PROMISE UNFULFILLED:

ACADEMIC UNDERACHIEVEMENT IN CHILDREN OF HIGH INTELLECTUAL POTENTIAL

GAIL R BYRNE

March 2002

Submitted to meet the partial requirements for the Doctor of Psychology at Swinburne University of Technology
STUDENT DECLARATION

I, Gail Robyne Byrne, declare that:

This thesis contains no material which has been accepted for an award in any other degree or diploma, except where due reference is made in the text; and

To the best of my knowledge this thesis contains no material previously published or written by another person except where due reference is made in the text.

Signed,

Gail R Byrne

31 March 2002
ABSTRACT

As little Australian research exists on intellectually gifted children, or their achievement levels, the researcher aimed to identify and quantify underachievement in an Australian 'gifted' population. A further aim was to discover whether underachievers could be categorised by either particular learning behaviours, attitudes to schooling, family characteristics or by their own self-perceptions. An analysis of the interplay of factors which impacted upon achievement may lead to understanding some of the reasons why children who have an extraordinary potential to achieve scholastically do not; or why students who may espouse a love of learning might become disaffected by school. The research utilised a performance discrepancy formula for underachievement, asserting a student underachieved if their score on an achievement measure fell two or more stanines below the stanine of the student's IQ score.

Participants were children (N = 50) who had been previously tested on the Stanford-Binet (L-M) Intelligence Scale, (Terman & Merrill, 1973). The children had recorded IQ scores between 125 and 200 on the Stanford-Binet (L-M) (M_{IQ} = 142, SD = 14.1). All children were recruited from the Melbourne Metropolitan area, were aged between 9 and 14 years and were currently attending school as on-campus students.

Children completed a battery of testing which included the Progressive Achievement Tests in Reading Comprehension (ACER, 1985) and in Mathematics (ACER, 1997); The Learning Process Questionnaire; Mathematics Competency Test (Vernon, Millar & Izard, 1996); Coopersmith Self-Esteem Inventory (Coopersmith, 1981); Quality of School Life Scale (Ainley, Reed & Miller, 1986); Learning Process Questionnaire (Biggs, 1987) and two questionnaires designed by the researcher.

The incidence of underachievement in the intellectually gifted population was found to be 38%. Year 7 students were statistically more likely to underachieve than any other year level. Possible reasons for this were hypothesised in areas such as school structures, curriculum levels and student variables. Underachievers were found to utilise more Surface Approaches to learning and appeared to have failed to make the connection that personal effort equated to scholastic outcome.

Underachievers' parents, in comparison to the parents of achievers, reported their children as taking less care and being disinterested in reading. Families of gifted children, regardless of achievement level, recorded high levels of distress as measured by the Incongruence Scale on the FES. Families of achievers, more than underachievers, operated in an intellectual-cultural orientation. Children of high intellectual potential displayed higher levels of self-esteem and more school satisfaction than did children in the (normative) general population. Significant gender differences were noted with gifted boys experiencing school and their giftedness far more positively than gifted girls.
ACKNOWLEDGMENTS

One of the difficulties of researching intellectually gifted children in Victoria is locating such children. Without mandated testing in schools intellectually gifted children are not always known by their schools nor are they all in one central location, such as a school for the gifted. Therefore the researcher would like to acknowledge the invaluable assistance of the Children of High Intellectual Potential (CHIP) Foundation without whose assistance this research would not have been possible. Prof K.B Start established the CHIP Foundation in 1987. My profound thanks and deep respect go to Brian Start who has nurtured and guided my work in the CHIP area over more than a decade.

My thanks, of course, go to the fifty students and their families who shared their experiences with me. Many families, despite poor experiences in talking about their exceptional children, offered their children and themselves to this study because they believed they might make some small difference to the educational experiences of other CHIP everywhere. I hope you will not be disappointed.

Thanks go to my supervisor at Swinburne University of Technology, Dr Simone Buzwell, for all her assistance, her patience and her expertise.

My final and deepest thanks go to my husband and daughters.

More than anyone I know they understand why this work had to be completed.
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PREFACE
CHILDREN OF HIGH INTELLECTUAL POTENTIAL

Whether a student whose ability places them in the top five, three or one percent of the population achieves their potential is important. It is important to the approximately 35,000 Victorian students concerned; it is important to their parents, and, it should be important to their educators. As will be examined, by their very definition Children of High Intellectual Potential (CHIP) are exceptional and they require a curriculum that is differentiated to address their exceptional learning needs.

Meeting CHIP learning needs may involve changes to the pace of teaching, modifications to the depth and breadth of content and even advancement in the level at which the content is offered. To determine the scope of the curriculum changes an assessment of the student’s strengths and weaknesses in processing information, commonly known as an IQ test, must be undertaken. To this assessment should be added qualitative and quantitative information about the student’s actual performance on school-based tasks, known as achievement testing. Further information regarding the student’s learning behaviours, attitudes to schooling and differences in their learning experiences should also be obtained.

