skills.
	Students confidently and safely practiced social skills.	Authentic friendships.
		Students sought social advice.
	Social-emotional and academic needs were balanced.	Raised standards of excellence.
		Attitude toward learning improved.
	Inquiry learning was the focus.	Encouraged intrinsic motivation.

High student engagement in the ZEST classroom seemed to align with the safe, trusting environment provided by empathetic staff and like-minded peers. Across the series of interviews, staff referred to students becoming autonomous when they:

- displayed intrinsic motivation toward engagement;
- set realistic, achievable goals and expectations;

- could work independently, yet not be afraid to seek advice;

- made choices that considered others;

- listened respectfully to the ideas of others;

- co-operatively networked;

- exhibited mature social-emotional skills in the face of challenge;

- communicated complex ideas and plans for action with pride;

- students 'owned' decisions and could negotiate any implications.

Mr Silver wanted ZEST students to gain a sense of 'confident autonomy' prior to transitioning into mainstream classes referring to "taking pride in being themselves" (67-68) He felt that acknowledging personal asynchrony helped students to understand the social challenges that lay ahead. Catering to the social-emotional needs of gifted students aligned with Knott School's mission statement to eliminate barriers preventing a student reaching their potential (6DA-R, 2005).

Emmas's reflection sums up the development of a positive attitude toward opportunity built through trust (Section 5.4.2), autonomy and intrinsic motivation (Section 5.5.2) established in the ZEST class: "You didn't really ever get assigned homework. If we didn't finish something in class it was just expected that we finished it at home because we knew we would be building on it again next lesson. My parents would just expect me to do what I thought, I should do" (309-311). ZEST provided opportunities for students to make decisions about the direction of tasks in units of work within scaffolded criteria. Students were intrinsically motivated to seek new interest areas or assistance as required.

6.3.2 **Competence**

The desire to extend competence effectively was satisfied by the acceleration of ZEST's differentiated curriculum (Section 4.1.4). Clearly scaffolded open-ended tasks gave students the opportunity to develop creative solutions (Section 5.6.2). Balance for the program used a similar philosophy to Reis and Renzulli's (2010) Type II model, whereby challenge was increased and the focus placed on *quality* outcomes for broad projects rather than *quantity* or speed of completion.

Ms Diamond pointed out that tasks were constructed as a guided process with numerous checkpoints, to help students follow relevant paths of research (Section 5.6.3). ZEST staff expressed concern over the traditional use of extrinsic motivators

such as test results as the single means of reporting outcomes. In addition, they factored time into units for reflection and sharing. For example, students read the fantasy books each had written out loud to classmates (Section 4.5.1) and Ms Ruby slowed art projects down by contemplating progress and inviting deeper questions (Section 5.5.1). As an art teacher, Ms Ruby's expectations were coloured by her interest in creative outcomes: "I didn't really expect the students to do amazing things without assistance, but I did expect them to do little things in an amazing way. Although they work quickly, exploring possibilities and presenting work creatively takes time. I wanted them to excel, but also to thoroughly enjoy the experience and reflect on the process". (104-107) Table 6.5 shows the wellbeing implications of adjustments made to ZEST units.

Table 6.5.
Competence and wellbeing

	ZEST contribution to wellbeing:	Implication:
COMPETENCE	Academic needs were met by curriculum compaction and acceleration.	Students enjoyed the challenge, abstract concepts, pace and intensity of work.
	Students were encouraged to try new skills and take risks.	Students were more likely to accept opportunities to experience learning
	Low latent inhibition and traits of giftedness were understood.	Classroom stimulus was controlled and tasks scaffolded.
	Realistic goals were set.	Lowered fear of failure.
	Talent was displayed with pride.	Increased confidence to share ideas.
	Assessment items incorporated extension and a creative element.	Creative opportunities. Raised standards of excellence.
	Identified students gained a sense of belonging with like-minded friends.	Rigorous testing validated decisions regarding selection for the program.

The 'personal best' approach opted by staff, is illustrated in artefacts designed using Williams (2010) model in Appendix H (b). Although the whole cohort shared similar assessment items to test key concepts, extension was evident in the outcomes of the gifted class. Reports included comments that reflected creative extension and abstract

ideas. One comment from Fred (33-35) reflected the view of many students, admitting "it was a lot of work, but it didn't seem hard. It was probably the most work I have ever produced … but I look back on it as my best school years". Evidence indicated that students gained confidence and self-efficacy in the safe, supportive environment of the ZEST class. Students were more open to opportunity and trying new skills with the fear of ridicule reduced.

Strategies used to promote competence varied. Tasks incorporated advanced research skills that invited multimodal solutions to encourage intrigue and mastery as suggested by Churches (2009). Integrated themes modelled Van Tassel-Baska and Brown's (2007) cross-curricular focus to support the Middle School philosophy of inquiry-based learning. Approaches included Gallagher's problem-based learning (2017), Johnson and Adams' (2011) challenge-based learning and high possibility classrooms with project-based learning (Darling-Hammond, 2008). Units mentioned favourably in student vignettes involved integrated, themed projects that lasted for six months. The establishment of clear goals meant ZEST student curiosity was used as a vehicle to stimulate intrinsic motivation.

Students indicated that conditions provided by the ZEST model improved their attitude toward learning and school (Section 5.5.2). Optimism and a realisation of similarities and authentic relationships, replaced pessimism associated with stigma and difference. Three likely challenges that restricted learning competence emerged: traits associated with over-excitability, high expectation and, forced-choice dilemma. These influenced wellbeing and how gifted students connected with others.

Over-excitability and hyper-sensitivity challenged coherent thinking, school results and friendships. Curiosity and behavioural intensity were named by Gladwell (2013) as two inherited qualities that easily identified gifted students yet had the capacity to isolate students socially. It was evident in focus groups and described by staff as a common behavioural trait of gifted students. ZEST students appeared aware of their potential to be distracted by over-excitement in stressful situations involving risk, social challenges and multiple stimuli (referred to as low latent inhibition or LLI in Section 2.4.3). These characteristic traits of giftedness were considered from the outset of ZEST in Mr Sapphire's initial program design, ZEST objectives and ongoing classroom setup (Section 5.3.2). Ms Ruby offered specific examples of using LLI to her advantage in art classes (Section 5.5.2). Staff advocated the scaffolded gradual introduction of stimuli and classrooms with designated learning

areas, quiet study zones, a separate noisy corner and puzzle box activities accessible after work completion. Ms Ruby (160-161) channelled student over-excitability and low latent inhibition to advantage in her art classroom by limiting stimuli at the start of new units, then introducing concepts slowly to stimulate curiosity (Section 5.3.5).

Unrealistic expectations placed by senior school staff on ZEST students appeared to relate to their understanding of giftedness. It appeared likely that unchallenged myths and stigmas influenced their view of students associated with ZEST. Gifted adolescents expressed a hesitation to seek assistance that students suggested, may have-been misinterpreted as a poor attitude toward learning (Section 5.3.4). Studies by Rogers, et al. (2015) and Bishop-Smith, Bothner and Kim (2012) provide evidence of similar high expectation causing undue stress. ZEST staff appeared frustrated by high expectations placed on ZEST students by others. Unrealistic expectations post-ZEST particularly, saw students masking talent to avoid being labelled as gifted. Progress in all aspects of competence, were therefore hindered.

Forced-choice dilemmas faced by ZEST students included decisions about maintaining pre-ZEST friendships, making new friendships in the ZEST class, and post-ZEST changing friendships to a new cohort of students one-year older than themselves. Early research from Cumming (1996) used by Knott School recognised that adolescents who experienced alienation were more likely to conform to group norms, thus under-achieving to avoid social rejection. This proved to be true for ZEST students who knowingly under-achieved to gain a sense of belonging. Students intentionally broke friendships established during ZEST, to distance themselves from being identified with the program. Students were reluctant to reveal traits of talent or exceptional skill that might lead to social isolation. This was consistent with Jung, McCormick and Gross (2012) studies of gifted student protective behaviours. Program reviews (Section 4.6) highlighted a need to address socialisation and forced choice dilemma described by students in Section 5.3.5 to reduce defensive behaviour that threatened authentic identity.

Findings indicated staff that showed empathy for gifted student traits, were able to unlock exceptional creativity and potential. ZEST staff recognised however, that solutions to managing forced-choice dilemma and realistic expectations from others lay beyond the ZEST classroom. Inadequate support or communication between programs and school communities, stood as feasible explanations for the

community not sharing an inclusive ethos. Evidence does however point to the benefits of a broader united approach to address gifted adolescent wellbeing.

6.3.3 **Connectedness**

It is a widely held belief that students engaging with people and opportunities at school are happier and less likely to leave school early (Landis & Reschly, 2013). Triangulation from this study revealed that increasing motivation to engage resulted in a greater desire to attend school. Evidence therefore suggests that a solution for under-achievement and early departure by gifted populations lies in greater student engagement and building authentic relationships at school. Numerous studies of wellbeing and positive psychology from Section 2.2.2 showed how happiness and engagement directly influenced wellbeing. It is plausible therefore, that many of the strategies used to challenge ZEST students relied on establishing trust and authentic relationships with peers in the like-minded class. Table 6.6 summarises strategies used by ZEST to motivate students to connect with others.

Table 6.6.

Contribution of connectedness to wellbeing

	ZEST contribution to wellbeing:	Implications of being connected
CONNECTEDNESS	Co-curricular involvement.	More friends, experiential opportunities.
	Established trust to establish authentic friendships in the class.	Sense of belonging was strong.
		Reduced alienation.
		Minimised loneliness, isolation, rejection.
	Opportunities for access to mentors were encouraged.	Enjoyed engaging in mature conversation.
	Curiosity and creativity were encouraged - intrinsic motivation.	Desire to attend school and engage in learning improved. Attitude improved.
	Encouraged to join co-curricular activities to try new experiences.	Purpose to extend friendships beyond class was not clear to students.
	Social skills and conflict resolution were taught and practiced.	Sense of belonging extended in some cases to wider school community.
	Students were made more aware of similarities rather than difference.	Eudemonia and social skills improved. Improved ability to express emotion.

Friendships for a student in Bronfenbrenner's (2005) micro-system and meso-system appeared to-be determined by opportunity. Prior to ZEST opportunity, trust and taking risks were limited. Friendships based on trust, humour and trying behaviours in a supportive group were novel, first-time experiences for many entering the gifted class (Section 5.3.1). Dallas summed up with his remark: "Really, I think the best thing of all was that we were able to have our own personalities at last. We had this common indescribable thread between us. We knew we could go up to anyone in the class and have a conversation. There was a warmth …" (563-565). Engagement was reflected in a student's willingness to take risks and use humour (Section 5.3.5), improve academic results (Section 4.5.1), strong attendance records (Section 4.5.2) and conclusive Cantril Ladder data (Section 5.4.1). To recap, the Cantril (2013) ladder strategy collected personal wellbeing data in the closing moments of each focus group. Data offered individual wellbeing assessments for different points in time: before, during and after ZEST.

Making friendships beyond the class was more complex than working with peers within the class. Strategies used predominantly in the second year of the program prepared students for entering a new cohort one-year older than themselves. Teachers' attempts to extend communication beyond the class however, were met with limited success. It is almost certain that the hesitation by ZEST students to make social connections outside the class was due to contentment with the authentic relationships they had made within the class. Teachers encouraged students to try new activities as a group to broaden and build interest. Mr Silver for example often attended clubs, the school choir and the robotics group with students as encouragement. On reflection staff admitted that it was plausible that students did not see a purpose in connecting with friends beyond the class. Students were content with newfound authentic friendships so were not motivated to take risks outside the class. Students were not able to predict the ramifications of not having the support of a broad friendship base beyond ZEST.

Memories of happy friendships and heightened school satisfaction during ZEST were in stark contrast to the challenges and dissatisfaction described after ZEST. The frequency of co-curricular involvement (sport, music or clubs) reduced markedly and accounts of inner turmoil and extended absence were evident. Students were challenged by boredom, ridicule, loneliness, burden and feelings of difference,

listed by Galbraith (1985) as persistent *gripes* of gifted students thirty years ago (Section 2.6.1).

In summary, the ZEST class provided authentic friendships to practice communication skills and excel in the safety of a like-minded class. Perceived expectations and avoidance of forced choice dilemma provided a barrier to engagement outside the class. Mastering advanced skills and growing autonomy during ZEST added to the challenge of returning to mainstream classes with rigid courses and assessment. Giftedness was not easy for teachers to identify at this time, due to gifted students discreetly hiding talent to gain acceptance into friendship groups. All three aspects of Deci and Ryan's (2008) self-determination detailed in Section 5.6 (autonomy, competence and connectivity) influenced students after the immersion. These findings suggest that returning to mainstream classes with limited support changed the behaviour and identity of gifted students. It is highly probable that the benefits of creating the gifted immersion class would have continued to enrich students, if assimilation had been supported after ZEST.

The establishment of a supportive school environment as a systemic whole-of-school approach is raised in Section 6.8.3 as a revised ZEST model. Furthermore, using the wellbeing focus in a Health Promoting School (World Health Organisation, 2013) framework has the capacity to promote a shared ethos and unite a school community. Section 6.9 offers practical recommendations to implement the framework.

6.4 DISCONFIRMING EVIDENCE

It is widely accepted that the quality of research is elevated when explanations challenge central ideas (Minichiello & Kottler, 2010). Disconfirming evidence explores whether the strategies used in the ZEST model align with other studies and whether the program satisfied the needs of ZEST participants. Findings were considered discrepant when rival explanations challenged original theory. Contemporary data from Phase II of the study provided disconfirming evidence about the identification of gifted students (Section 6.4.1) and grade-skipping (Section 6.4.2). These support the original ZEST *principles* as detailed by the findings for the first research question. In addressing the second research question however, disconfirming evidence suggested changes to ZEST processes, to assist the wellbeing of gifted adolescents assimilating after transition from an immersion (Section 6.4.3).

On Yin's (2014) advice, evidence was checked against the literature to find valid explanations with the greatest credibility and least conflict. Triangulating data sources as part of the qualitative methodology assisted the search for rival explanations.

6.4.1 Identification

The literature suggests divisions in the education community over whether gifted students should be identified in schools. Ms Diamond pointed out its influence on enrolment in Section 5.3.3, citing stigma, psychosocial safety and vulnerability discouraging some families from accepting program positions. Knott School was therefore cautious to reference studies to justify their decision to group and thus identify students. Participants also acknowledged however, that traits of giftedness originally identified by Dabrowski (1977) were easily visible in the behaviour of gifted students (Section 5.5). The benefits of ability-grouping using a battery of tests detailed in Section 4.4.2, were validated when staff shared stories of using traits of giftedness to advantage. For example, Ms Ruby's identified the sensitivity of her gifted art students as an influence on their attitude to opportunity, engagement (Section 5.5.2) and friendships (Section 5.6.3).

Many scholars hold the view that asynchrony is responsible for inner tension related to social challenges (Alsop, 2003; Neville, Piechowski, & Tolan, 2013). Evidence from the study indicated that challenges influenced behaviour and the wellbeing of gifted students on a daily basis. The suggestion by staff that gifted students were easily identifiable when they could 'be themselves' was verified at focus group interviews. Unguarded expression by gifted students, in the company of trusted friends, clearly identified students as gifted. Staff concurred that behavioural traits, quick wit and eloquent expression used in the supportive ZEST classroom demonstrated the value of grouping students as a class. Grouping was therefore not the protagonist for student vulnerability to stigma, since gifted students were able to be identified by behavioural traits, without grouping. In the supportive environment of the gifted class students were more likely to be themselves. This study therefore supports the identification of students and a dedicated program for the purpose of accommodating the unique needs of gifted students, with a caveat on the provision of a supportive, inclusive school environment to raise awareness beyond the program.

Without a supportive school environment, traits of giftedness like eloquent language, quick wit, curiosity, creativity and passion became inhibitors to acceptance in friendship groups. Gifted adolescents were faced with forced choice dilemmas that lead to uncharacteristic changed behaviour that threatened wellbeing. Students who knowingly disguised talent may not therefore be outwardly identifiable, making them vulnerable to under-achievement and a slowed development of identity.