The role of research, such as the present study, is to inform students, parents and educators of the complex interplay between potential ability, actual performance and factors which impact upon achievement. An analysis of this interplay may lead to understanding some of the reasons why children who have an extraordinary potential to achieve scholastically do not; or why students who may espouse a love of learning might become disaffected by school.
This study had few Australian precursors; in seeking information about CHIP achievement levels, even fewer. With so little information about CHIP this study explores who CHIP are and what CHIP think about their schooling, their families and what they think about being CHIP. To study the achievement levels of CHIP has meant studying first how CHIP, overall, perform against the general school population and then to look for differences and similarities between achievers and underachievers in both the CHIP and general school populations.

The researcher aimed to identify underachievement and to explore whether it existed in the Australian 'gifted' population. A further aim has been to discover whether CHIP underachievers can be categorised by either particular learning behaviours, attitudes to schooling, family characteristics or perhaps by their own self-perceptions. To fully consider what it may mean to be an achieving or underachieving CHIP three areas needed to be reviewed (i) the identification and assessment of high intellectual potential, (ii) the nature of underachievement, and (iii) factors such as school, family, peers and the child's self-perceptions.

CHIP in Australia, and certainly in Victoria, are usually educated alongside their chronological age peers. Thus consideration of the impact and interplay of factors such as school, family, peers and self-perception cannot be made by reference to the CHIP population alone. Literature was reviewed with respect to three types of student populations: (i) the general student population; (ii) the 'gifted' population, and (iii) the differences between achievers and underachievers in the general and CHIP populations.

Following on from the literature review there is a methodological statement for the present study. The results of the study and a discussion of its implications then
follow. Finally a conclusion draws together those findings of particular interest and endeavours to profile a CHIP underachiever in a Victorian school and family.
CHAPTER 1: CHILDREN OF HIGH INTELLECTUAL POTENTIAL

1.1 Use of the Term ‘Children of High Intellectual Potential’ (CHIP)

A review of Australian educational journals during the 1990s by the present author and others (Robinson, 1999) reveals that few authors are comfortable with the use of the term ‘gifted’ to describe children whose abilities are beyond that which might be expected for a child of a particular chronological age. Given this discomfort, definitions of giftedness were expanded from a score on a test of intellectual functioning to include a number of gifts and talents beyond that of the intellectual (see definitions such as Marland Report, 1972; Tannenbaum, 1983). In the late 1990s most Australian State Governments held a broad view of giftedness and showed a preference for a non-psychometric definition to identify their most able students.


Avoidance of quantitative criteria could be considered to reflect a need to construct a definition of giftedness that would gain widespread acceptance by defusing criticism that the selection of ‘gifted’ children into differentiated educational programs was elitist by having a broad, non-testing basis.
In Australia, and Victoria, one model of giftedness which has been highly influential since the late 1970s (Braggett, 1984; 1988; Senate Select Committee, 1988) is based on the premise that there are three traits which characterise successful, outstanding individuals:

- above average though not necessarily superior general ability;
- task commitment or intrinsic motivation; and
- creativity

Renzulli’s (1978) definition seeks to identify successful and outstanding individuals but it has been used to identify ‘gifted’ children and has pervaded educational policy for twenty years (Braggett, 1984). It will be noticed that Renzulli’s (1978) ‘successful and outstanding individuals’ is reflected in Victoria’s current reference to high potential learners (Bright Futures, 1999). To use such definitions to identify giftedness is to preclude a number of children whose potential for learning is inhibited for any reason. Those who may not have displayed either task commitment, intrinsic motivation or who were not successful learners but who may have possessed high intellectual potential would have been excluded.

During the 1980s and early 1990s, when Renzulli’s (1978) impact was at its greatest in Victorian schools, a very narrow picture of giftedness existed. Even today in Victoria, checklists may fail to identify underachievers or those children who may be superior on tasks requiring convergent thinking whilst being low on creative tasks by virtue of being poor divergent thinkers. With task commitment and success inherent in any definition of giftedness underachieving students were – and still are - unlikely to be considered as candidates as CHIP. In the late 1990s in Australia, as in the 1970s and 1980s, there is little published research interest into learning-disabled gifted or underachievers.
The negative connotations and the limited definition of 'gifted' has led the author to adopt the term “children of high intellectual potential” (CHIP) in the place of ‘gifted’. This term was developed by Start (1987) to separate his work with Australian children of high intellectual potential from the implied elitism that seemed inextricably linked to the ‘gifted’ child in Australia. The use of the term CHIP focuses on the variable of intelligence. This focus allows researchers to separate intelligence out from abilities already recognised as specialist domains of study or performance in schools such as music, visual arts or sports. When the criterion is intelligence then inclusion and exclusion as CHIP can be tested.

A child of high intellectual potential is defined as being in the top five percent of the population. This child is likely to experience classroom learning differently from others and as such will require a special learning experience. The inclusion of the term ‘potential’ acknowledges that not all children who possess a high intellect will perform to a high level scholastically.

1.2 Intelligence Testing

The history of testing the variable “intelligence” in both children and adults has proved challenging. In the nineteenth century testing for various abilities was instigated by physicians in France such as Seguin (1866) whose work involved training mentally retarded persons and in England by Sir Francis Galton (1869), whose interest lay in the study of eminence and heredity. Galton devised tests of intelligence based on the belief that sensory discrimination could serve as a means of measuring intelligence and that there existed strong intellectual – and hereditable - links in families (Galton, 1869). Galton’s work was the inspiration for many later researchers (Eysenck, 1978), particularly the work of Terman (1925; 1947). As well,
influences can be seen in the work of Pearson (1901) who in mathematics sought to apply statistical analyses to test data, or in Cattell (1888) who was the first researcher to use the term 'mental test' whilst seeking to measure individual differences in ability.

It was Binet (1905) in France who was to devote many years to researching ways of measuring intelligence. In 1905 Binet and Simon developed the first scale which placed more emphasis on verbal items than upon Galton’s belief in sensory and perceptual items as indicators of high intelligence in children. Initially used to aid the identification of appropriate children for differentiated classes the Stanford-Binet Scale was extended to include the assessment of adults and is in its fourth edition: the Stanford-Binet IV (Thorndike, Hagen & Sattler, 1986).

Anastasi (1990) cites the internal consistency and test-retest reliability for the Stanford-Binet IV as high at all ages, ranging from .95 to .99. In terms of validity, Anastasi reports that “[t]he results of all factor analyses revealed substantial loadings of a general factor in all tests, thereby justifying the use of an overall composite score” (Anastasi, 1990, p 248). Correlations between the Stanford-Binet (L-M) (Terman & Merrill, 1973) and Stanford-Binet IV (Thorndike et al, 1986) were conducted showing a correlation of .81 on the composite score on the Fourth Edition (Anastasi, 1990). Thus the Stanford-Binet IV (Thorndike et al, 1986) provides test-users with a valid and reliable instrument with which to assess general ability in the general population. Despite this, as will be explained, its application in the assessment of CHIP is limited.

Whilst researchers at Stanford University were primarily interested in the assessment of ability in children, Wechsler’s (1955) interest was in the assessment of adults. Up until the 1950s adult assessment of intelligence had been restricted to
derivations of the Army Alpha and Army Beta tests developed during World War I (Otis, 1917) to select recruits with respect to general intellectual level. The Army tests were group based and at the conclusion of the First World War were released for civilian use. There was widespread enthusiasm in the US for the use of these tests and indiscriminate test use followed during the 1920s (Anastasi, 1990; Robinson, 1999). These group tests designed to select Army recruits failed to meet the expectations of employers and college selection panels who were seeking more sophisticated data. In failing to meet employer's needs the tests were labelled as ineffectual and time wasting and scepticism in the worth of psychological tests grew. In aiming to provide more sophisticated intellectual data Wechsler (1955) developed the Wechsler Intelligence Scales. An individual assessment for adults was first published as the Wechsler Adult Intelligence Scale in 1955. Successive revisions and the inclusion of appropriately designed tests for children see three tests in current use: the Wechsler Adult Intelligence Scale-III (Wechsler, 1997) (WAIS-III); the Wechsler Intelligence Scale for Children III (Wechsler, 1991) (WISC-III), and, the Wechsler Preschool and Primary Scale of Intelligence-Revised (Wechsler, 1989) (WPPSI–R).

The WISC was first developed in 1949 as an adaptation of the original Wechsler adult test but with items designed for school age children. The WISC-III (Wechsler, 1991) is suitable for children 6.0 years to 16.11 years. In the 1970s the WPPSI was developed to meet the requirement of assessing children as young as 3 years. Factor analyses of the WISC-III (Wechsler, 1991) have suggested the presence of four factors: Verbal Comprehension; Perceptual Organisation; Freedom from Distractibility and Speed of Information Processing. Correlations between Full Scale IQ on the WISC III and its precursor, the WISC-R, are cited as .89 (WISC-III Manual, 1991, p 198). Concurrent validity between the WISC-III and WPPSI-R is cited at .85
(Wechsler, 1989); between the WISC-III and SB-IV Composite Score is cited as .83 (Thorndike, 1986), and, the WISC-III and SB - LM IQ score as .82 (Sattler, 1988).

In Australia today, the WISC-III (Wechsler, 1991) is a well-validated and popularly used measure of intellectual functioning (Groth-Marnat, 1997). The use of the four index scales as well as the separate identification of Verbal, Performance and Full Scale IQ scores has provided psychologists and school personnel with a great deal of information. These multiple scores provide more information about the child’s intellectual functioning than the single IQ score of older measures such as the Stanford-Binet (L-M) (1973). The current edition of the Stanford-Binet (Stanford-Binet IV, 1986) has been adapted to resemble the Wechsler Scales in its structure of multiple scale scores. On the subtests of both the Stanford-Binet IV (1986) and the WISC-III (1991) as well as multiple levels of scoring, psychologists are encouraged to make comments on the child’s motivation and test-taking behaviour as insights into the personality of the child (Sattler, 1988).

As happened in the 1920s, once again in the 1960s and 1970s questions were raised about intelligence testing (Anastasi, 1990; Jensen, 1968; 1969). In the 1960s and 1970s questions concerned the validity and culture-fairness of tests of intellectual functioning. In the US this concern was driven in part by claims that intelligence tests were not culture-fair because they failed to identify giftedness in minority populations, especially in American blacks, in comparable numbers to whites (Jensen, 1968). Tests were developed to meet the perceived failings of the Stanford-Binet and Wechsler Intelligence Scales. Such tests began the trend of widening the definition of giftedness. Increasingly giftedness was moved away from intelligence and into the non-intellectual domains, where it resides today. One such test, a test to counter the ‘subtle racism’ (Garcia, 1981; Williams, 1974) of intelligence tests was the BITCH
(Black Intelligence Test of Cultural Homogeneity) (Williams, 1974). The BITCH was promoted as a culture-specific test on which blacks outperformed whites (Williams, 1974). Another example of the drive towards culture fairness in tests was reflected in the increased use of non-verbal measures and the preference towards group testing situations, thought to be less intimidating to minority cultures (Anastasi, 1990; Tannenbaum, 1983).