Students reflected on their selection to ZEST with pride. Section 5.3.5 has recounts of students feeling safe taking risks in debates and learning new skills that they would not have attempted in mainstream classes. Findings from this study support Gladwell's (2013) notion of 'relative deprivation' whereby students felt social and cultural comfort in the close proximity of trusted friends. They voiced a clear satisfaction of needs based on the benefits of the program. Academic and social-emotional needs were satisfied for the duration of the two-year immersion. In the company of a carefully selected class, students forged authentic relationships with like-minded friends to practice 'being themselves'. Ability grouping as a supported gifted class is therefore a recommendation made in Section 6.9.3.

Critics of ability grouping may be challenged by the overwhelming support for the establishment of a gifted class, from this study. Increased eudemonia, engagement, motivation and school satisfaction have each been evidenced in Chapter five. The only evidence of anxiety or competition between students came from two instances of students gaining entry to the program without fulfilling the full selection process. Section 5.3.3 focussed on two students who struggled with the program, thus disrupting two different classes.

Being identified for the gifted program required extensive testing to justify allocation to limited places. The battery of academic and affective domain tests used to identify students in Appendix E (a) rivalled many traditional methods that focus on empirical methods (Millar, Dahl, & Kauffman, 2011). The rigorous assessment was required to justify competitive allocation of students to a limited number of places. On the two occasions that testing was compromised, the full battery had not been administered, due to late entry and urgency placed on filling class numbers.

ZEST participants supported the rigorous selection process based on the negative program impact from Carmen and Ernie detailed in Section 5.3.3. Trust and harmony was disrupted in the class and both students suffered lowered self-esteem due to program pace and expectations. ZEST participants also fully supported

ability-grouping based on the benefits of the immersion, thus challenging parts of the Big-fish-little-pond theory. Gifted students experienced high academic self-concepts and did not sense pressure from excessive competition. The study supported Makel, Lee, Olszewski-Kubilius and Putallaz's (2012) notion of changing the *pond* rather than *fish* by providing a tailored program and supportive school environment.

Three student profiles offered in Chapter five illustrate the value of using a mixed battery of tests to identify students. Two of the students profiled in Section 4.4.2, would not have been accepted into the program based on academic performance alone. At Knott School families and teachers applied or nominated students based on perceived suitability. In hindsight, Renzulli and Reis's (2008) Revolving Door selection that screens all students may have been more effective for detecting underachievers (Section 2.4.5).

The advantages of carefully selecting staff were evidenced in unanimously positive comments presented in Section 5.7. This study posits that a shared staff ethos of inclusive practice, may have quelled damaging myths about gifted students echoed by Sak (2011) in Section 2.5. The removal of program support after ZEST exposed students to stigma, unrealistic expectation and forced-choice dilemma, (Section 5.3.4) to alter the momentum of student development. Outcomes therefore point to whole-of-school recommendations in Section 6.9.

In summary, participants supported the thorough testing used to identify and ability group students for ZEST. Grouping satisfied student needs and expanded opportunities for holistic development. Wellbeing assessed for this study using an analytical framework presented in Section 3.7. Data analysed included accounts of student engagement, eudemonia and school satisfaction, supported by formal reports of achievement, engagement and absenteeism. The ZEST immersion negated concerns of vulnerability and stigma, instead offering evidence of eudemonia, motivation and gifted traits being used to advantage. Support for adolescent wellbeing post-ZEST however, remained a concern that will be revisited as a revised ZEST model in Section 6.8.3.

6.4.2 **Grade-skipping**

The ZEST model advocated structural change that allowed the completion of three years curriculum in two. Grade-skipping was the most controversial feature of ZEST, evidenced by promotional material offering justification with multiple references to

successful case studies and repeated mention in program reviews (Section 4.6). It provided academic extension through acceleration then, students joined a cohort one-year older. On numerous occasions participants indicated despairingly, that the wider school community appeared unaware of their challenges. Ms Gold (262) likened gifted students in a class with age peers, to a Year seven student enduring Year one lessons. Without differentiation or grade-skipping, she believed that students would experience boredom and limited progress. Some members of the school community were reported as being outwardly critical of grade-skipping, making reference to student immaturity and behaviour.

Interview evidence confirmed that *participants fully supported grade-skipping* and the additional academic challenge. The support provided in the program proved to be sufficient, leaving fond memories of school satisfaction (Section 5.3.5). Participants therefore recognised that grade-skipping and assimilation presented benefits that outweighed the social-emotional challenges of entering a new cohort (Section 5.5.2). Archived documents from ZEST referred to research from Rogers (2002) that cautioned about the social-emotional challenges faced by students after an immersion. Evidence supported VanTassel-Baska and Wood's (2010) early recommendation to monitor student transition. ZEST students indicated a desire for ongoing support for at least two years post-ZEST.

6.4.3 **Post-ZEST Transition and Assimilation**

Participants were enthusiastic about sharing complementary vignettes of ZEST, and equally as willing to compare stories of challenge after leaving the program. Stories reflected DeWall, Baumeister and Vohs (2008) studies of an adolescent's strong desire to belong. Younger students being interviewed from the 2009-2010 cohorts recently emerged from ZEST, cited their greatest frustration in establishing new friendships and struggling with high expectation. Student age demographics are referenced in Appendix G (c) and the demographics of Section 4.4.1. Challenges were significantly reduced for students by Year twelve who could more easily 'be themselves' by justifying high achievement as a goal for tertiary entrance. This finding was unpredicted and refreshing since it supports long-term benefits of the ZEST model. It also validates the positioning of an intervention in the middle years to assist gifted students with their transition to secondary school.

One key challenge that ZEST presented, was the widened intellectual gap between gifted adolescents and age peers. Teachers reported gifted students as more competent and autonomous but hesitant to trust others. Adolescent peer hierarchies in groups were referred to by Galbraith and Delisle (1996) as class structures in a constant state of restructure. When gifted students in this study used social strategies to gain entry into groups, similarities and points of difference were questioned. Realities of stigma and high expectation were reported as challenging psychosocial safety on a daily basis, leading to inner turmoil.

With safety needs threatened, opportunities to provide for needs higher up Maslow's (1999) hierarchy were limited (refer to Figure 6.6). Jung, McCormick and Gross (2008) suggested that such forced-choice dilemmas slowed all aspects of developmental progress. As a result, the gifted adolescents lost the motivation to engage with school. Value is therefore, placed on continuing studies like that of Tay, Kuykendall and Diener (2015) that assess school satisfaction based on the happiness of students. This study favours a large group of studies that subscribe to Plucker and Callahan's (2008) Disharmony Hypothesis by showing the correlation between the satisfaction of student need and achievement outcomes.

6.5   QUALITY ASSURANCE

Quality qualitative research dictates a healthy respect for rigour as an assurance of reliability (Bazeley, 2013). Mentions of quality assurance have been made throughout the research process, from conceptualisation of the research questions to sorting data for quality analysis. The quality of the research process was gauged using several forms of validity in the first section. Insider status credibility and the dependability of memory accuracy were discussed, as extraneous influences on the research process. Although the term validity is commonly used for quantitative research, similar criteria have been proposed by Denzin and Lincoln (2011) to assure rigour in qualitative studies. The essence of this section is to confirm the validity of the research process. The discussion touches on internal, content, construct and external validity.

Internal validity was provided by focussing the study on the wellbeing of a group of students contextually bound by their relationship to the ZEST program at Knott School. As the study evolved, the principles of the ZEST model were explored and compared to other models using the paradigmatic model. The framework

explored *what* and *why* theoretically, and *who and how* in a practical sense. Comparisons provided a consistent platform from which conclusions could be drawn. Internal validity was therefore achieved throughout by comparing the reality of ZEST with other models, then with a specific focus on wellbeing. Insider status discussed in the next section can also be considered as internal validity.

Dependability or content validity ensured an adequate exploration of the ZEST model and participant data. The use of primary data ensured authenticity to strengthen integrity. The accuracy of records from Phase I was checked against participant comments in Phase II. Data were methodically coded and stored to manage the process (Saldana, 2017). Archived documents revealed the principles behind the ZEST model to address the first research question within Phase I. Participant interviews from representatives of six consecutive cohorts provided an accurate vision of ZEST and changes, as the program evolved. Data from Phase II offered greater insight into the second research question based on student wellbeing. Keeping an accurately dated journal from the outset provided reference to dates and observations as a coded audit trail to assist accuracy. Direct quotations were used extensively to add face validity with caveats on ethical protocols to ensure confidentiality and anonymity. Interview conduct was managed carefully since time was limited and interviews could not be repeated. Each was audio recorded for accuracy to support participant confidence in the researcher and ensure the accuracy of transcripts.

Construct validity referred to the accuracy of the research process for measuring or describing theoretical concepts. An analytical framework was developed with clearly defined constructs to ensure discriminant validity. Each generalised construct was particularised as data were coded and analysed. Framework constructs were carefully selected based on existing large and small-scale assessments of wellbeing. Looking for patterns across different data sources illustrated the contextual richness of convergent validity. Triangulation across data sources modelled by Schwandt (2007) provided rigour and a matrix of authentic vignettes that were used as evidence in Chapters four and five. Using a range of objective and subjective constructs assisted criterion-related validity.

Rigour was added by using contextual journal notes to best effect throughout the study, particularly at the time of interview transcription. Contextual notes were a rich data source and time-reference tool. Unsubstantiated leaps and theory

generalization were avoided by predicting the potential threats to validity mentioned as limitations (Section 6.6). Potential risks were predicted and minimised.

External validity was assured by carefully detailing the research process as advised by Guba and Lincoln (2005) to make the research process accessible and transferable to other settings. Application of the program logic model provided an organisational framework to show how each chapter contributed theory and practical components to interim outcomes. The analytical framework was designed as an assessment for gifted adolescent wellbeing. Documented studies of wellbeing and under-achievement for gifted adolescent populations however, indicated that the identification of students and ethical complexities of data collection stood as a hindrance to data collection in schools. Questions remain however, over how other schools could best collect, collate and share similar insight in a timely manner.

6.6 LIMITATIONS OF THE STUDY

Attempts were made to predict and address barriers that had the potential to place limits on data collection and analysis, discussed in this section. Potential limitations became evident as the study progressed so compensatory measures were established to minimise impact. Insider status and memory accuracy are addressed.

The Principal at Knott School approved access to archived data for Phase I and participant contact details for Phase II interviews. Phase II required parental consent for student participation. Parental consent sought from 128 families yielded thirty-six permissions. The sample was a broad cross-section from the six cohorts therefore was considered a reasonable sample. All students given consent were invited to join however this raised the potential of bias towards families who were happy with the program. On investigation, repeated school surveys and program reviews had offered little feedback to families, giving parents little incentive to participate in ongoing research.

In hindsight, an investigation into the reasoning behind the large proportion of parents not granting consent for their children to take part would have contributed another viewpoint to the data. Reluctance from parents may also have reflected an undocumented dissatisfaction with outcomes of the program. Gathering the views of parents would have-been welcomed however, logistics were complex and the cross-section would need to have been very broad to gain accurate sentiment. Failure to extend the study to additional stakeholders was-not believed to be detrimental to

achieving the stated goals of the research. Table 6.7 summarises compensatory measures put in place to acknowledge limitations on data collection and analysis.

Table 6.7.

Control of potential limitations

Potential limitations	Compensatory Measures
Phase I	
-Lost archival material	-Early meetings to reveal data sources to search.
-Access to archives	-No access to sensitive data or health records.
-Stakeholder departure	-Staff contacted by telephone and email.
-Ethics protocols	-Seek parental consent, ensure confidentiality.
-Choice of constructs	-Gain broad survey of literature and know school system.
-Insider status	-Assure credibility for study and researcher.
Phase II	-Used general meeting protocol, established credibility.
-Meeting procedure	-All families 2005-2010 contacted to seek consent.
-Student access/consent	-All students granted consent from parents were invited.
-Insider status	-Assured confidentiality and neutrality.
-Meeting availability	-Check school calendar to avoid event clashes.
-Recording devices	-Multiple devices for accuracy and counter device failure.
-Focus group dominance	-Interview courtesy and respect were established.
-Memory reliability	-Semi-structured interviews to recreate accurate memory.
-Meeting venue	-Quiet area without interruptions-prefer original classroom.
-Rigour	-Triangulation of data sources to verify claims.

Given the retrospective nature of the study, staff and students leaving the school due to transfer created a sense of urgency to complete Phase II interviews. The busy school calendar, daily timetable and access to rooms posed challenges for scheduling student meetings for completion as a block within one term. Staff interviews were scheduled during pupil free days for convenience. Some topics evident in program reviews were not raised in interviews or focus groups due to time constraints. These included resourcing and economic concerns, staffing and systemic change in education at that time. Exploring every systemic influence that may have affected decisions about the direction of ZEST was beyond the scope of the study.

6.6.1 Insider Status

Insider research is the study of one's own sociological group (Dwyer & Buckle, 2009; Mercer, 2007). Insider status is assumed as the sole researcher, teacher in the school being studied and parent of a ZEST student. Methodological concerns for credibility and neutrality were therefore, considered early, as two of Denzin and

Lincoln's (2011) four pillars of trustworthiness for qualitative research. The other two pillars, dependability and transferability, were addressed as *Quality Assurance* in Section 6.5.

Credibility as an interviewer was highlighted as different from my role as a professional member of staff, in the first email correspondence with participants. Each meeting started with a brief recap of email correspondence detailing the study and interviewer status. All participants were aware of the researcher's staff-status, but only some may have been aware of parent-status. It could be assumed that all of the staff and students from the first three cohorts were aware of both, however due to time constraints such status was not raised as a point of discussion. In several interviews, initial conversations about being a student at University and the purpose of the study served as an ideal segue-way to start the semi-structured interview.

Neutrality and confidentiality are ethical considerations of trustworthiness. As sole researcher reflexivity was imperative, to predict and minimise risk or bias in the collection and analysis of data. Confidentiality promised in the first participant email to initiate trust was reconfirmed at meetings and, careful coding of data assured the anonymity of filed documents. Staff were invited to participate in individual interviews and all families were contacted from 2005-2010 cohorts with information about the study. Student invitations to focus groups were based on the parental consent granted.

Two interviews with key stakeholders who had left the school had been carried out in Phase I to clarify the timeline and details about the initiation of ZEST. Availability for Phase II interviews and focus groups at school was negotiated at mutually convenient times. Insider status provided convenient access to information about the school that assisted the scheduling of interviews. Data were collected with minimal disruption on campus and participants were reminded of my availability for further contact if they wanted to discuss any further thoughts queries.

Barriers of formality were broken early at each interview or focus group to establish trust quickly. This facilitated an ambiance of respectful familiarity. The ambiance was important due to the strict time constraints placed on telephone, focus group and individual staff interviews. Staff and students shared experiences in an honest unguarded manner and interview conversations flowed freely with guidance and poignant pauses of silence. Participants were courteous and there was no

necessity to manage dominant personalities. Each meeting was recorded using three devices to minimise loss of data through technology failure.

Interviews and focus groups for Phase II were completed within a timeframe of three months (one school term). Personally transcribing all interviews within forty-eight hours was a valuable strategy that maintained consistency in data coding. Transcribing offered inductive insight into patterns of attributes that became evident early in the analysis. Additional observational notes were added to indicate emotion, mannerisms, timing, interruptions, mood, tone, facial expressions and sensitivity.

Transcript complexity posed some challenges for analysis, due to the semi-structured conversational nature of meetings with participants. Nevertheless, the relaxed nature of conversations offered an opportunity to reach beyond generalizability. Rigour was increased by ongoing access to school records that enabled some claims raised at focus groups to be verified using school records, for example co-curricular involvement. Early consideration of credibility and neutrality, then ensuring confidentiality and consistency of coding ensured trustworthiness in the treatment of data.

6.6.2 Memory Accuracy

Participants in the ZEST interviews were asked to draw on their past memories of the program. Pavot and Diener (2008) cautioned that immediate self-reflection captured only one perception at the time of contact. Kahneman's (2011) studies of human irrationality highlighted a 'peak-end-rule' whereby, life-evaluations were affected by life-experiences, with the most recent event carrying the greatest influence. As an historical case study, participants had the advantage of time to contemplate the topics provided in the invitation email. Personal perceptions appeared honest, offering valuable insight into the shared experience. Although question topics were the same, (Appendix D) adult memory reflected a *teaching* focus, while students offered a *learner's* point of view.

Staff members were generous with time and resources and openly proud of the difference they had made to the development of gifted adolescents. Staff interviews and student focus groups provided an ideal vehicle to capture the reality of the ZEST phenomenon. The demeanour of staff and students suggested they had rarely had the opportunity to share memories of ZEST with an interested audience. It was therefore, considered unlikely that Kahneman's (2011) notion of peak-end-rule

whereby recent events influence the accuracy of memory recount. Triangulation across data sources tested the accuracy of accounts relegated to memory. The semi-structured nature of meetings enabled conversational exchange, to explore deeper responses with thick description.

Many students treated focus groups as a reunion. Each group generated retrospective conversation, prior to focussed questions, then a personal assessment of wellbeing using Cantril's (2013) ladder. Questions stimulated enthusiastic conversation that was conducive to spontaneous, honest recall. Younger students who had recently emerged from ZEST to the mainstream offered fewer insights than senior students who had emerged several years prior. Personal perspectives of older students were very considered, changing from emotive *experiential* memory to *semantic* memory in what Robinson and Barrett (2009) referred to as retrospective hindsight. Students in their final year of school were eloquent and able to offer the wisdom of hindsight.

The art of telling stories, practiced from an early age, makes recollections of salient events accurate and stable (Simons, 2009). With this notion in mind, participants were encouraged to draw on memories from their own reality. In every case, recollections of events were retold with effervescence, reflecting an excitement in the opportunity to talk about the shared ZEST experience. Dabrowski's (1966) theory of Positive Disintegration suggested that recounting events offered an opportunity for participants to frame coherent personal stories and make sense of fragmented elements. As an historical case study reliant in part on memory, there was an assumption that data collection may remain incomplete, with some evidence not recovered.

6.7   METHODOLOGICAL CONTRIBUTION

The contribution to research is reflected in methodological, theoretical and practical recommendations. The study contributes to a growing bank of qualitative research that supports global interest in a paradigm shift for gifted education (Neville, Piechowski, & Tolan, 2013; Yuen & Fong, 2012; Ziegler, Stoeger, & Vialle, 2012). This section reviews the use of Gargani's Program Logic model (2013) and an analytical framework developed to explore the wellbeing of gifted adolescents.

The Program Logic model provided an organisational framework to present the research. The model was introduced in Section 2.9 then used on the first page of

each chapter to illustrate direction as a Progress Map. Figure 6.4 illustrates how interim outcomes for each chapter contributed to the discussion.
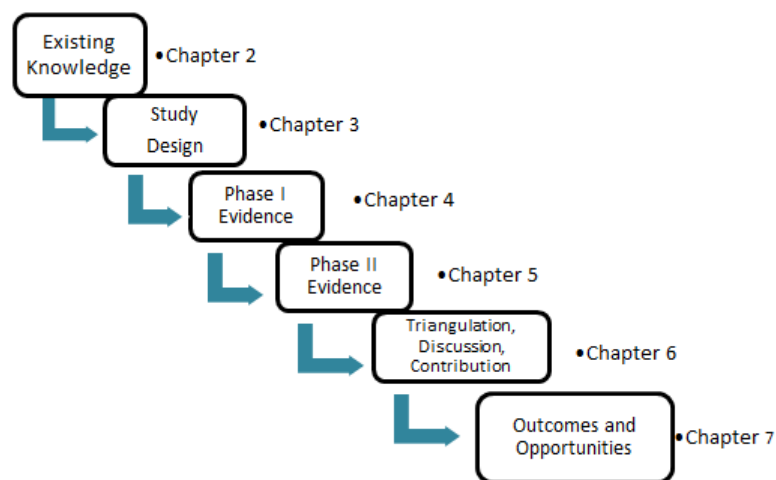
Figure 6.4. Overview of Interim Outcomes

A second contribution to methodology is the analytical framework introduced in Section 3.7 to sort, group and triangulate evidence from different sources. Generalisations of a predictive nature started a process of analysis with a search for six broad constructs. Keyword indicators revealed through the transcripts were then grouped as attributes. Evidence was therefore, deconstructed then reconstructed by grouping themes for coherence. Yin's (2014) methodology guided the process of consolidating evidence into an historical case study. Doyle's (2012) advice was heeded to avoid pre-conceived notions that might interfere with critical reflexivity. Identifying inconsistencies meant that influences that might have had a detrimental effect on the study were considered as an integral part of the analysis process.

A third methodological contribution relates to the historical nature of the case study data collection and treatment. Three forms of recording were used to capture participant voice. Considerations for interview venue and timing were made to assure optimal memory recount and meetings were semi-structured to encourage a conversational tone. Transcription performed by the researcher enabled the integration of journal notes about context and non-verbal cues.

Transcript analysis undertaken within forty-eight hours of data collection enabled the addition of journal notes. Using organisational and analytical frameworks provided a sound base for others wishing to undertake similar research. Methodological insight informed the theoretical contribution to research.

6.8   THEORETICAL CONTRIBUTION

The original theories that underpinned ZEST had undergone further development by the time of this study. Considering the value Crosswell and Beutel (2011) place on transferability, contemporary thinking combines with existing theory and new data, to find practical, sustainable improvements for ZEST. A systemic orientation applied to the Health Promoting School framework (Section 6.8.2) results in the presentation of a new theoretical framework proposed in Section 6.8.3.

6.8.1 Systemic Orientation

The systemic orientation of Bronfenbrenner's (2005) network and the Health Promoting School framework both introduced in Section 2.8 offer avenues to improve the ZEST model. The key difference between ZEST and other models was its use of a balanced approach that accelerated curriculum to skip a grade. This research study differs from others in its systemic orientation used to view influences on gifted adolescent wellbeing.

Global connections, education department policy, economic status of the nation and socio-cultural influences were all considerations for the ZEST model. Macro and exo-systems therefore influenced Knott School at a meso-system level. Figure 6.5 illustrates how Knott School's systemic orientation differed from many existing traditional models. The left-hand triangle shows the orientation of many traditional gifted education programs that start by assessing student traits then develop a course of action. The right-hand approach used by ZEST has a contradictory orientation that considers broad existing systems first before nesting a model at a micro-system level. The arrow illustrates the direction of program development.
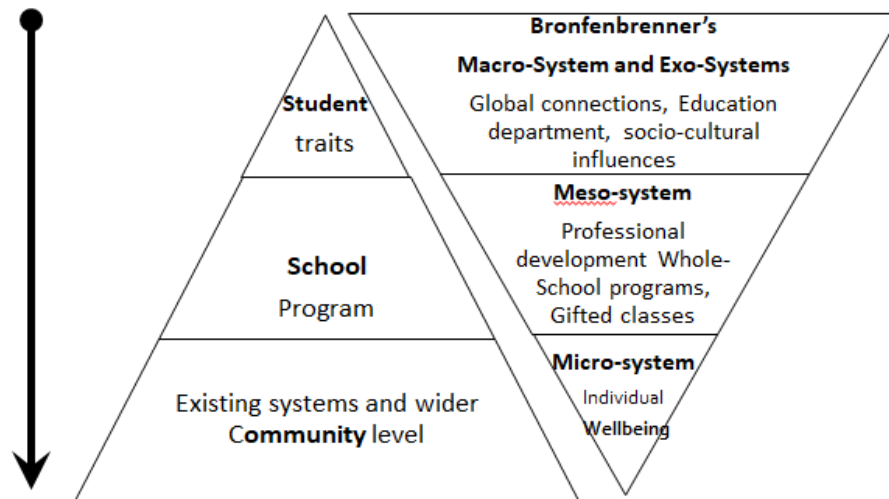
Figure 6.5. Traditional approach (left) vs Systemic approach (right)

Documentation collected in Phase I of the study clearly illustrated the influence of macro-systems on the governance and operation of Knott School. Broad systems therefore influence opportunities for individual learning from within and beyond the classroom. An exploration of the macro and exo-systems that influenced ZEST was beyond the scope of this study. The majority of collected data related to meso-system and micro-system influences on the wellbeing of gifted students.

At a meso-system level the school council had the greatest influence over decisions regarding structural change, community outreach and program planning. Their resources provided opportunities and support to students in the ZEST program. Support at a policy and program level did not however satisfy the psychosocial safety needs of gifted students beyond the ZEST class. Four key constructs selected for the conceptual framework were researched as central ideas: wellbeing, giftedness, adolescent development and learning. Behavioural traits of gifted adolescents, revealed as developmental asynchrony, stood as a barrier to interaction with 'others' across school networks. Reference to 'others' includes both staff and student relationships. Academic frustration, social rejection and emotional challenge were cited as deterrents to the socialisation of gifted adolescents that lead to forced-choice dilemmas after they left the program.

At a micro-system level, student wellbeing during ZEST was found to be influenced by the ability to develop meaningful relationships in the class. The plausible explanation relates to personal eudemonia being gained from a program, that balanced self-determination (Deci & Ryan, 2008). The ZEST model catered for competence and autonomy well, following their advertised aim to balance academic

and social-emotional development. Development was influenced by opportunity and chance sought from the school system. Connecting with new friends beyond the class however, remained a concern. Students expressed contentment with authentic class friendships and could not see purpose in extending relationships to broader networks.

Despite the development of all three constructs of self-determination, maintaining self was compromised after the immersion. Students reverted to the use of defence mechanisms to hide traits of giftedness as they entered mainstream classes to face forced-choice dilemmas. This study posited that self-determination and the benefits gained through the program would have continued to grow if psychosocial needs had been supported using a broader whole-of-school approach post-ZEST.

6.8.2 Health Promoting School Framework

The ZEST model used a holistic approach that addressed academic and social-emotional needs but did not extend to include the wider school community. The Australian Health Promoting School (HPS) vision derived from the World Health Organisation (2013) used a systemic orientation to unite health and education on three levels: personal, school and community. It proposes that infrastructure be put in place to establish clear goals and policy related to community health issues. This approach therefore lays a foundation for broad innovation with widespread benefits. The framework was introduced in Section 2.8.3. HPS considers systems to address localised community health issues as illustrated in Appendix J. This study has identified gifted adolescent wellbeing as an issue to embed using the HPS framework in a school.

Establishing policy helped to sustain innovation at the classroom and school level although the shared ethos did not extend broadly enough to encompass whole-of-school inclusive practices. Bronfenbrenner's micro-system aligns with the HPS personal level. Similar combinations of strategies have been successfully trialled in Life-skills and Home-room programs in India (Srikala & Kishore, 2010) and Hong Kong (Yuen & Fong, 2012). Knott School did not appear to have a shared ethos broad enough to support gifted adolescent as a micro-system. The broad strategies suggested in the final column of each table, illustrate the transferability of the HPS framework.

A relationship was found between Bronfenbrenner's systemic networks and social connections of influence in a school context. Table 6.8 aligns

Bronfenbrenner's (2005) systems in the left-hand shaded column, with HPS levels, then concerns from the phronesis on the final page of Chapter five. The right-hand column offers practical suggestions for a co-ordinated whole-of-school HPS approach that could be transferrable to other settings.

Table 6.8.

Applying the HPS framework to schools

	HPS	Concerns	How might student wellbeing be addressed?
Macro and Exo-systems	Global level	Transition, assimilation -opportunity -chance -ongoing support	- Develop policy from government guidelines, - Consider whole community and cultural needs, - Decide which community groups are stakeholders, - Establish ethos that values wellbeing and learning, - Seek mentors and global networks, and - Develop a battery of tests to identify gifted students.
Meso-system	Class and School level	Identify and group gifted adolescents	- Ability group gifted adolescents to one class, - Compact and accelerate to grade-skip, - Develop inclusive policy and guidelines, - Promote an appreciation for wellbeing, - Sequential whole-of-school program, - Links to real-life and creative opportunities, - Connect groups across the school, - Highlight similarities rather than differences, and - Co-ordinate staff professional development.
Micro-system	Personal level	Grade-skipping -needs -defence mechanisms -support	- Establish a supportive, inclusive environment, -Acknowledge asynchronous development, - Determine existing competence to differentiate, -Balance academic and social-emotional development, - Foster co-operation and autonomy, - Increase connectedness to practice social skills, - Capitalise on gifted traits eg curiosity, - Promote eudemonia through healthy habits, - Minimise boredom and isolation, - Realise potential, and - Maximise wellbeing.

6.8.3 Revised ZEST Model

A new theoretical framework has emerged in response to the research findings (Figure 6.6). The HPS rings in the centre of the model represent networks of influence over the wellbeing of a gifted adolescent's micro-system. The framework

would support a program with a gifted immersion class as well as gifted adolescents in mainstream classes.
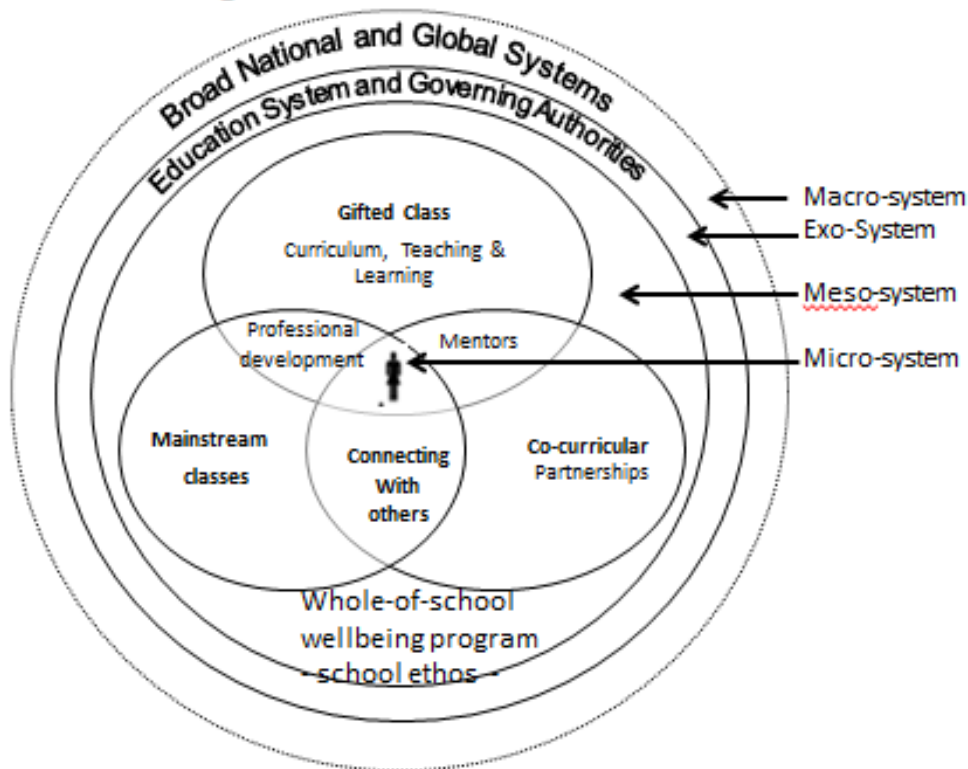
Figure 6.6. Emerging theoretical framework

The model places a symbolic image of a gifted adolescent at the heart of the Venn diagram. The HPS framework has traditionally incorporated a Venn diagram to show networks of support. Concentric circles frame the centre, to represent larger systemic influences of governing authority. The frame contextualises the model as a systemic approach. The contribution to theory therefore lies in support for a nested program that considers the influence of existing systems on gifted adolescent wellbeing.

6.9   PRACTICAL CONTRIBUTION AS RECOMMENDATIONS

Recommendations suggest that more can be done to address the wellbeing of gifted adolescents, using resources readily available in a school setting. Principles underpinning the ZEST model identified by the first research question provide a sound basis for a gifted intervention model. The wellbeing focus of the second research question however, suggested improvements to the processes of the ZEST model" resulting in three practical recommendations:

1. a gifted class,
2. a whole-of-school approach to wellbeing, and
3. provision of professional development for staff.

Ability grouping as a *gifted class* helps teachers to provide for the significantly differentiated needs of gifted students. Evidence from this study indicated that some gifted students were able to influence others by taking on leadership positions following a positive school experience in the immersion, thus benefitting the broader community. Many however faced forced choice dilemma after the immersion and chose to hide gifts and talent to gain entry into friendship groups.