In the 1970s educational and occupational psychologists began to increasingly employ group-screening aptitude tests rather than conducting individual general ability tests (Anastasi, 1990). The increased popularity of group-screening aptitude tests appears to have stemmed from two sources: (i) the expediency and efficiency of testing whole classes of students and (ii) that aptitude testing was perceived as less inflammatory than IQ testing (Anastasi, 1990; Kaplan & Sarcuzzo, 1989). The assumption on which these new aptitude tests was premised was that non-verbal tests measured the same functions as verbal tests whilst being more culture fair. However, a growing body of evidence from the late 1960s suggests that non-language tests may be more culturally loaded than language tests (Anastasi, 1990). Both lower socio-economic and black groups have been shown to perform better on the Stanford-Binet than on either the Raven's Progressive Matrices (Raven, 1983) or Cattell's Culture Fair Intelligence Test (1960). These better test performances were noted despite both latter tests being non-verbal and both being considered to be culture-fair (see Anastasi, 1990; Jensen, 1969; 1980a; b; for an overview of cultural bias in testing).

Group and aptitude tests, unlike individual instruments, often rely heavily on skills in reading and following directions and concern has been expressed (Start, 1987; Whitmore, 1980) that these group tests resemble achievement tests and may not accurately identify all CHIP. The learning-disabled CHIP, the minority student or the
underachiever may all fail to be accurately identified as CHIP on these tests as they often require reading and understanding, do not actively engage the child, and, resemble school tasks in their structure.

Since the 1970s there has continued to be a move away from the singular importance of an IQ test score as the indicator of giftedness and multiple definitions of ‘giftedness’ have gained favour (Byrne, 1994; Cronbach, 1978; Ebels, 1975; Feuerstein, 1979; Jensen, 1980 a; b; Murphy & Davidshofer, 1988a). These broad definitions de-emphasised the intellectual domain by elevating the importance of areas such as psychomotor skills (Marland, 1972). Domains such as the psychomotor were considered as areas where minority groups might be able to be represented in numbers greater than when they were being assessed on ‘narrowly’ focussed IQ tests. There was a need at this time to ensure that gifted programs in the US especially, could not be labelled as middle-class White Anglo-Saxon Protestant (WASP) programs (Tannenbaum, 1983). This need appears to be continuing (Tannenbaum, 1999).

In the US, it appears that public and professional belief in the ability of intelligence tests to accurately measure cognitive functioning in a valid and culture-fair way has swung pendulum-like reflecting broader political agendas of the day (Tannenbaum, 1999). As the need to increase minority representations in gifted programs increased, rigorous assessment techniques waned in favour of broader criteria. As Tannenbaum (1983) commented the public acceptance of the gifted has also swung like a pendulum keeping time with the political agenda.

In Victoria during the late 1990s and the beginning of the 21st century the climate is primarily an anti-testing one. Assessments of intellectual functioning are undertaken to ensure low functioning students are adequately provided for. Testing of
students of high intellectual functioning, however, is discouraged. The pervading definition of ‘giftedness’ is not necessarily attributed to high intelligence but rather to non-intellective data and the student’s performance on school-based tasks (Bright Futures, 1995; 1999).

The limitations of school-based and group testing must be acknowledged, particularly in the identification of CHIP. Unlike group tests an assessment on the Stanford-Binet or Wechsler Intelligence Scales requires little reading and holds little similarity to school-based tasks and the child being tested is engaged by working one-on-one with the psychologist. As well, an assessment that does not resemble school activities can engage children who have previously been disengaged in their schooling, such as the underachiever. Individual tests of cognitive functioning are preferable to identify CHIP and CHIP underachievers. However, as will be shown, individual assessments may also prove problematic in the assessment of certain CHIP.

1.3 The Identification of CHIP

Journal articles on ‘gifted’ populations during the 1980s and 1990s utilised many definitions and labels to describe gifted individuals. The difficulty of comparing studies of ‘gifted’ children stems, in part, from these many definitions primarily in regard to intelligence. Of difficulty, too, is an assumption of homogeneity in the ‘gifted’ population. Differences between moderate and profoundly gifted individuals are known to exist (Dabrowski & Piechowski, 1977; Gross, 1993; Hollingworth, 1942; Silverman, in press; Terman, 1925; Webb, Meckstroth & Tolan, 1982). Profoundly gifted children who score in excess of IQ 160 have been shown to experience more difficulties in accepting their giftedness than their moderately gifted peers and in blending with chronological age peers (Gross,
1993; Hollingworth, 1942). To consider a child of IQ 160+ as directly comparable to a child of IQ 130 may be quite fallacious and as inappropriate as the comparison between a child of IQ 40 who may be institutionalised and the child of IQ 70 who is educated in a mainstream school. As well, there is further difficulty in studies that fail to account for differences in learning experiences and learning behaviours of subjects. Again, homogeneity of the ‘gifted’ may fail to take into account achievement and underachievement.