If the ZEST model were to be trialled in another context, a supportive school environment would need to be established. A *whole-of-school* systemic approach lays the foundation for tolerance and the acceptance of students. *Professional development* has the capacity to unite staff vision toward wellbeing and inclusive practice. Research suggests the following strategies be included in a revised model:

- accurate identification at early adolescence, using a broad battery of tests;
- grouping to enable academic and social-emotional needs to be addressed;
- a strong theoretical base to strengthen and justify decisions;
- opportunities to practice autonomy and self-manage asynchrony;
- developing relationships as connections within and beyond the class;
- establishing policy to clarify parameters and commitment to gifted programs;
- an ethos that supports a whole-of-school understanding of asynchrony;
- inclusive education strategies that support diverse needs.

These processes are transferrable, showing that schools are well-placed to address the gifted adolescent wellbeing. Table 6.9 uses headings from Dai and Chen's (2013) Paradigmatic model to compare with the ZEST model originally introduced in Section 4.3.5 and previous gifted education paradigms (Appendix C). When the two models are compared *Why, What and Who* remain constant, since data from the study supported the establishment of the purpose-driven, ability grouped class to meet a perceived need. Additions to *How* on the lower tier of the table illustrate how three recommendations could be implemented.

Table 6.9.

Revised ZEST model

Section:	ZEST model synopsis
4.2 **Why?**	Perceived need to develop a gifted program for the middle years.
4.3 **What?**	Aim to achieve excellence in gifted education. Principles underpinned the program. Three assertions: strong theoretical base, ability grouped gifted class; program to balance academic and social-emotional development.
4.4 **Who?**	Gifted students identified using a battery of cognitive (IQ+135) and affective domain tests for adolescents aged 9-11 in Years five to seven. Staff with an interest in gifted education and ongoing training. Students identified for a parallel high-ability class - no grade-skipping.
4.5 **How?**	Gifted class completed three years curriculum in two years using compaction and acceleration to grade-skip. Figure 4.6 lists some of the processes and strategies used by ZEST.
6.9 **How?**	**Recommendations for Revised ZEST Model** **1. Gifted class** - nested program that balances academic and social-emotional skills - use innate curiosity to extend competence and challenge - include opportunities for autonomy and creativity - identify networks to connect students within and beyond the class. **2. Whole-of-school program** - use a systemic approach with Health Promoting School framework - develop sequential program to develop wellbeing – identify benefits - hold year level events - develop an ethos of inclusive practice to strengthen tolerance and resilience - foster a growth mindset. **3. Professional development** - in-service all staff to establish a shared vision and goals - foster support for the focus on wellbeing - develop infrastructure and policies to manage whole-of-school program - practice differentiation that reduces repetition, raises standards and extends.

Key: SD refers to self-determination as defined by Deci and Ryan (2008).

In summary, evidence from this study revealed that the ZEST model improved engagement, academic results and general school satisfaction. This study reasons that the principles and processes were responsible for an improved sense of wellbeing. However, communication about specific student needs and strategies to support students were necessary beyond the program. Educators are therefore, invited to use the revised ZEST model using a HPS framework as a wider school community. McLeod and Thomson (2009) remind us that inquiries are deemed to be complete when research offers insight to inform praxis.

6.10 REFLECTION ON THE DISCUSSION

In Socratic belief wisdom and philosophy begin with wonder. ZEST began by Mr Sapphire wondering how he could help students in need. The philosophy behind his vision was supported by wisdom gained through research. This study used research to mimic ZEST, by exploring assumptions without a preconceived outcome. Terman's longitudinal studies of genius influenced gifted education in the sixties, drawing comparison between genius and outcomes (Terman & Oden, 1959). Conversely, this study has highlighted the relationship between wellbeing and the outcomes of gifted adolescents.

Mr Sapphire's aim for Knott School was to balance a gifted program using a psychosocial approach that differed from past models. Traditional models that focus on academic excellence fail to acknowledge a significant body of research that suggests gifted adolescents face greater social-emotional challenges than their peers. Evidence from this study acknowledged health and learning benefits for addressing these challenges. It suggests a whole-of-school approach to wellbeing would assist gifted adolescents, while also benefitting the wider school community.

The consolidation of evidence confirmed the link between the health of individuals and a range of systems, suggesting that wellbeing was influenced by networks from micro, meso-system and macro-system within and beyond the classroom. It is hoped that this study challenges the reader's personal belief about the nature of giftedness and its effects on adolescent wellbeing at school.

Professional development unites theory with practice to translate curriculum into meaningful instruction for gifted adolescents. Whole-of-school PD supports the notion of a shared ethos. Support for minority groups has gained importance to cater for greater needs in increasingly diverse school communities. Evidence from the

ZEST model indicated that gifted students benefitted from ability-grouping in an accelerated program with grade-skipping. They experienced a sense of belonging and learning that was tailored to their developmental need for competence and autonomy. As the third aspect of self-determination, connectedness remained a challenge for gifted adolescents. Staff teaching the ZEST program understood the challenges posed by asynchronous development and were able to use the student's characteristic traits of giftedness to enrich the program. This chapter argued for a systemic approach to gifted education. Based on evidence, this study posits that greater communication between ZEST and the wider school community, including professional development for the whole staff, would offer widespread benefits for the school community. Concern remains over the majority of published research about adolescent wellbeing taking a curative, rather than a preventative stance. Chapter seven sums up questions left unanswered by this research and opportunities for further study.

Chapter 7: **Conclusions**

The broad goal of the study was to explore the ability of a program to enhance the wellbeing and learning outcomes for gifted adolescents. This historical case study offers insight into the wellbeing of students from six consecutive cohorts of an existing program. The study has argued that the focus on wellbeing has addressed an identified research gap. It addresses a perceived concern for gifted adolescents and a narrow traditional research focus on academic outcomes. A holistic view of influences on students led to practical recommendations for an improved gifted program model.

Lessons from the ZEST experience at Knott School highlighted program qualities that influenced student wellbeing. Evidence supported ability grouping, acceleration and grade-skipping. The class environment catered for psychosocial needs that promoted self-determination, as defined by Deci and Ryan (2008). Student motivation was therefore catalysed by accelerated academic competence, autonomy and authentic friendships in the like-minded class. The class provided a safe context reminiscent of Gagne's (2013) model for exploring personal talent and grasping opportunities. It would appear that the principles behind the ZEST model that enabled students to thrive are transferrable to other school contexts.

Gifted traits that catalysed motivation during ZEST however, became inhibitors to progress after the immersion. Academic competence, skill excellence or expressions of independence heightened expectations and attracted social challenge. The absence of support from the school community, compelled gifted adolescents to disguise talent at the risk of under-achieving, to maximise acceptance into social groups, avoid high expectations and stigma. Developmental progress does not therefore appear to be sustainable without tolerance for difference and broad policies regarding inclusive practice. Evidence therefore signalled widespread benefits in adopting a whole-of-school approach.

7.1 BENEFITS

Gifted students should be the greatest benefactors of this research, although the three practical recommendations to improve the ZEST model hold benefits for the whole school community. The extent of support offered is dependent on how schools are

able to address wellbeing. The Health Promoting School framework is suggested to facilitate a whole-of-school approach.

In the ZEST case study, the focus on wellbeing and in particular, the social-emotional development of gifted adolescents, presented an opportunity to explore self-determination. Achieving balance and a sense of competence, autonomy and connectedness were found to influence student motivation, engagement and attitude towards learning. This study has shown that a well-managed program that considers student wellbeing has the capacity to yield improved outcomes for students, staff and the community. Australia remains poised to implement change through National Education reforms (Australian Curriculum Assessment and Reporting Authority, 2016). Research suggests however, that the opportunity to include programs in schools is determined by micro-politics and systems that influence each school setting. Education frameworks, research and recommendations from this study, will be considered complete when they are able to inform and influence future praxis.

7.2 UNANSWERED QUESTIONS

Rich case study data about gifted adolescent wellbeing focussed on common threads that linked student motivation to engagement, self-determination and friendships. This highlighted concerns about gifted adolescents having their needs satisfied at school. A number of issues emerged during the study which were deemed beyond the scope of this study, but prompt the following questions for further research:

- What new measures can best identify students for accelerated programs?
- How can teachers be upskilled to identify and collect data about gifted students?
- How and where can gifted research and resources be collated and shared?
- How can student assimilation back into the mainstream be better supported?
- When should preservice teachers be informed about highly gifted students?
- What professional development can best equip staff with practical strategies?
- How can gifted programs bridge social and cultural borders?
- Who is responsible for monitoring gifted student progress at school?
- Who are best placed to advise about systemic policy for gifted education?

One of the barriers to progress in gifted education has been the lack of consensus in defining giftedness. Using Roeper's (2013) insight into the value of combining cognitive and affective domain assessments, this study posits that schools adopting a

shared vision of inclusive practice benefit from clarifying their vision for gifted students as part of their inclusive education policy. Questions posed in this section can lead to opportunities for further research to advance gifted education.

7.3 FURTHER RESEARCH

Opportunities exist to extend ideas raised by this research to curb repetitive waves of under-achievement and disengagement of gifted adolescents. Research reported in this thesis provides insight to guide change. The gifted education community would benefit from future research on:

1) How feasible might it be for a school to enact the recommendations from Section 6.10 in this study, to establish a sustainable systemically-oriented school structure?

2) To what extent do other existing gifted education programs satisfy cognitive and affective domain needs of gifted students? Such research could include an inventory of programs operating in Australian schools. The paradigmatic model format could be used to compare program features, and to identify who is active, what is being done, and where assistance is required.

3) Can Maslow's (1999) hierarchy of needs be further refined to reflect the specific needs of adolescents? In particular, social-emotional needs are more complex for gifted adolescents due to developmental asynchrony Modification of Maslow's hierarchy to the needs of adolescents may provide a better guide for teaching strategies.

4) How can schools easily identify gifted students? This study revealed value in identifying students, coupled with a school-wide approach to providing inclusive support. A fifty-year follow up for the use of Torrance tests originally established in 1997 as predictors of creative thinking, highlighted the need to further develop effective assessment measures (Runco, Millar, Acar, & Cramond, 2010). The development of an easily administered, balanced and comprehensive battery of tests would ease the process of identification.

5) What method of professional development is most effective? Evidence from this study showed that the wider school community needed greater insight into differentiation and inclusive practice. It also showed the strong influence of teacher empathy and performance on student outcomes. Does informing

leaders in a school catalyse systemic change? How can teachers be equipped with research skills to place 'change' in the hands of those who best understand gifted students.

7.4 CLOSING COMMENT

Across four decades teaching as a secondary Home Economics teacher, part-time researcher and sessional academic, my interest in gifted adolescent wellbeing has grown exponentially. It was not until starting this research that I became aware of attitudes toward gifted students. People who have known or worked with highly gifted students shared realistic beliefs about the additional challenges faced by gifted adolescents. Professional conversations across the course of this study revealed however, that this belief was not shared by all. Conversely, many showed little empathy and were influenced by perpetual myths based on limited understanding. Listening to vignettes of unrealistic expectation from gifted students, illustrated the invisible barriers that hinder the development of potential.

Public calls for global action in the seventies represented a significant step toward uniting the gifted education community. Competing systems of internal, social, cultural and political influence however have kept gifted education in a constant state of flux. Evidence suggested that gifted students thrived when competence was balanced with autonomy and socialisation. Changes to leadership, staff and students at Knott School had the full range of influence on the program. In such a cacophonous context, the needs of gifted students can be overlooked by 'decision-makers' with different values and priorities. The development of gifted potential is therefore enhanced by broad support fostered in school settings. Students at Knott School benefitted when readily available opportunities were accessed.

Findings from this study highlight systemic influences on wellbeing and the benefits of providing a program that balances self-determination for gifted students. It is my belief that the structure of a successful program is reflected in the vision of passionate staff in a supportive school environment. As schools are redefined by increasing diversity, this research calls for inclusive whole-of-school approaches with holistic intent. It is therefore posited that an inclusive program with wellbeing at its focus has the capacity to influence sustainable outcomes. Applying the Health Promoting Schools framework offers a practical holistic approach to facilitate the paradigm change.

Contents

Summation from a school submission referenced at AA-PS, 2003)

Oct. 2003 Draft submission

↓

Nov. 2003 Proposal -Head of College then Board

Decision made to proceed

↓

Feb. 2004 Ratification by Board to proceed with proposal in 2005)
(commitment to funding - implementation in 2004 and operational costs

↓

Feb/ March, 2004 Preparation and Planning Phase.

Research & documentation, Prepare early and do it well, Cover significant issues – social-emotional, peer group disadvantage, acceleration, learning styles, unfairness to other teachers, continuity and transitions, ability grouping. Involve significant members of staff, and aim for substantial infrastructure change with long-term implications. Review change management research (3-5 year plan).

↓

March 2004 information booklet

↓

March 2004 Meeting with Middle School faculty to discuss proposal.
        Involve all teachers who will be directly or indirectly influenced by the changes

        Clarify myths surrounding provision for gifted students– especially if the makeup of their classes will be affected. Provide professional

↓

March 2004 Parent Meeting

Philosophical background for provision
Provide opportunities for individuals to speak with staff
Emphasise curriculum advantage which can be generated for all students
Identification of potential students by: Junior school recommendation, scholarship test and school entry test results 2004
Media promotion to attract potential external applications.

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                              ▼
┌─────────────────────────────────────────────────────┐
│              May 2004 Identification Phase            │
│                                                       │
│ Testing, Potential students fully assessed and ranked │
│ Consultation with parents and students (affective domain) │
│ Formal offers made for Yr.6, 2005)                    │
└─────────────────────────────────────────────────────┘
                              │
                              ▼
            ┌─────────────────────────┐
            │   Sufficient  parent     │
            │                          │
            │   interest -Decision  made │
            │                          │
            │   to proceed             │
            └─────────────────────────┘
                              │
                              ▼
┌─────────────────────────────────────────────────────┐
│           July 2004 Teacher Selection Phase           │
│                                                       │
│ Position(s) advertised, Interviews, Appointments of first ZEST teacher │
│ 2005 (Mr Silver) and teacher for the parallel high-ability extension class. │
│ Start appointment Term 4, 2004 writing and planning.  │
│           July 2004 Teacher Selection Phase           │
│ Position(s) advertised, Interviews, Appointments of first ZEST teacher │
│ 2005 (Mr Silver) and teacher for the parallel high-ability extension class. │
│ Start appointment Term 4, 2004 writing and planning.  │
└─────────────────────────────────────────────────────┘
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┌──┐
│   Sept. 2004 Curriculum Development Phase   │
│ Plan the essence early – be flexible   │
│ Match models with teacher style, interests and abilities   │
│ Match models with key whole school motivations   │
│ Select significant strategies for program   │
│ Ensure selected strategies are able to be used with great success in the regular classrooms │
│ Ensure regular classrooms are also receiving exciting and optimally challenging programs │
│ Work towards curriculum differentiation should be a central component of all classroom teaching │
│ Work toward the aim that that all classrooms should support the notion of flexible pacing │
│   Sept. 2004 Curriculum Development Phase   │
│ Plan the essence early – be flexible   │
│ Match models with teacher style, interests and abilities   │
│ Match models with key whole school motivations   │
│ Select significant strategies for program   │
│ Ensure selected strategies are able to be used with great success in the regular classrooms │
│ Ensure regular classrooms are also receiving exciting and optimally challenging programs │
│ Work towards curriculum differentiation should be a central component of all classroom teaching │
│ Work toward the aim that that all classrooms should support the notion of flexible pacing. │
└──┘
                              │
                              ▼

Appendix A (a) Implementation Timeline continued …

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┌─────────────────────────────────────────────────────────────┐
│              Nov. 2004 In-service Phase                      │
│                                                              │
│  Provide in-service opportunities for all Middle School staff│
│  Keep staff informed of planning and curriculum proposals.   │
└─────────────────────────────────────────────────────────────┘
                              ↓
┌─────────────────────────────────────────────────────────────┐
│        Dec. 2004 Communication and Evaluation Phase          │
│  Develop pre/ post testing strategies and materials.         │
│  Communicate with parents                                    │
│  Provide feedback to all staff                               │
└─────────────────────────────────────────────────────────────┘
                              ↓
          ┌───────────────────────────────────────┐
          │     Feb. 2005 ZEST PROGRAM STARTS     │
          └───────────────────────────────────────┘
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┌─────────────────────────────────────────────────────────────┐
│  2005 Start Annual Evaluation and Program Monitoring Reviews │
│                                                              │
│  2006 External Review                                        │
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       ╭──────────────────────────────────────────────╮
       │          2011 Research Study- Phase I         │
       │                                               │
       │     Ethics approval.  Archival documents plus │
       │  2 interviews with stakeholders who initiated │
       │                 the program                   │
       ╰──────────────────────────────────────────────╯
                              ↓
       ╭──────────────────────────────────────────────╮
       │         2012 Research Study – Phase II        │
       │                                               │
       │   Interview participants from 2005-2010 cohorts│
       ╰──────────────────────────────────────────────╯
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       ╭──────────────────────────────────────────────╮
       │      2014-2015 Analysis and Recommendations   │
       ╰──────────────────────────────────────────────╯
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Appendix A (b) Literature Review Mapping

Gifted   *Wellbeing*   *Policy*

Global view   *Adolescence/Middle years*   *Structural*

Gifted Programs   *Organisational*   *Research*

CONSTRAINTS

| Hereditry |
| Holistic models- Gagne, Renzulli, Ziegler |
| Gifted Potential |
| Experiential learning + Opportunity |
| Systeimc models – Sustainable HPS |
| Social- Emotional Needs |
| Attitude |

Program Logic model as Progress Maps

Methodology Qualitative Interpretive

Asynchrony Hyper-sensitive Over-excitable

Affective Domain

Brain research Multiple Intelligences High order thinking

Middle School
Pedagogy
.High challenge & expectations
Student Centred Inquiry
Fast pace
Co-Curric
Motivation
Resilience
Opt out Under-achievment

Purpose Trust Risk

Learning Readiness

Creativity Abstract problem solving

Forced choice Dilemma

Motivation theories

'tall poppy' self- presentation BFLP theory

Coping

Traditional; Compaction Accelerate

Ability- Grouping

Equity

Differentiate

D A T A

QUALITATIVE

QUALITATIVE

HEALTH & WELL BEING

Phase I Archival

Phase II Contemporary Interviews

SUCCESS

Appendix B (a) Wellbeing Assessments with Components

Authors	Wellbeing Assessment	Components	Key Constructs – Virtues and Character Strengths
Wolman, Campeau, Dubois, Mithaug, Stolarski (1994)	AIR American Institute for Research Self-determination scale	4 virtues, 24 items 72 questions	Capacity to avail self-determination adapted to the ARC scale for adolescents (Wehmeyer, et al., 2012). Autonomy, psychological empowerment, self-regulation, realisation.
Deiner, Eunook, Lucas & Smith (1999)	SWLS Satisfaction with Life Scales	5 items (Appendix I) (first developed 1985)	Broad categories to gauge global life satisfaction and subjective wellbeing (rather than emotional or affective).
Peterson & Seligman (2004)	VIA – Values in Action	6 virtues, 24 character strengths	Wisdom, courage, humanity, justice, temperance, transcendence.
Peterson (2005)	AHI Authentic Happiness Index	3 constituents of happiness (24 items)	Pleasure (positive emotion), engagement, meaning.
Cummins & Lau (2005) modelled Hettler (2004)	PWI-SC Personal wellbeing index (Aust.)	8 quality of life, 23 domains, 51 indicators	Standard of living, health, life achievement, personal relationships, personal safety, community-connectedness, future security.
Park & Peterson (2006)	VIA (Youth)	4 Principal components analysis (adolescents)	Temperance, intellectual, theological, other directed.
Huppert & So (2013)	European Social Survey	8 components (adolescents)	Autonomy, competence, social engagement, attitude, goal-orientation, sense of purpose, resilience, caring.
MacDonald, Bore & Munro (2008)	VIA-IS	4 Principal components analysis	Niceness, intellect, positivity, conscientiousness.
Neilson Report (2013) Souter (2011)	Quality of Life Project (NZ)	5 components	Social, economic and environmental conditions to quantify quality of life in safety, housing, health, politics and social connectedness.
Shryack, Steger, Krueger & Kallie (2010)	VIA-IS	5 Principal components analysis	Intellectual, interpersonal, temperance.
Seligman (2011)	PERMA acronym from constructs	5 elements of wellbeing	positive emotions, engagement, relationships, meaning and accomplishment.
Kelly & Gorecki (2012)	Wellbeing framework (UK)	Satisfaction of Life survey for Europe	Wealth, income, consumption, leisure, capabilities, subjective states of health.
Huppert & So (2013)	European Social Survey (3 regions-23 countries)	10 aspects of mental functioning 'flourishing'	autonomy, competence, social engagement, attitude, goal-orientation, sense of purpose, resilience and caring.

Appendix B (b) Satisfaction with Life Scale (SWLS)

Part of one of the original scale scales used to assess subjective wellbeing, developed in 1985 by Diener, Emmons, Larsen and Griffin (Diener, Eunook, Lucas, & Smith, 1999). Five statements were posed for respondents to agree or disagree with. They were asked to use the 1-7 scale to indicate agreement with items by placing the appropriate number on the line preceding that item.

7   strongly agree

6   agree

5   slightly agree

4   neither agree nor disagree

3   slightly disagree

2   disagree

1   strongly disagree

_____in most ways my life is close to my ideal

_____the conditions of my life are excellent

_____I am satisfied with my life

_____so far I have gotten the important things I want in life

_____if I could live my life over, I not change anything

Scoring and interpretation of the scale.

Add up your answers to the five items and use the following normative information to help in 'interpretation'.

5-9   extremely dissatisfied with your life
10-14 very dissatisfied with your life
15-19 slightly dissatisfied with your life
20   about neutral
21-25 somewhat satisfied with your life
26-30 very satisfied with your life
31-35 extremely satisfied with your life

Note: most Americans score in the 21-25 range.
A score above 25 indicates that you are more satisfied than most people

Appendix C (a) Paradigmatic Comparison of Gifted Education Trends

Dai and Chen (2013, p. 159) used components of the Paradigmatic Model to analyse three dominant traditional paradigms in gifted education over the past century. A similar analysis is applied to ZEST in the final column. The format is easily transferable to future applications.

Dimension	Paradigm			ZEST Model	
	(I)	(ii)	(iii)		
	Gifted Child	Talent Development	Differentiation	Original 2005-2010	Proposed Revisions
Why? Rationale	Assumed general ability. Essentialism, exclusive categorical assumption, status definition, permanent context-free exceptionality	Assumed talent to be developed, malleable status, different aptitudes for a particular domain, exceptionality not assumed.	Individuality assumed, emergent needs for differentiation, context dependency of exceptionality	Individuality assumed, assess needs & skills to determine pace of learning & extension Driven by theory	Individuality assumed, assess needs to cater . Staff professional dev. Program driven by perceived student need
What ? Purpose	Gifted elite status, serve the gifted, thinking and leadership qualities as the goal.	Supporting domain excellence and innovation, modelling after authentic professions and creativity.	Diagnostic focus, responding/serving individual needs dictated by school program eg. subject streaming	Ability grouping with grade-skipping. Experiential learning with a broad base of knowledge, talent, challenge & skill	Ability grouping to balance self-determination: competence, autonomy, connectedness. Broad experiential learning.
Who?	classification based on measures of superior mental quality – IQ.	selection / placement based on aptitudes for a particular talent or domain. Attitude important	Diagnosis of strengths and need based on streaming for educational purposes.	Additional gifted class in middle school. Parallel high-ability class (no grade skipping) Broad test battery Gifted trained staff	Adolescents-whole-of-school wellbeing program. **Designated gifted class**. Broad test battery Co-ordinator to oversee.
How? Strategy	Programs assumed to be uniquely suited for each gifted student, pull-out and self-contained small group programs as service models.	Enrichment, authentic learning, mentorship across school, home, college and community as a service model.	Paced learning progression, school-based curricular and instructional adaptations Interventions at school as service models.	Accelerated, compacted curriculum, -grade skipping to complete 3 years in 2 years. Student centred Sound theoretic al base	Establish broad school community support Grade-skipping AFTER establishing school support Health Promoting School framework.

Appendix C (b) Cross-National Matrix of Programs
Page 1 from a matrix of perception, policy and programming for gifted education in twenty-three Nations
Heuser, Wang and Shahid (2017) from the Global Education Review 4(1) p.15.

Country/ Region	Definition/ Conceptualization	Administering Agencies	Programming for Gifted Students				Sources of Information
			Identification Mechanism	Tracking and Differentiation (by school, by class, in class)	Acceleration Allowed	Enrichment (in school or out of school/after school)Miller	
Austria	A multidimensional and dynamic conception of giftedness and talent: high performance in intellectual, emotional, social, and artistic fields as well as in sports; giftedness and talent are processes that result from the interaction between individuals' predispositions, their ability to shape their own development, and the influences of nurture.	Federal Ministry for Education, Art, and Culture; Federal Ministry of Science and Research; the Austrian Research and Support Centre for the Gifted and Talented (founded in 1999).	Yes. Most common is the nomination by a teacher or self-nomination with evidence of above-average school performance or high scores in psychometric tests.	Yes. Individualized instruction is generally emphasized. Recent decades have seen greater efforts to differentiate gifted from regular performing students.	Yes. Grade skipping; secondary school students are allowed to take university courses.	Yes. Schools are encouraged to provide special courses for gifted students, summer camps for gifted students, or Olympiads for math and science students.	European Commission (2006); Resch (2014); Weilguny, Resch, Samhaber, and Hartel (2013); Weyringer (2013)
Beijing	IQ 130+	Chinese Academy of Science.	Yes.	Yes. Gifted schools, clustering by class (the establishment of a "Shaonian" class), and in-class differentiation.	Yes. Most common is grade skipping and enrollment in universities at a much younger age compared to peers.	Yes.	Ibata-Arens (2012)
Canada	Definition is unclear from the source. According to the authors, where it has existed, Canadian policy in gifted education has been permissive, enabling decision makers at the school district or school level to determine who, how, and when special programming, including accelerative options, is offered.				Yes. Shown through policy analysis of all Canadian provinces and territories.	Yes.	Kanevsky and Clelland (2013)
Cyprus	No formal definition in the policies; but, culturally, the idea of celebrating difference in unity with the social group has been emphasized. It is also believed that each child has his or her unique talent.	None; silence and inaction among the Ministry officials.	NA.	No. Recent reform reinforces inclusive orientation, but there is currently no official acknowledgement of students with special gifts. Teachers are expected to use the single official textbook for each subject to teach the prescribed curriculum to their students. The given content that needs to be taught within a specific time frame and the high student-teacher ratio, with a single teacher as responsible for all students, make the situation more difficult and leave little room for differentiation.			Ieridou (2013)

Appendix D (a) Data - STUDENT Focus Groups

Topic: Gifted adolescent wellbeing

Name of Moderator: Gabrielle Baker   Max Time: 45 mins. **Date:** 00/00/

Introduction: Welcome participants, describe the purpose of the project and interview.

Venue: old classroom used for ZEST -talk about familiarity to invoke memory while waiting for participants

Research Question: (How can schools support gifted adolescent wellbeing?)

1. *What guiding principles informed the development of a program for gifted adolescents?*
2. *In what way did the program influence gifted adolescent wellbeing?*

A. Generalisations – opening conversation

1) How long have you been at this school?

What was the transition like from primary school?

How did you come to join the program? Recommendation? Parent or student idea?

2) Who was your favourite teacher? How were they different? Who is your role model? Were there situations when you were seen as a role model? (leadership tendency?)

B. Student Attitudes about giftedness and wellbeing

* **Students perceptions about their own experience.** Think about your class friends.

3) How did your friendships change before-during-after the program? What were your friends in the program particularly good at? (defining giftedness). Are you still friends with age peers from before the program? Why? (Autonomy?)
   a. Tell me about your friendships in class? How were groups organised?
   b. Co-curricular activities? - during program

Co-curricular activities? - after program

(Connectedness and wider school community connectedness - lots or lonely?)

***Students attitude toward the program.**

4) How was learning different while you were in the program?
   a. What was your happiest memory in the program? Anything negative?
   b. Curriculum - Degree of difficulty? Pace? Depth of themes covered?
   c. How did the class cope with challenges? Stress at exam time?
   d. Student acceptance of others and by others? (Excitable? Sensitive?)

Why? Enjoyment? Challenges?

5) (Entry testing) How did you hear about the program? Whose idea was it for you to join? How did you feel about being selected? (Being identified? stigma?)
6) Did all the students in your class enjoy / benefit from the program?

Why do you think that way?
   a. Personalities – social-emotional maturity? Skill development? Expertise or broad?
   b. Academic progress ? (signs-Under-achievement/forced choice dilemma)

7) What sort of learning activity or unit of work did you enjoy most?

C. Future - Gifted Education generally

8) Would you do it again (the program)?
9) If you could redesign the program in any format, what would it look like?
   a. Class: would you accelerate the curriculum? How?
   b. School: policy and related implications?
   c. How could it support your wellbeing better?

D.Closure: Use Cantril Ladder– lowest rung is negative rating 1 – highest rung is positive at 5)

10) How happy did you feel happy when you were in the program?

How would you rate your happiness now? (this year, not just today)

11) Did you feel you could 'be yourself' (resilient) when you were part of the program?

How would you rate your feeling of safety the year after the program? … and now?

12) Did you think the program supported your **wellbeing**?

Appendix D (b) Data – STAFF Individual Interviews

Topic: Gifted adolescent wellbeing

Name of Moderator: Gabrielle Baker Time: 1 hour **Date:** 00/00/0000 **Attendee …**

Venue: to suit participant.

Note: Email orientation activity to stimulate conversation-date …………………..

Introduction: Welcome participants, describe the purpose of the project and interview.

Research Question: (How can schools support gifted adolescent wellbeing?)

1. *What guiding principles informed the development of a program for gifted adolescents?*
2. *In what way did the program influence gifted adolescent wellbeing?*

A.Generalisations – opening conversation

1) How long have you been at this school?

Describe your association with ZEST?

What special training or qualifications were required by the school for ZEST staff?

2) What was your happiest memory in the program? Anything negative?

B.Teacher Attitudes

* **Teachers' perceptions about gifted students**? Think about your favourite students.

3) How would you describe the gifted students you taught?

How would you define giftedness?

Tell me about student friendships and socialisation? Before, during and after ZEST.

Sub-categories of interest:

a.Were they autonomous learners? How did you structure your guidance?

b. Connectedness – tell me about their friendships? (lots or lonely?)

c. Connectedness with the wider school community? During & after the program?

4) What is different about teaching gifted students? Why is it different? Did you enjoy?

a. Needs and support.

b. How did students react to challenges? Stress? Acceleration?

c.What special skills are required? How did you get these?

d.Student acceptance of others and by others? (Excitable? Sensitive?)

Why? Enjoyment? Challenges?

 *Teachers Attitudes toward Gifted Education:

5) (Entry Testing) Tell me about how the students were identified for the program? What did you think about the selection process? Were these an accurate ? (Stigma?)

6) Did all the students benefit from the program? Why do you think that way?

a.Personalities – social-emotional maturity?

b. Academic progress for all? (signs - Under-achievement/forced choice dilemma)

7) What teaching strategies worked best? Ability or interest grouping ?

C.Teacher Knowledge / Training Needs / Best practice for the **future** of gifted education

8) Would you teach it again (the program)?

a.Was in-service or professional development expected? Enough? What did they cover?

b. What should teachers without any training in gifted education be told?

9) If you could redesign the program in any format, what would it look like?

a.Class: would you accelerate the curriculum? How?

b.School: policy and related implications?

D.Closure:

10) Would you like to have been identified as gifted and partake in the program?

11) Did the students appear to be resilient? In the program? After they left the program?

12) How could the program have better supported student **wellbeing**?

*If you think of more information you would like to add related to the previous points … contact details.