Further confusion of terminology in ‘gifted’ studies may result in the use of the ‘umbrella’ term “gifted and talented”, commonly referred to as TAG or “G&T” in US studies, to describe their participants. An abundance of terminology from which authors may choose may mean that some authors have not only considered all gifted children as being the same but may have considered creative and scholastically able individuals as being similarly ‘gifted’ when identifying subjects for their samples. That gifted and creative is sometimes considered as synonymous can be demonstrated by reference to a quote from Torrance (1965)

...the roots of emotional difficulty in the gifted child stem from the inevitable pressures that are exerted against the expression of creative needs and abilities. ... the highly creative child must either repress or sacrifice his creativity, or learn to cope with or reduce the tensions that arise from being so frequently a minority of one. The resulting loneliness may drive some gifted children to great achievements, but the more frequent result is underachievement, apathy, withdrawal, violence, delinquency, and/or mental illness

cited in Whitmore, 1980, p 149

Whilst a clear definition of CHIP was provided in Section 1.2 it would appear that terms to consider the differing levels of ‘giftedness’ may be necessary to avoid inappropriate comparisons of gifted individuals. The use of terms to describe differing levels of ability is not merely a need of the gifted population for the use of such differentiating terms has long been used for children in special needs
populations. The manuals of tests of cognitive functioning such as the WISC-III (Wechsler, 1991) use various terms to distinguish children of differing IQ. Children, as an example, are considered to be ‘borderline’ (meaning bordering on the scores which designate mental deficiency) at 70 to 79 IQ (WISC-III Manual, 1991) or mentally deficient at 69 IQ and below (WISC-III Manual, 1991). ‘Mentally deficient’ replaces the term ‘retarded’ which has fallen from use (American Psychiatric Association, 1987). Yet another term, ‘profoundly’ intellectually deficient is utilised to indicate extreme deficiency. In this case the scores on a test of cognitive functioning fall below 40 IQ – a score which is about four deviations below the mean on an assessment such as the WISC-III (Wechsler, 1991) or the Stanford-Binet IV (Thorndike et al, 1986). By recognising differences between the level of ability and labelling such levels those working in the field are provided with a descriptor which suggests a set of behaviours and expectations.

Labels can be utilised to clarify discussions of gifted individuals. Wechsler (1991) utilises the term “Very Superior” (WISC-III Manual, 1991) to describe children scoring at 130 IQ and above. With poor differentiation beyond this level on the Wechsler tests, Wechsler (1991) offers no suggested labels for children who score higher than IQ 130. However, it is possible that children will score beyond three or four standard deviations from the mean on instruments such as the Stanford-Binet (L-M) (Terman & Merrill, 1973), which discriminates at higher levels of intellectual functioning than the Wechsler Scales. Children scoring at 145 IQ (three standard deviations from the mean) on the Stanford-Binet (L-M) (1973) are considered in the literature to be “moderately” gifted, whilst those at 160 IQ (four standard deviations from the mean) are known as “profoundly” gifted (Gross, 1993). The term ‘genius’ when utilised in the gifted literature appears to refer to a score around 160 IQ but is
most often utilised in studies of eminent adults in specific fields (Albert, 1980; Bloom, 1985; Cox, 1926; Goertzel, Goertzel & Goertzel, 1978).

It is not surprising, therefore, that studies seeking to make comparisons between gifted individuals or studies between the ‘gifted’ and the ‘general’ population can show conflicting results. In any study, as well as considering the different definitions and levels of giftedness, so must the reader also consider the location of the study. A child might be considered as gifted in a Victorian study if they are in the top 15% of students (Bright Futures, 1995) which equates to an IQ 115 on a test such as the WISC-III (Wechsler, 1991). However, such a child will not be considered as gifted in most US States or in Britain, which require a minimum score of 130 IQ (or top 3% of the population) for entry into US gifted programs (Marland Report, 1972).

The emphasis upon a ‘number’, that is a particular IQ score, to be called ‘gifted’ and to subsequently be eligible for gifted programs, has never been in favour in most Australian States. A review of State Policy documents such as the current Victorian document, Bright Futures, 2000 - 2005, (1999) suggests that rather than a single criteria such as IQ score being required for entry into gifted programs other selection methods are preferred. Such selection methods and their current usage include

...Teacher nomination (80 percent of schools who have a process), School marks/CSF levels (50 per cent) Parent nomination (47 per cent) and Achievement testing (37 percent).

Other methods used in secondary schools were by self-nomination (30 percent) and interviews (29 per cent) whereas in primary schools student portfolios (26 per cent) and LAP/GAT results (22 per cent) were used. Many used the Bright Futures gifted criteria checklist...


This Bright Futures document suggests that in 1998 more than 70% of Victorian schools had a process in place for identifying new ‘gifted’ students and
cited the most common identification methods in primary and secondary schools as teacher nomination. Without supporting individual testing, teacher nomination and other nomination methods would fail to identify underachievers or the learning disabled. The Victorian Government's Bright Futures: A Guide for Strategic Action to Support Gifted Students 2000 – 2005 (1999) currently has no official status; a change of government in Victoria has seen the document 'shelved' and, as yet, not replaced.

The nomination methods referred to in Bright Futures have also come to be used in the US (Gross, 1993; Silverman & Kearney, 1992). As was noted in Section 1.2, the broadening of criteria for entry into gifted programs since the 1970s may be considered as an attempt to counter the under-representation of minority groups in gifted programs thereby defusing allegations of elitism. However, the broadening of the selection criteria into CHIP programs, the collection of non-intellectual data and the use of group testing methods has been noted to be often at the expense of the accuracy of the assessment as CHIP (Benbow & Stanley, 1997; Silverman, in press; Silverman & Kearney, 1992a; b; Whitmore, 1980). Whitmore (1980), as an example, cites an underachieving student who scored an IQ of 85 on the California Test of Mental Maturity (a group aptitude test) but 170 on the Stanford-Binet (L-M) (Terman & Merrill, 1973), an individual assessment. Other psychologists note instances where group tests may depress scores between 40 - 100 IQ points (Silverman & Kearney, 1992b).

The use of group tests, aptitude or scholastic tests as a selection basis into programs may well fail to identify the very children for whom the program was designed. Thus, many researchers persist in conducting and in giving credence to the results of individual intelligence tests because
[as much error as individual intelligence tests may contain, they are far more accurate and useful in the identification process than are group aptitude tests or teacher nominations. Many studies have demonstrated that teachers are inclined to nominate as gifted those children who are striving, conforming high achievers and to discount the possibility that those who are not such “good students” might be gifted in academic potential.

Whitmore, 1980, p 62

It seems that researchers persist in supporting individual assessments of ability because for all their inherent problems the assessment provides more accurate identification of ‘gifted’ individuals than the alternatives of group testing or subjective nomination of an individual into such programs.

Some psychologists who individually assess children to ascertain their level of intellectual functioning have expressed concern regarding the assessment instruments most widely in use (Kaufman, 1992; Osborn, 1995; Silverman & Kearney, 1992 a; b). Both the WISC-III (Wechsler, 1991) and the Stanford-Binet IV (Thorndike et al, 1986) have been criticised as having ‘ceilings’ which are considered too low to identify children whose abilities place them near to IQ 140 and above (Silverman & Kearney, 1992). The WISC-III (Wechsler, 1991) standardisation sample included 38 gifted children with mean Verbal IQ (VIQ) and Performance IQ (PIQ) scores of 128 and 125 points, respectively. Five of these 38 children obtained Full Scale scores of less than 120 on the WISC-III; the remainder averaged 128 points (WISC-III Manual, 1991). On this finding, the average IQ score of the WISC-III’s gifted sample would fail to meet the requirements for entry into a Gifted Program in most, if not all, American States which have an entry point of IQ 130 (Marland, 1972). Hagen (1986), one of the constructors of the Stanford-Binet IV (Thorndike et al, 1986) responded as to why such poor differentiation occurs at the highest (and lowest) extremes of an ability measure such as the Stanford-Binet IV,
The compromise is to produce an instrument that is most effective in the range of ± 4 s.d's; therefore you can’t use tasks that are successfully completed by 99.99 percent of an age group or that are failed by 99.99 percent of an age group. In the construction of the Binet (Revision IV) I was working with some non-verbal items that could only be solved by children who were in classes for the gifted. You can’t put items like that in an intelligence test...

Hagen, cited in Silverman, 1986b, p 171

Due to the poor differentiation at the highest levels of ability the WISC-III (1991) and Stanford-Binet IV (1986) are considered by some who assess for CHIP to no longer be appropriate and reliable measures of CHIP (Kaufman, 1992; Osborn, 1995). Certainly, doubt has been expressed not just at the higher levels of ability (for example 160+ IQ) but even at the ‘moderate’ level (145+ IQ) as some children exceed the capabilities of the individual subtests, or ‘hit the ceiling’ of one or more subtests. Silverman & Kearney (1992a; b) draw the analogy between measuring for giftedness and measuring for height: if a six-foot tape measure is used it cannot be said how much taller than six foot someone is, simply that they are.

In Victoria, assessments conducted by the CHIP Foundation utilise the Stanford-Binet (L-M), (Terman & Merrill, 1973). Psychologists who assess for ‘intellectual giftedness’ at the CHIP Foundation comment that the WISC-III (1991) has been consistently shown to be inadequate at ascertaining the highest levels of general ability and only the Stanford-Binet (L-M) differentiates at the higher levels of many CHIP children (Start, 1990; 1996; 1999). Hagen (1986) (cited in Silverman, 1986b) may “compromise” (p 171) in differentiating IQs above of 140 based on the scarcity of applicable children. However, the inability to differentiate on the WISC-III and the Stanford-Binet IV denies the very different provisions which are required once the CHIP is identified as having IQ 140 or IQ 180 (Gross, 1993; Hollingworth, 1942; Silverman, in press).
Some psychologists attempting to identify CHIP populations using the WISC-III tend to look for characteristic patterns of certain subtests that form a distinctive profile. Fishkin, Kampsnider and Pack (1996) analysed children’s performance on the WISC-III with its precursor, the WISC-R. Fishkin et al (1996) confirmed prior studies on the WISC-R (Wechsler, 1974) and concluded that gifted children displayed significant subtest deviations upwards from the mean on the WISC-III on Similarities, Comprehension and downwards from the mean on Coding. However, whereas the WISC-R’s Block Design subtest had been considered a reasonable indicator of giftedness scores on the WISC-III’s Block Design were lower than might have been expected (Fishkin et al, 1996). Confirmation was obtained that a discrepancy between verbal and performance IQ was likely especially when one index score was greater than 130 and especially so when the verbal IQ was higher. Fishkin et al (1996) recommend consideration of the Verbal Comprehension Index as a better indicator of giftedness than the Full Scale IQ score because it is less affected by speed of performance. The profile of scores outlined above may be considered more reliable than the single Full Scale IQ score in defining CHIP (Brown & Yakimowski, 1987; Fishkin et al, 1996; Kaufman, 1992; Wilkinson, 1993).