Appendix E Test Battery Package
Appendix E (a) ZEST Selection Entry Tests

Test	Description	Time (min)
IQ	Diagnostic test to establish an Intelligence Quotient score Prefer students with 130+ range or above 97th percentile	20
Psychological Assessment	WISC-IV, Stanford-Binet	
Pier-Harris children's self-concept scale	6 domains and 1 self-concept scale- behavioural, anxiety, status, happiness, satisfaction, popularity, physical attributes, and intrinsic motivation.	15
Coopersmith (1990)	Self-esteem Inventory 8-14 years Recognises personal satisfaction and effective functioning- social, academic, family, personal.	20
Raven (2000)	Advanced Progressive Matrices. Quick visual reasoning and potential test. 60 items, five sets to test ability to deduce relationships and infer general rules about logical, visual and deductive reasoning.	15
Harter (1990)	Scale of intrinsic vs extrinsic orientation in the classroom. Highlights ego-involved students who may not be suited to an academically rigorous classroom atmosphere.	20
Martin Motivational Scales (2004)	Challenge, curiosity, mastery, judgement and criteria. Finds: Booster thoughts (self-belief, value of schooling, learning focus); and Booster behaviours (planning, study management, persistence) Mufflers - anxiety, failure avoidance, uncertainty Guzzlers - self-sabotage, disengagement.	
Family meeting	Testing student motivation and family support or pressure(1-3 meet) -Parent expectations questions and approval correspondence -Parent satisfaction survey -Parent endorsement	15 each
IOWA Progress	Coping with acceleration (quarterly) Monitoring academic and affective domains	40
ACER	Australian Council for Educational Research test	120
Staff	Teacher questionnaire	10

Battery of tests for student selection evolved each year dependent on annual reviews

Appendix E (b) Parent Expectations Questionnaire

xxxxxxxxxx Program 2005

Parent/Guardian:

_____

Student   :

_____

Questions

1. What do you want from the program?

2. What does the parent think about the educational experiences of their child in the past? What has worked and what has not been successful?

3. How does your child learn best?

4. What passions does your child have?

5. How would you like to be involved in your child's education?

6. What could a school do to assist your child more in the future?

7. What type of assessment would help your son/daughter?

8. Do you only want an academic program (Dux) as opposed to

| our | view | of | a | holistic | program? |

Appendix E (c) Teacher Questionnaire

Dear Teachers,

To assist with student selection for XXXXXXXXX Program, it is acknowledged that one very important component is the teacher's perspective of a student's current performance and potential. It would be appreciated if you could complete the following checklist and return it in the envelope provided. Thank you for your interest and assistance.

Characteristics of Giftedness Scale - Teacher Checklist

 XXXXXX Program (Silverman L, 2001)

Name of Student: _____ Year Level: _____

Name of Teacher:_____ Date: _____

Please place a tick against characteristics demonstrated by the student.

1. Good problem solving/reasoning abilities _____
2. Rapid learning ability _____
3. Extensive vocabulary _____
4. Excellent memory _____
5. Long attention span _____
6. Personal sensitivity _____
7. Compassion for others _____
8. Perfectionism _____
9. Intensity _____
10. Moral sensitivity _____
11. Unusual curiosity _____
12. Perseverant when interested _____
13. High degree of energy _____
14. Preference for older companions _____
15. Wide range of interests _____
16. Great sense of humour _____
17. Early or avid reading ability _____
18. Concerned with justice, fairness _____
19. At times, judgment seems mature for age _____
20. Keen powers of observation _____
21. Vivid imagination _____
22. High degree of creativity _____
23. Tends to question authority _____
24. Shows ability with numbers _____
25. Good at jigsaw puzzles _____
26. Independent worker _____

27. Genuine love of learning   _____
28. Good peer relationships   _____
29. Leadership   _____
30. Ability to work in groups   _____

Additional comments:-

Appendix E (d) Harter Test student questionnnaire

Name _____ D.O.B. _____ Grade _____ Teacher _____

	Really True for me	Sort of True for me				Sort of True for me	Really True for me
(a)	☐	☐	Some kids would rather play outdoors in their spare time	**BUT**	Other kids would rather watch TV	☐	☐
(b)	☐	☐	Some kids like hamburgers better than hot dogs	**BUT**	Other kids like hot dogs better than hamburgers	☐	☐
1.	☐	☐	Some kids like hard work because it's a challenge	**BUT**	Other kids prefer easy work that they are sure they can do	☐	☐
2.	☐	☐	When some kids don't understand something right away they want the teacher to tell them the answer	**BUT**	Other kids would rather try and figure it out by themselves	☐	☐
3.	☐	☐	Some kids work on problems to learn how to solve them	**BUT**	Other kids work on problems because you're supposed to	☐	☐
4.	☐	☐	Some kids almost always think that what the teacher says is OK	**BUT**	Other kids sometimes think their own ideas are better	☐	☐
5.	☐	☐	Some kids know when they've made mistakes without checking with the teacher	**BUT**	Other kids need to check with the teacher to know if they've made a mistake	☐	☐
6.	☐	☐	Some kids like difficult problems because they enjoy trying to figure them out	**BUT**	Other kids don't like to figure out difficult problems	☐	☐
7.	☐	☐	Some kids do their schoolwork because the teacher tells them to	**BUT**	Other kids do their schoolwork to find out about a lot of things they've been wanting to know	☐	☐
8.	☐	☐	When some kids make a mistake they would rather figure out the right answer by themselves	**BUT**	Other kids would rather ask the teacher how to get the right answer	☐	☐

Sample from a three page test of 30 questions

| 9. | ☐ | ☐ | Some kids know whether or not they're doing well in school without grades | **BUT** | Other kids need to have grades to know how well they are doing in school | ☐ | ☐ |
| 10. | ☐ | ☐ | Some kids agree with the teacher because they think the teacher is right | **BUT** | Other kids don't agree with the teacher sometimes and stick to their own opinion | ☐ | ☐ |

Appendix F Participant Information Package
Appendix F (a) Ethics Approval

	University Human Research Ethics Committee
QUT	**HUMAN ETHICS APPROVAL CERTIFICATE**
	NHMRC Registered Committee Number EC00171

Date of Issue: 8/5/12 (supersedes all previously issued certificates)

Dear Mrs Gabrielle Baker

A UHREC should clearly communicate its decisions about a research proposal to the researcher and the final decision to approve or reject a proposal should be communicated to the researcher in writing. This Approval Certificate serves as your written notice that the proposal has met the requirements of the *National Statement on Research involving Human Participation* and has been approved on that basis. You are therefore authorised to commence activities as outlined in your proposal application, subject to any specific and standard conditions detailed in this document.

Within this Approval Certificate are:

     * Project Details
     * Participant Details
     * Conditions of Approval (Specific and Standard)

Researchers should report to the UHREC, via the Research Ethics Coordinator, events that might affect continued ethical acceptability of the project, including, but not limited to:

     (a) serious or unexpected adverse effects on participants; and
     (b) proposed significant changes in the conduct, the participant profile or the risks of the proposed research.

Further information regarding your ongoing obligations regarding human based research can be found via the Research Ethics website http://www.research.qut.edu.au/ethics/ or by contacting the Research Ethics Coordinator on 07 3138 2091 or ethicscontact@qut.edu.au

If any details within this Approval Certificate are incorrect please advise the Research Ethics Unit within 10 days of receipt of this certificate.

Project Details	
Category of Approval:	Human non-HREC
Approved From:	11/04/2012 **Approved Until:** 11/04/2015 (subject to annual reports)
Approval Number:	1200000184
Project Title:	Insights from an Australian enrichment program for young adolescents
Experiment Summary:	Assist the design of enrichment programs for students both nationally and internationally.

Investigator Details		
Chief Investigator:	Mrs Gabrielle Baker	
Other Staff/Students:		
Investigator Name	**Type**	**Role**
Dr Denise Beutel	Internal	Supervisor
A/Prof Jim Watters	Internal	Supervisor
Dr Leanne Crosswell	Internal	Supervisor

Participant Details

Participants:
Approximately 60

Location/s of the Work:

████████████████████████████
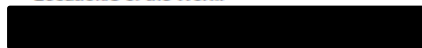
RM Report No. E801 Version 4

Appendix F : Participant Information Package – page 1 of 5

Appendix F (b) Student Information Form

<table>
<tr><td>**QUT** Queensland University of Technology
Brisbane Australia</td><td>**PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT**
– Interview / Focus group –</td></tr>
<tr><td colspan="2">██
<center>**QUT Ethics Approval Number 1200000184**</center></td></tr>
</table>

RESEARCH TEAM
Principal Researcher: Gabrielle Anne Baker, PhD student, QUT
Associate Researchers: Dr Denise Beutel, A/Prof Jim Watters and Dr Leanne Crosswell, QUT

DESCRIPTION
This project is being undertaken as part of PhD for Gabrielle Baker.

The purpose of this project is to gain insights from an Australian middle school enrichment program.

You are invited to participate in this project because you might be able to provide valuable information about your experiences.

PARTICIPATION
Your participation in this project is entirely voluntary. If you do agree to participate, you can withdraw from the project without comment or penalty. If you withdraw, on request any identifiable information already obtained from you will be destroyed. Your decision to participate, or not participate, will in no way impact upon your current or future relationship with QUT or ████
█████████████.

Your participation will involve an audio recorded interview / focus group on campus at .... campus, and will take approximately 20-30 minutes of your time. Questions will require you to reflect on your experiences at school, both within the ████ program and at St Peters since you emerged from the program.

EXPECTED BENEFITS
It is expected that this project will not benefit you directly. However, it may benefit other students participating in similar programs. It may also assist other schools in the development of enrichment programs.

To recognise your contribution to my research and to celebrate the reunion of your ██████████, should you choose to participate I have some cake to share at the conclusion of our question time, before you leave.

RISKS
There are no risks beyond normal day-to-day living associated with your participation in this project.

PRIVACY AND CONFIDENTIALITY
All comments and responses will be treated confidentially and only for the purpose of this research study. No other person will have access to any audio recordings, notes or transcriptions.

Non-identifiable data collected in this project may be stored on an open access database for secondary analysis of comparative data.

CONSENT TO PARTICIPATE
We would like to ask you to sign the attendance book to verify your presence.

Due to your age, time constraints and the nature of the project, verbal consent will be used to confirm your agreement to participate.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT
If have any questions or require any further information about the project please contact one of the research team members below. Please also make contact if you remember additional information you would like to share.

Gabrielle Baker
█████████████████
█████████████████
Email   g.baker@student.qut.edu.au

Dr Denise Beutel – Supervisor
Senior Lecturer
Learning and Professional Studies, Faculty of Education
Phone   3138 8671
Email   d.deutel@qut.edu.au

CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT
QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

Thank you for helping with this research project. Please keep this sheet for your information.

Participant Information Package – page 2 of 5

Appendix F (c) Parental Consent Form

QUT Queensland University of Technology Brisbane Australia	**CONSENT FORM FOR QUT RESEARCH PROJECT** – Interview / Focus group –
███████████████████████████████████	
QUT Ethics Approval Number 1200000184	

RESEARCH TEAM CONTACTS

Gabrielle Baker

████████████████

Email *g.baker@student.qut.edu.au*

Dr Denise Beutel – Supervisor and Senior Lecturer
Learning and Professional Studies, Faculty of Education
Phone 3138 8671
Email *d.deutel@qut.edu.au*

STATEMENT OF CONSENT FROM PARENT / GUARDIAN (IF NOT PREVIOUSLY OBTAINED FOR THIS STUDY)

Students under the age of 18 must have parental consent to participate in this study.

Parents, by signing below, you are indicating that you:

- Have read and understood the information document regarding this project.
- Have had any questions answered to your satisfaction by reading the information or making contact with the researcher.
- Understand that any additional questions can be directed to the researcher.
- Understand that students are free to withdraw at any time, without comment or penalty.
- Understand that you can contact the Research Ethics Unit on 3138 5123 or email ethicscontact@qut.edu.au if you have concerns about the ethical conduct of the project.
- Have discussed the project with your son/daughter to clarify what is required.
- Understand that the focus group interview will be audio recorded.
- Understand that non-identifiable data collected in this project may be used as comparative data in future projects.
- Agree to participate in the project.

Please tick the relevant box below:

☐ Agree for the interview / focus group to be audio recorded.

☐ Do not agree for the interview / focus group to be audio recorded.

Name .... (confidentiality is assured)

Signature ....

Date ....

STATEMENT OF STUDENT CONSENT

This form is to seek your consent to participate in the research.

By signing below, you are indicating that you:

- Have read and understood the information about this project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw at any time, without comment or penalty.
- Understand that you can contact the Research Ethics Unit on 3138 5123 or email ethicscontact@qut.edu.au if you have concerns about the ethical conduct of the project.
- Understand that the project will include audio recording.
- Agree to participate in the project.

Please tick the relevant box below:

☐ I agree for the interview / focus group to be audio recorded.

☐ I do not agree for the interview / focus group to be audio recorded.

Name .... (confidentiality is assured)

Signature ....

Date ....

Please return this sheet to the researcher

Participant Information Package – page 3 of 5

Appendix F (d) Approval Email

From: David
Sent: Thursday, 15 September 2011 2:44 PM
To: Gabrielle Baker
Subject: RE: Privacy Policy for my PhD

Hi Gabrielle,
After consultation with other members of administration, your request to access College archives has been verified. You have clearance to proceed with your study. Would you be able to provide me with a copy of the 'Memorandum of Understanding' agreement.
Thanks.
David

Communications Manager

……………………………………………………………………………………….

Appendix F (e) Withdrawal of Consent Form

QUT Queensland University of Technology Brisbane Australia	WITHDRAWAL OF CONSENT FOR QUT RESEARCH PROJECT

Gifted Adolescent Footprint: In a Health Promoting School

QUT Ethics Approval Number 1200000184

RESEARCH TEAM CONTACTS

Gabrielle Baker	Dr Denise Beutel – Supervisor
███████████████████████	Senior Lecturer
	Learning and Professional Studies, Faculty of Education
	Phone ████████
g.baker@student.qut.edu.au	Email d.deutel@qut.edu.au

I hereby wish to WITHDRAW my consent to participate in the research project named above.

I understand that this withdrawal WILL NOT jeopardise my relationship ████████ QUT.

Name	……………………………………………………………………………
Signature	……………………………………………………………………………
Date	……………………………………………………………………

Participant Information Package – page 4 of 5

Appendix F (f) Staff Invitation Email

Study Title: Gifted Adolescent Footprint: In a Health Promoting School

Attention: Staff ███

Dear

I would like to call a meeting about your potential involvement with the middle school enrichment classes, to gather information for a PhD University study about the ████ Program. Your personal viewpoint and perceptions about experiences with the program would be greatly valued. Other staff and students will be interviewed over a period of time so that the analysed information might guide future planning of similar programs. Are you available next week?

When:	Tuesday lunchtime ████████
Time:	12.30-1.00pm (bring your lunch)
Where:	Your staffroom or nearby outside – a quiet place.

Should you choose to participate in this research study, you will be asked to sign QUT ethics documents on the day to acknowledge your participation. Please view the attached form if you would like to read further details about the study, or visit / email me in the Technology Department if you require further information. Looking forward to spending some time in conversation.

Mrs Gabrielle Baker
PhD Student QUT

████████████████████████████

This study has been approved by the QUT Human Research Ethics Committee (approval number 1200000184).