Other psychologists have (re)turned to the Stanford-Binet (L-M) as the preferred assessment instrument to assess for giftedness for those children who score at or near the ceiling on two subtests on the WISC-III (Silverman & Kearney, 1992a). The Stanford-Binet (L-M) (Terman & Merrill, 1973) although dated and currently without revised norms, allows identification above 170 IQ with extrapolation and allowance for population intelligence shifts up to IQ 200+ (Pineau, 1961). The Stanford-Binet (L-M) (Terman & Merrill, 1973) thus offers the most accurate instrument in the identification of high intellectual potential.
An accurate individual assessment is critical to identify CHIP and to provide the best objective estimate for predicting an individual’s future performance (Kerr, 1991; Rimm, 1986; 1991; Whitmore, 1980). The WISC-III (Wechsler, 1991) and the Stanford-Binet IV (Thorndike et al, 1986) fail to distinguish with accuracy children at the highest levels of ability. Although dated, the Stanford-Binet (L-M) (Terman & Merrill, 1973) is, drawing upon Silverman et al’s (1992a; b) analogy, the longest ‘tape-measure’ for CHIP.

1.4 CHIP in an Australian Context

The difficulties faced in researching CHIP in an Australian context, and especially in the State of Victoria, seem to be rooted in the discomfort of many Australians with the term ‘gifted’ (Senate Select Committee, 1988). Even outside an educational context Australians display ambivalence towards Australia’s brightest (Feather, 1991; Senate Select Committee, 1988; Standing Committee on Finance and Public Administration, 1989). As a nation Australia is known for what is termed the “Tall Poppy Syndrome” a desire to topple the brightest and the best from their pedestals (Feather, 1991). Despite this ambivalence towards their ‘best’, Australians display little hesitation in using the adjective ‘gifted’ in relation to sport, and to a lesser extent in relation to music and art. The term ‘elite’ athlete is a positive and desirable label (Going for Gold, Standing Committee on Finance and Public Administration, 1989). However in the context of intellectual ability, ‘gifted’ exists as a perjorative term and ‘elitism’ as something to be discouraged in classrooms and schools (Senate Select Committee, 1988).

Indeed, the Senate Select Committee (1988) found that in Australia intellectually able children might be faced with a hostile and anti-elitist environment
both in school and society. Public statements by the Australian Teachers Federation President such as, “We’re not anti the gifted and talented - just the allocation of resources to them” (Foggo, 1990, p 48) have been quoted in National newspapers and magazine articles. The public outcry can only be imagined if the term ‘integration students’ had been used instead of ‘gifted and talented’. Aides in classrooms support integration students who are defined by their low functioning. In Victoria, the level for funding support for integration aides for intellectually-challenged students commences at 70 IQ (or two standard deviations from the mean) as measured on an instrument such as the WISC-III (Wechsler, 1991) (Commonwealth Department of Education, Science and Training, (DEST), 1996). However, for the similarly out-of-the-ordinary CHIP whose scores may vary by two deviations from the mean (130 IQ on the WISC-III) there is no mandated requirement for support. The logic of population distribution suggests that CHIP may be considered to be as different from their peers as the intellectually challenged child is from theirs. Many CHIP and their parents learn quickly that public acknowledgment for the vulnerability and special needs of their child is a rare commodity.

Representatives of the Victorian Ministry of Education and spokespersons for Teacher Unions have denied the differentiation of education for CHIP on the basis of elitism and in the words of a senior administrator in the Ministry for Education “[h]elping the gifted overlooks and devalues the excellence that is inherent in everyone” (Turner, cited in Boag, 1990, p 49). As Start (1990) retorted, “does helping the deaf also devalue the hearing?” In failing to provide state or nationwide programming for CHIP, Australia as a nation communicates ignorance and indifference at best, and hostility, at worst, to this group of individuals (Alsop, 1994; Byrne, 1993b).
In many Victorian schools, there has been widespread and enthusiastic acceptance of Multiple Intelligence Theory (Gardner, 1985) as a means of working with ‘gifted’ students (Bright Future Policy Document, 1995). Gardner's (1985) theory considers all children are gifted and relegates intellectual giftedness as a variant of a giftedness that is available to all. In suggesting all children are gifted in some way the need to assess and then offer appropriate educational provisions for children displaying extra-ordinary abilities is thereby reduced if not negated. In the second Bright Futures document (1999) concern was expressed that many teachers utilised such a theory for all students without differentiating the curriculum for CHIP (Bright Futures: A Guide for Strategic Action to Support Gifted Students 2000 – 2005, 1999).