Participant Information Package – page 5 of 5

Appendix G (a) Phase I Coded Data Bank

	Item		Source: Z — School Archives	R — Ss records-Synergetic	PS — Key Person behind initiatic	EP — First Program teacher	A — Student artefacts from staf	JB — Staff artefacts
3	A	A	2002promotional materials	ppt to Board/ School Council	2003 Submission to sch-2	EP Consultancy-GT	Infinity star chart/achiev	Ms Gold Yr 7 multicult assign
4	B	A	2002first documents	ppt Infinity Program2004	2003College Council meeting notes	ppt high order th-QAGCT	2010 Yr12 results	Ms Gold Forensic sleuths
5	C	A	2006newsclip	ppt Taiwan GT conf 2006	2004 gifted middle sch-promo	Parent newsletters	2010STARchart-achievem	Ms Gold games of strategy
6	D	A	2004Ss Info package	2005 ppt for staff	2004 Class structure presentation	curric material from MJ	2011 yr7-Ss-review-data	Ms Gold Enquiry challenge
7	E	A	rejection response	2006 External Review	2003 Paper-Infinity submissions	Curric-home room ideas	2011 yr8-Ss-Naplan+rev	Ms Gold Yr 5 novel study
8	F	A	DISSOLUTION	2006 Review - Exec. summary	20054 promotional booklet	2005 Parent-I-Look&Feel	2011 yr9-Ss-Naplan+rev	Ms Gold First Aust. Unit plan
9	G	A	2005M.Gross Lecture	2007 Ext.Review response-action	2004 NSW GATS_policy	2006 Conf blurb-parents	2011 yr10-Ss-Naplan+rev	Ms Gold Yr 5 Creative Design
10	H	A	2004 Advertisement	Report to staff	1990 Paper - Values & the Curric.	2007 Study Skills w'shp	2011 YR10-star chart	Ms Gold Hobbit adventure
11	I	A	2004 UQ ad	2011 Synergetic contacts lists	1991 staff PD-Social Ed. (Head of SO	Yr5 Units of work	2011 YR9-REVIEW DATA	Ms Gold Yr 7 poetry extension
12	J	A	2005 advertisement	2011 Synergetic co-curric.	2004 NSW GT+ Policy documents	Yr 6 Units of work	2011 yRr11 Ss reviewData	Mr Quartz Tournament of Minds
13	K	A	2005 TV interview/show	2011 Synergetic awards	2004 QLD GT Framework	Yr 8 Units of Work	2011 Yr 12 results	MsEmerald-teaching materials
14	L	A	2006 newspaper article	2011 Synergetic absentees	2005 ppt Sch Council	Life-long learn. outcomes	2007-Ss data analysis	Ms Emerald criteria sheets
15	M	A	2010-OHT's-acceleration	Article- talent and gifts	2006 STAFFING recomm	PAPER-Taipei-Journey to I	15MA-A Test materials	2007 Ms Bronze unit overview
16	N	A	2013 Journal notes	2006 Taiwan AJGE journal	2006 Progress-Achievements	TaiwanABSTRACT2006	2012 Yr 12 results	2008 Mr Quartz Yr 7 unit planner
17	O	A	letter of offer-female	2005 first Review - staff action	2006Nat.Awards Qual Schooling	2007 core curriculum outlines	2008 co-curricular enrolment	2013 Mr Quartz submission
18	P	A	letter of rejection	2006 staff REVIEW - action	July,2012 Interview 1 - thoughts	2011 conference flier	2010 Pastoral care comments	2014Mr Quartz research project
19	Q	A	2011 Photo file	TEST-Parent ABOUT Ss	2006 QAGCT Conference paper	2012 email contact	2009 Yr9 data	2011 Ms Ruby modified workplan
20	R	A	2004-Tvpromo+ad	TEST- Affective test invite	2001 Paper - Flow	2013 Q email to 2005 Ss	2010 parent letters	2008 Ms Ruby sample pics
21	S	A	2005magazine-ad	TEST -applic form	2007 retirement	2012 Ph.call-jounal(not taped) - E	2011 Student efolios - artefacts	2009 Ms Ruby program
22	T	A	2005 Promo bk-parents	TEST-Staff assess Ss	2006 Enrichment Dept Policy	Aug, 2012 coffee shop journal not	2011 Stat. emails-parent consent	2011 Ms Ruby work file
23	U	A	2007 promo brochure	TEST-Harter	2012 Ph call journal notes (not tape	2010 program proposal	2006 Yr 7 Poem	2012 Ms Ruby sample pics
24	V	A	2011 Parent support group	TEST- Parent expectations	2013 emails-thoughts	2010 Enrichment Dept. Policy	2006 Haiku Canvas	Optiminds information-Mr Quartz
25	W	A	2011 Parent emails	TEST Battery-explained	1999 Paper - Big Fish	2004 Material	2011 ppt Alone on a Wide Sea	Tournament of Minds-Ms Gold
26	X	A	2013 Invitation emails	TEST- overexcitability inventory	Paper - Motivation	2005 Material	2011 bk Alone on a Wide Sea	2011- Science-Biome Survival bk
27	Y	A	2012 Staff ReflectionQ	ALL names+details	2003 Paper - Reframing Gifted Ed	2006 Material		2011 - Sc. Filamentality
28	Z	A	2007 Potential Ss invit.	2012 ALL names+CO-CURRIC	2005 Conf.Paper-Inside-out(anxiety	2007 Material		
29	A	B	2007 Paper: DemocraticG Ed	ZEST names-rolls-11.5.11	2005 Paper - Acceleration			
30	B	B	2013 Parent consent Ethics	2011 Review-Internal-staff	2005 Paper - Middle Schooling			
31	C	B	Student Interview Questions	ZEST Names-Mel-10.5.11	2006 Paper- Affective tests vs IQ			
32	D	B	Teacher Interview Questions	2008 Review - internal staff action	2006 Taipei present w JB			
33	E	B	2017 letter-Education Minister					
34	F	B	2017 Education Dept. interview					
35	G	B	2017 SA School wellbeing report					
36	H	B						
			33	30	30	26	24	25 ... total = 168 items

Example of **Full Coding** used to reference Archival Documents
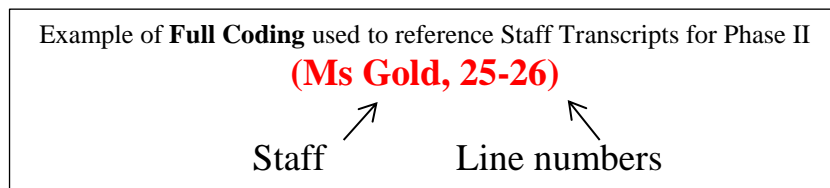(*not always used)   (19QA-PS, 2008, 5-6)

Doc source Number → Actual source → *Year → *Lines

Appendix G (b) Phase II Staff Interview Codes

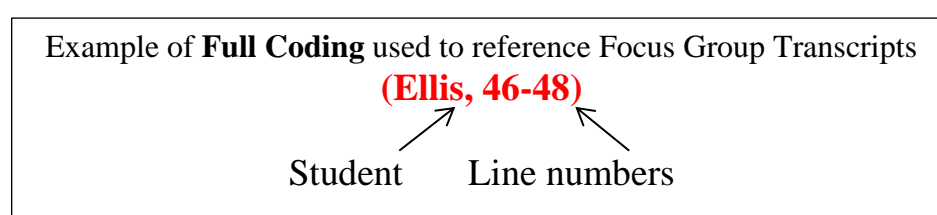| Teacher Code	Individual Interview	Staff responsibility at Knott School	Association with ZEST program
Mr Sapphire	Phase I – emails, files, two telephone conversations, (unrecorded, notes taken).	Initiated the ZEST proposal and concept.	Head of Exceptional Learners, proposals, initiated program 2005.
Mr Silver	Phase I – emails, files, telephone conversation, one coffee shop meeting (unrecorded, notes taken).	First ZEST Home-room teacher employed.	Student selection 2004, Year six and seven first cohort teacher, program design, stayed at Knott School until 2007.
Ms Diamond	19.09.2013	Interview staff and students. Oversee program reviews.	Head of Exceptional Learners department
Mr Quartz	18.09.13	Home-room staff.	Year six and seven teacher
Ms Gold	19.09.13	Home-room staff.	Year five, six, seven teacher
Ms Emerald	08.11.13	Home-room staff	Year five, six, seven teacher
Ms Bronze	20.09.2013	Specialist staff	Health and Physical Education teacher
Ms Ruby	20.09.2013	Specialist staff	Art teacher

Due to the timing of interviews, notes from Mr Sapphire and Mr Silver's interviews are referenced in Appendix G(a) as Phase I data. All other staff interviews were digitally recorded and transcribed for Phase II.

Example of **Full Coding** used to reference Staff Transcripts for Phase II

(Ms Gold, 25-26)

Staff   Line numbers

Appendix G (c) Phase II Student Focus Group Codes

Student Codes	Students	Focus Group Intake year	Association with ZEST Year level in the program
Alastair, Albert, Abel, Adam, Allan, Alice	6	2005 (First cohort)	Year six and Year eight
Blanche, Brenda, Benita, Briana, Bella, Bronte	6	2006	Year six and Year eight
Cara, Cadell, Celia, Carol, Carl, Clifton	6	2007	Year five and Year eight
Dan, Daisy, Darcy, Dallas, Delia, Donald	6	2008	Year five and Year seven
Emma, Edgar, Ellis, Earle, Eddy	5	2009	Year five and Year seven
Fay, Fred, Felix	3	2010	Year five and Year seven
Errol, Cian, Cameron, Florence	4	Mixed group	Year five and Year seven

Note the alphabetical coding of names to assist researcher recall and referencing and the transition of year level entry in 2007.

Example of **Full Coding** used to reference Focus Group Transcripts

(Ellis, 46-48)

Student   Line numbers

Appendix H School Archive Work Samples
Appendix H (a) Science and Society Elaboration for Year 5 Unit (27YA-EP)

Science and Society

Historical and cultural factors influence the nature and direction of science which, in turn, affects the development of society.

3.1 Students relate some of the ways that people of various historical and cultural backgrounds construct and communicate their understandings of the same natural phenomena.	4.1 Students outline some contributions to the development of scientific ideas made by people from different cultural and historical backgrounds.
Different ways of constructing and communicating understanding: • approaches of different cultural groups to problem solving • different beliefs about the formation of the Earth which stem from traditions, religious beliefs, superstitions • naming of stars and constellations by different cultural groups • ways different cultures use natural resources to meet their needs — food, clothing, shelter, medication • use of story, dance, ritual	**Value of traditional science:** • medicines • oral traditions, including Dreamtime stories • use of astronomy — Incas, Chinese **Chinese science:** • medicine • gunpowder • paper • ceramics **Western scientific tradition:** • ancient Greeks • alchemists • influential scientists, including women • organisation into disciplines

Science as a 'way of knowing' is shaped by the way humans construct their understandings.

3.2 Students recognise the need for quantitative data when describing natural phenomena.	4.2 Students use the elements of a fair test when considering the design of their investigations.
Importance of quantitative data: • difference between quantitative and qualitative data • communication of information • comparison — not open to personal opinion **Collection of quantitative data:** • measurement • use of appropriate tools for taking different measurements — telescope, microscope, meters, gauges • correct use and care of tools • appropriate display of data for identification of patterns • need to repeat experiments	**Elements of a fair test:** • develop a researchable question • dependent and independent variables • control of variables — only one changes • measurement of change • presentation of results to suit different purposes

Decisions about the ways that science is applied have short- and long-term implications for the environment, communities and individuals.

3.3 Students make predictions about the immediate impact of some applications of science on their own community and environment, and consider possible pollution and public health effects.	4.3 Students present analyses of the short- and long-term effects of some of the ways in which science is used.
Impact of applications of science on the community: • changed disease patterns — immunisation, health awareness, improved hygiene • water treatment • local industry practices — air and water quality, cost of products to the consumer • packaging of materials — more environmentally friendly, easier to use, child-safe, cost of products to the consumer • impact on building — research leads to changed approaches and better materials • caring for the environment — breeding threatened species, conserving areas where threatened species live	**Short-term effects:** • improved products for the consumer; cost of products for the consumer • improved lifestyle and medical care • greater security • pollution and habitat loss • production of non-biodegradable items • increased toxicity in plants and animals • greater understanding of processes occurring on Earth and in the universe • alternative ways of using and conserving non-renewable resources **Long-term effects:** • greenhouse effect, ozone depletion, reduced biodiversity, depletion of non-renewable resources • many long-term effects unknown

Appendix H (b) Williams Model application

The plan illustrates an application of the Williams model referenced from a professional development package (Gross, et al., 2005, p. 65).
This artefact was referenced by Mr Silver as part of an artefact used for unit planning.

Does the implementation of law protect the people it is designed to serve?

Strategy	Activity
Creative listening skills	Listen to famous speeches – Martin Luther King, Nelson Mandela, Eddie Mabo. What do these speeches have in common? How do they differ?
Provocative question	Does the law always provide protection? How can we learn from the past?
Tolerance for ambiguity	Do the same laws apply for people from different cultures? What past events may have been avoided if laws had been made?
Discrepancy	What might have happened if the early settlers to Australia were more empathetic to the Indigenous way of life?
Examples of habit	Give three historical examples of prejudice that have affected laws. Are they similar to current laws?
Examples of change	Which figures in history fought against prejudice and succeeded in bringing about change because of their beliefs?

Appendix H (c) Year five - First Australians - unit plan (ref: 8FA-JB)

SUBJECT GROUPING English, Integrated Studies, ICT, Visual Arts, Drama, Media	YEAR LEVEL: 5 LENGTH: 10 weeks	First Australians: A tale of two laws
KLA(S):Culture and Identity Year 5 and 7, Place and Space		PREREQUISITES: Extension class

DESCRIPTION OF UNIT:

Through the theme "**laws**", students study the effect of colonisation on the Aboriginal civilisation and will look at overarching problem of the changes that the Aborigines have endured over the past 220 years. The students understand that significant events in the past have resulted in change, and that various perspectives of these events, can be gained by looking at historical documents. Students understand that Aboriginal peoples have diverse social organisation, languages and lifestyles which reflect the importance of "country" — land, sea and places. They will understand that contact between Indigenous and non-Indigenous cultures in Australia and in other places have had significant effects on language, culture, land ownership, health and education of Indigenous people.

Students will acquire knowledge about Interactions between people and places affect the physical features of the land, biodiversity and water. Students will understand that the physical features of environments influence the ways in which the settlers and Aboriginal people lived. Students understand that similarities and differences in cultural groups lead to a diversity of viewpoints within the community. Students understand that membership in certain groups helps to shape and maintain cultural identity and individual responsibility. Students understand that changes in cultural groups over time are often necessary to ensure cultural sustainability. Students understand that there are different perspectives of events in the past and that events in the past will often result in significant social change. Students understand that change will reflect the beliefs and attitudes of societies at that time. Values education from the syllabus is embedded into the curriculum.

Students understand that systems provide order to social groups in the community and that links can be made between the democratic processes and the role of government. Students understand that democratic processes enable them to make informed decisions and demonstrate active citizenship. Students understand that people in the community make decisions that governments respond to by changing laws and systems to protect people's rights.

Overarching Question
Does the implementation of law protect the people it is designed to serve?
Focus Questions
1. What are laws?
2. What are rights?
3. Needs versus wants
4. Why are referendums important?
5. Why do you think the 1967 referendum was so successful?
6. How were the rights of Aboriginal Australians affected by European colonisation?
7. Which "lost right" do you think has had the most significant effect on Aboriginal Australians eg loss of land rights, stolen generation, etc?
8. Do you think that early settlers truly believed that the way that Aboriginal groups were handled was right?
9. What do you think about the way that Aboriginal Australians were treated in the past and how they are treated today?

ESSENTIAL LEARNINGS:	Year five First Australians: A tale of two laws.
WAYS OF WORKING Plan investigations based on questions and inquiry models Collect and organise information and evidence	KNOWLEDGE & UNDERSTANDING
Evaluate sources of information and evidence to determine different perspectives, and distinguish facts from opinions Draw and justify conclusions based on information and evidence Communicate descriptions, decisions and conclusions, using text types selected to match audience and purpose	ICT CROSS-CURRICULAR Web site access, Word documents, MovieMaker – claymations, photographic skills

LEARNING EXPERIENCES:

Use in conjunction with PPT

Brainstorm prior knowledge of First Fleet and colonisation. terra nullius

Brainstorm and decide what 'laws' are and how we know what the laws are.

The Dreaming/Christian laws – Watch First Australians – selected extracts of Only one Law

Read journal extracts from settlers and Cook to get an understanding of Aboriginal culture

Watch "Our History" series and "Indigenous Australians" series. First Australians section about the Aboriginals' relationship with the land.

Read The Berirrk

Critical Thinking - Jarred Diamond's research and reasoning for Aboriginal development

Look at Aboriginal relationship with the land – consider the statement by Mick Dodson, compare with settlers use and relationship with land and environment. Look at differences between Aboriginal and European culture, beliefs and laws using 'T' chart

Write letter to the editor regarding statement made in the newspaper "Aboriginals regarded as 'savage' and 'uncivilized'"

Group discussion and individually complete PMI chart for Colonists and Aboriginals reflecting arrival

Examine human rights

What did Federation hope to achieve and how did it affect Aboriginal people?

Discuss democracy and voting rights. Discuss citizenship and Aboriginal peoples' -

Look at the effect of inflicted European laws on the rights of Aboriginal people through drama -1967 referendum, stolen generations, loss of languages, land rights, slavery, apology

Tournament Prioritiser and Write exposition, create animation – Which "lost right" do you think has had the most significant effect on Aboriginal Australians?

Group analysis of "A Curiosity in her Own Country"cartoon-What do you think about the way that Aboriginal Australians were treated in the past and how they are treated today?

Discuss provocative statement "White Australia has a Black History", write explanation

How do you think things might have been different if the settlers had taken more time to understand the Aboriginal culture?

Do laws always protect the people they are there to serve?

ASSESSMENT TASKS:

TYPE	PURPOSE	ASSESSABLE ELEMENTS
Letter to the Editor - – savage or civilised?	Summative -Assessment of Learning	Knowledge and understanding of different points of view
Exposition - Which lost right?		Creativity
Discussion - Do laws always protect the people they are there to serve?		Inquiring, responding, reflecting
Claymation (will support exposition)	Summative –Assessment of learning	

5J Program Adventure's Handbook.

The Hobbit

by J.R.R. Tolkien
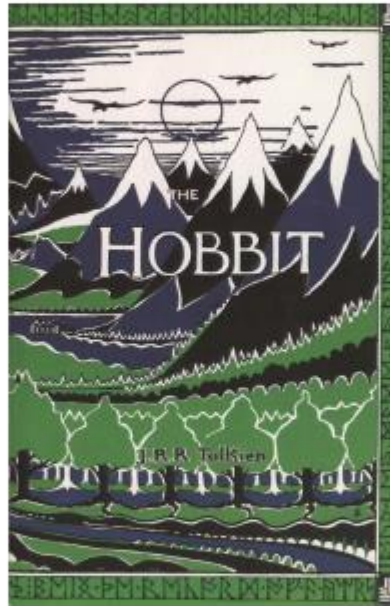
NAME _____

Grebe Men Rin – Region 1

To pass safely through this region you must complete 1 task and the compulsory challenge.

1. Using the context of The Hobbit, find the meaning of the words listed in the Adventurer's Handbook and then put as many as you can into a paragraph. Your paragraph must make sense.

2. Complete the "Who is who?" character flow chart in the Adventurer's Handbook.

3. Draw coloured illustrations of Bilbo, Thorin and Gollum. Use descriptions from the story and annotate your drawings giving page numbers for the descriptions.

4. Find 10 verbs and 10 adverbs. Write them on cards and describe a charade for each word.

5. Write a song that tells of Bilbo's journey.

6. Write 10 questions based on the book. Five may be about the general content but five must require deeper thinking to be answered.

7. Draw a diagram which shows the main features of a river in its journey from the source to the sea.

COMPULSORY CHALLENGE 1
Look at this picture; list at least 5 things it could represent from The Hobbit:

La Gup Pin – Region 3

To pass safely through this region you must complete at least 2 tasks and the compulsory challenge.

1. Make up riddles about five different things.

2. Make your own treasure map based on a familiar place such as your house, bedroom or classroom. Give areas interesting names.

3. Design a poster for the movie release of The Hobbit; remember to include a tag line.

4. Find a piece of music that you think represents the story of Bilbo and his adventures. Name the title of the music, the composer and explain why and how you think it is a good representation of the story.

5. Bilbo and his friends are often captured; with a partner decide what qualities you would need in order to survive being captured.

6. Thorin was reluctant to give up any of his treasure to the Men of the Lake. Imagine that you are Thorin, what are your thoughts. How does his experience relate to you?

7. On their travels, Bilbo and Company eat lots of wild food. Imagine that you are on an adventure across Australia, what wild food could you eat to sustain you and where is this food found?

1. Re-write The Hobbit as a picture book that grade one children would understand and enjoy.

2. Make a list of 10 things needed for a journey and rank them in order of importance using the tournament prioritiser sheet in the Adventurer's Handbook.

3. Draw a timeline/story map to show Bilbo's journey.

4. Choose one event in the book and write it as a short play.

5. Choose on of the songs from The Hobbit and explain what it means.

6. Write an interview with 3 characters from The Hobbit. Think of searching and interesting questions to ask your characters

7. Imagine that you are Bilbo; write a diary entry explaining your feelings and thoughts after "AN Unexpected Party."

COMPULSORY CHALLENGE 3
The answer is "Treasure", write five questions.

Ad End Turnings – Region 2

To pass safely through this region you must complete at least 1 task and both of the compulsory challenges.

COMPULSORY CHALLENGES 2
Write 5 similarities between Smaug and Bilbo.

Choose one of the following to investigate and create a short presentation (5 minutes) about them:
Elves, dwarves, dragons, trolls, goblins, wolves, eagles, bears or spiders.

To pass safely through this region you must complete at least 2 tasks and the compulsory challenge.

Tang Ries – Region 6

Yanga Nail– Region 4

To pass safely through this region you must complete at least 2 tasks and the compulsory challenge.

The Faerie Song:

Arrive by June 15th

1. As Bilbo, write a monologue to show how you have changed. (P.183)

2. Use the "Double Bubble" sheet in the Adventurer's handbook to compare and contrast The Hobbit and another book that you have read.

3. Choose an excerpt/event from The Hobbit and use the Y chart sheet in the Adventurer's Handbook to write a passage of your own about this event/excerpt. Remember to identify the excerpt and page number.

4. In small groups create a tableaux of the story of The Hobbit, use the year 5 camera to take photos of your tableaux. You must explain your tableaux explaining feelings and thoughts of each of the characters.

5. Create a PowerPoint or use Publisher to illustrate these themes in the novel: bravery, honesty, trust, friendship, respect and betrayal. Show how they are portrayed in the novel and give quotes from the novel to explain how they are shown.

6. Draw a Venn diagram to compare yourself with a character from The Hobbit. Which character are you most like and which character are you least like, explain your answers?

7. Draw a mind map for forests and a mind map for mountains, Identify the defining features of each.

COMPULSORY CHALLENGE 4

Using only a sandal, a leaf and a nail file describe how you would fend off wargs.

A Gaunt Live – Region 5

To pass safely through this region you must complete at least 2 tasks and the compulsory challenge.

1. How was the setting important in The Hobbit and how well do you think Tolkien created the settings. Give examples.

2. Rank the characters in order of who you think had the greatest impact, note their impacts. What if your highest ranking character had done nothing - how would this have changed the novel?

3. Choose an extract from the novel and draw an illustration from the descriptions given. Explain how well you think Tolkien creates an image with words he uses?

4. Look at the values demonstrated by some of the characters in The Hobbit. Write about each of the values and the characters that portray them. How do these values relate to you?

5. Timber and trees play an important role in The Hobbit, for what purposes are they used in the novel?

6. You have been asked to design a movie set for 2 scenes from the novel. Draw a labelled diagram of your set and explain how you would portray what is happening, what the characters are doing, what the characters are thinking, what they are saying?

COMPULSORY CHALLENGE 5

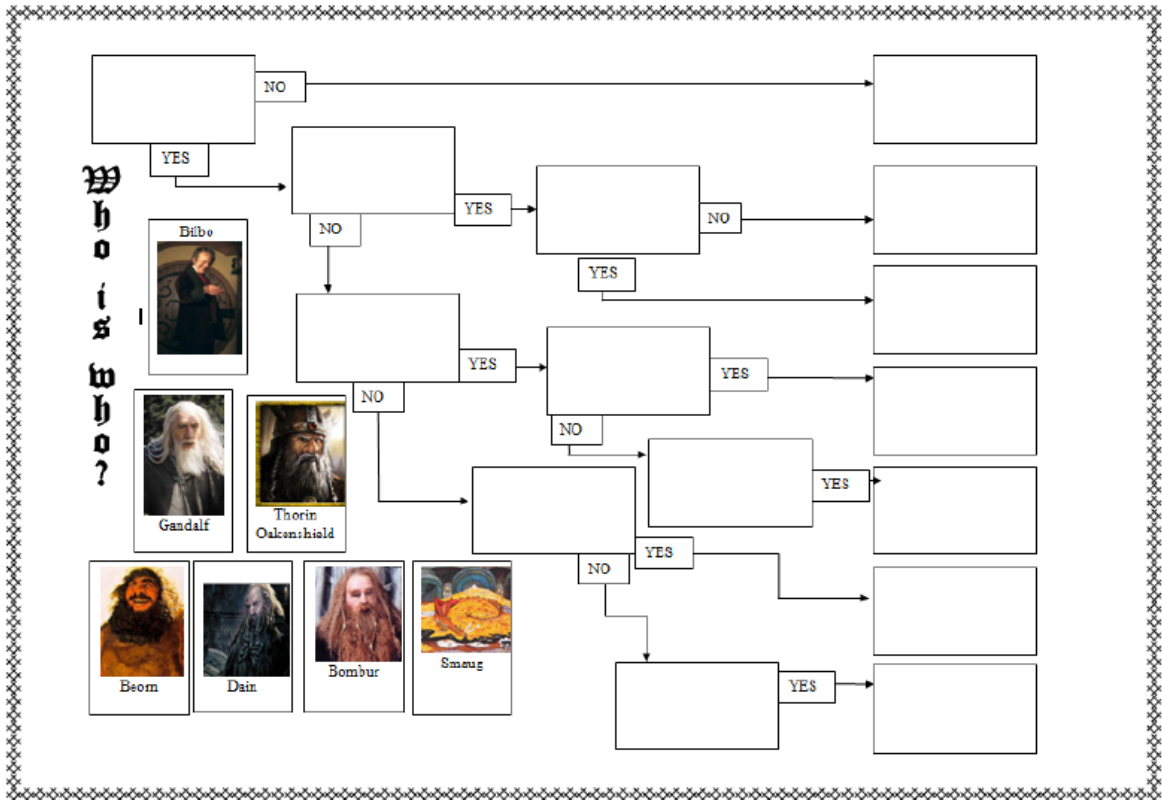What do you think might have happened if Thorin had not died after the battle?

1. Combine the features of three of the instruments that the dwarves played at "An Unexpected Party" to create a new, improved musical instrument.

2. Create a mind map of themes (see Yanga Nail task 5) showing how each theme is developed through the story. Annotate your mind map.

3. Imagine that you are Thorin: create an advertisement to attract possible adventurers to come with you on your quest.

4. Create a new outfit for each of the dwarves, Gandalf and Bilbo. Draw a coloured illustration of your designs and explain the colours and fabric used.

5. In the style of the songs in The Hobbit, write the lyrics to tell the story of an adventure that you have had.

6. Create a new character to star in The Hobbit. Write a profile for this character, explain their role and how they will affect the other characters and the story.

7. Bilbo was faced with many challenges, which he did not think that he could overcome. Create a collage to show how you feel when faced with difficult situations/challenges. Explain your collage.

COMPULSORY CHALLENGE 6

BAR The Hobbit, use the outline in the Adventurer's Handbook.

Ψ Now that you have read The Hobbit it is time to use your knowledge and understanding to complete a novel adventure of your own.

Ψ Your adventure will take you through six increasingly dangerous regions. In order to pass through each of Bloom's regions successfully you must select and complete a certain number of tasks and challenges. Each region has a compulsory challenge that must be finished before you are free to continue your journey.

Ψ As this is a magical adventure you may complete the tasks in any order but be warned that you will be unable to reach the end of your journey unless the correct number of tasks and challenges are finished.

Ψ With the aid of a crystal ball I am able to show you your journey so that you may be prepared for all obstacles that you may encounter, look closely at the following map to plan your adventure carefully.

Ψ You will begin your adventure today and will continue your journey over 11 English lessons.

Ψ **All adventurers must reach the Faerie Song by Monday 15ᵗʰ June** where you will be able rest and recuperate from your journey. Any adventurer that fails to reach the Faerie Song in time will suffer the wrath of the Adventure Master. Make a note of the date in your diary.

Ψ Over a few days following arrival at the Faerie Song each adventurer will present their compulsory activity from Ad Ends Turning Region and one other activity of their choice.

Ψ You must create a portfolio for **all** of your completed tasks and adventures. PowerPoint presentations must be printed off and included. The Adventure Master will assess this portfolio. The criteria that will be used for assessment is attached at the back of this handbook.

Ψ Each of the regions is an anagram. Work out what each region is called.

Ψ Good luck on your adventure, enjoy your journey and don't be late!

Words for Task 1, Region 1.

1. depredations
2. paraphernalia
3. flummoxed
4. benighted
5. droning
6. promontory
7. dubious
8. perilous
9. decrepit
10. radiance
11. presumption
12. dominion

Who is who?

Bilbo

Gandalf

Thorin Oakenshield

Beorn

Dain

Bombur

Smaug

NO

YES

YES

NO

NO

YES

NO

YES

YES

NO

YES

YES

NO

YES

NO

YES

What would you need to take on an adventure?

BAR The Hobbit

Bigger – Make something in the novel bigger, extend or enlarge it.

Add – Something new to the novel.

Replace – Something in The Hobbit.

Explain how your new adjustments will affect the story.

		AS	SS	HS	VHS
Grammar/Sentence Structure/Cohesion	Some meaning can be constructed and text is often confusing for the reader.	Meaning is mostly clear but text is, at times, confusing for the reader.	Meaning is clear but reader may have to occasionally re-read and provide own links to clarify meaning.	Meaning is clear and the text flows well.	Sentences express concise meaning and show continuity of ideas.
Punctuation	Some correct use of capital letters to start sentences or full stops to end sentences.	Some correctly punctuated sentences. Some noun capitalisation where applicable.	Correct sentence punctuation, no other punctuation used.	All sentence punctuation correct and mostly correct use of other punctuation.	Writing contains accurate use of all applicable punctuation.
Spelling	Correct spelling of most simple words, some common words.	Correct spelling of most simple words, most common words.	Correct spelling of simple words, common words and some difficult words.	Correct spelling of simple words and common words and at least 10 difficult words.	Correct spelling of all words, including at least 10 difficult words and some challenging words with suffixes, prefixes to words ending in *e, c or i*.
Presentation	Work is illegible. No thought has been put into portfolio.	Work is partly illegible and presentation is reasonable.	Work is legible and neatly presented.	Work is neat, legible and presented well in a creative manner.	Work is neat, legible and is presented creatively to the very best of the student's ability.
Time Management	Work is incomplete and/or handed in late	Tasks are complete but challenges incomplete and/or handed in late	Minimum number of tasks completed, all challenges completed and handed in on time.	Two extra tasks completed, all challenges completed and handed in on time.	More than two additional tasks completed, all challenges completed and handed in on time.
Knowledge and understanding	Student has demonstrated little/no knowledge or understanding of the novel or tasks.	Student has demonstrated some knowledge and understanding of the novel and tasks.	Student has demonstrated sound knowledge and understanding of novel and tasks.	Student has demonstrated thorough knowledge and understanding of novel and task	Student has demonstrated comprehensive knowledge and understanding of the novel and tasks.
Effort	Student has shown little or no evidence of effort.	Student has shown some evidence of effort.	Student has shown satisfactory evidence of effort.	Student has shown a high level of effort.	Student has shown an exceptionally high level of effort.

Appendix I - Creative Presentation Artefacts
Appendix I (a) Yr 7 Poem: A Window Looking In (23UA-A)

I am a window
Standing solemnly
Between two worlds looking in from the outside.

I am blinded by light
Bright as the morning sun
As peaceful as the fall of a single snowflake
More comforting than a mother's touch.

I see beauty in a way unknown to me.
All is in harmony.
Everything is fresh and new.
Innocence and purity lingers throughout.

I am on the outside.
Around me darkness forms
Darker than a starless night
More painful than a sharp blade.

The wind whistles with chaos and disorder.
A bird is washed out o flight,
The trees battle the storm
Struggling for life.

The silence soothes me.
The violent storm calms
Leaving me in quiet thought.
Life is renewed.

At times I wish I was looking out from the inside.
But when the commotion stops
I realise that this is my home
And here I must always remain.

Kelly, 18.2.2012

Appendix I (b) Student Submission for Taiwan conference

Students were asked to use any form of expression to show their reasoning for wanting to be included on an excursion to the Gifted and Talented Conference in Taipei. Submissions ranged from paintings to role plays, poetry, songs and mathematical equations.

A Year 8 canvas presentation appears below.

The canvas was painted to illustrate Australia and Taiwan then filled with flowing lines of Haiku. Twenty five students were taken to Taipei from a total of forty students in the two classes of ZEST at that time (24VA-A, 2006). Permission to publish granted 4.6.12

Appendix J: Health Promoting Schools framework

Model to build school connectedness (Rowe, Stewart, & Patterson, 2007) adapted from the original three-part Health Promoting Schools framework (WHO, 1996).

References

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