It should be recalled that there are no mandated testing requirements in Victoria and there are no schools for the ‘gifted’. Upon confirmation that a child is a CHIP, therefore, the school and a psychologist should ideally conduct achievement measures to determine the level at which the CHIP is functioning in the classroom. A decision about appropriate grade placement or other interventions could then be made based upon this information.

In Australia, however, birth date continues to be the major deciding factor on grade placement, both at entry and later years, irrespective of the level of functioning demonstrated by the achievement levels of the child (Senate Select Committee, 1988). CHIP parents report that whilst their child might have been formally assessed as a CHIP and may even have been achievement tested to determine the child’s level of functioning in the classroom many CHIP are offered material which is undifferentiated from that offered to their classmates (Alsop, 1994; Byrne, 1993b).
This appears true even if achievement testing suggests that the material presented may already be known by the child (Byrne, 1993b).

A number of school spokespersons across the three major school systems (State, Independent and Catholic) assert that CHIP are offered a range of programs in their schools (Bright Futures, 1995; 1999; personal communication, Catholic Education Office, 1999; Association of Independent Schools of Victoria, 1999). However, perusal of such programs shows that students (not necessarily formally assessed as CHIP) are offered ad hoc workshops of perhaps one school period per week for a duration of five weeks to one term (Alsop, 1994; Byrne, 1993b).

The distinction between programs and provisions was first drawn by Tannenbaum (1983) and Victorian 'gifted' programs are considered as being almost exclusively provisional in nature (Start, 1990; Tannenbaum, 1999). An examination of many programs in the three Victorian school sectors highlights them for the provisions they are. Although called 'programs' by the schools, parents report their children are, in actuality, offered 'provisions' and express their concern for the inadequacy of these in meeting the long-term educational needs of their children (Byrne, 1993b). A 'program' sits within the curriculum (such as an English course) and a 'provision' such as an enrichment unit is added on to the curriculum and may be withdrawn in a time of budgetary restraints.

The Commonwealth Government, as well as failing to mandate testing, has failed to mandate a differentiated follow-on educational program for identified CHIP. Without such a mandate at the Commonwealth level, there is no obligation at a State Government level to meet the educational needs of identified CHIP. The message such educational neglect sends to CHIP is that there is no need to learn anything
because in the words of the President of the Australian Teachers Union, “Teachers are not in school to make bright children brighter” (Grant, 1989, p 21).

However, in Australian schools, teachers are required to assist children struggling in class to “achieve their potential” (Victorian Ministry of Education Ministerial 6, 1986). Indeed, it is struggling students who are more likely to be referred to psychologists for intellectual assessments. In Australia, as in US, once these children are tested there exists a mandate for differentiated educational provisions for those who are found to be intellectually-challenged (DEST, 1996). This mandate ensures that schools offer the intellectually-challenged student a modified curriculum targeted to their specific needs based upon the psychoeducational assessment. This targeted program offering modified curriculum is known as an Individual Education Program (IEP). In Australia, depending upon the level of cognitive impairment integration aides for intellectually-challenged children may be partially or fully funded through State and Commonwealth Government departments (DEST, 1996) and integration aides work to help the child achieve the targets as outlined in the IEP.

1.5 How Many CHIP are Identified?

Utilising the definition of CHIP as the top 5% of the population (Section 1.1) approximately 35,000 students across both Primary and Secondary Victorian schools may be considered CHIP (Ministry of Education Census Data 1999, personal communication). Statistically it might be expected that there is this number of CHIP present within Victorian schools. However without compulsory testing of all students on tests of cognitive functioning the number of formally assessed CHIP will be less
but how much less is unknown. As no public records exist as to the number of children who are assessed as CHIP only limited private records can be sourced.

The Victorian Ministry of Education publishes a list of a small number of registered and preferred supplies of services in the gifted area (Bright Futures, 1995; 1999). Since 1987 the CHIP Foundation, one such registered provider, has existed to identify and meet the needs of Children of High Intellectual Potential in Victoria. As the largest and the oldest independent service in Victoria it is likely that the number of assessments conducted by the CHIP Foundation represents the source of the greatest number of assessments conducted in Victoria.

The CHIP Foundation has assessed a total of 1,100 students whose score would place them in the top 5% of children (Start, 1998, personal communication) on the Stanford-Binet (L-M) (Terman & Merrill, 1973). To the CHIP Foundation’s figure must be added the number of assessments conducted by other Ministry registered providers, other private psychologists and school psychologists and a margin for error should be added to this figure.

The number of practising psychologists is not easy to determine and many specialties exist such that the greater majority of psychologists do not conduct psychological assessments at all (The Australian Psychological Society, 1999, personal communication). The telephone directory for Metropolitan Melbourne lists approximately 1000 psychologists. Irrespective of specialty, if each Melbourne psychologist were to conduct one child assessment per week and if ten percent of those children assessed recorded scores over 125 IQ, or the top five percent of the population, approximately five thousand students would be identified as CHIP. The CHIP Foundation’s figure of approximately 1000 assessments when added to this figure gives a total of some 6000 CHIP students.
Considering that five percent of all Victorian students is 35,000 children, the extrapolation of 6000 students equates to less than 17% of the CHIP statistically Victoria could be expected to have. Therefore, in a small Victorian secondary school of 500 students some 25 students may be expected to be placed in the top 5% of general ability scores. At present it is likely that only five of them are recognised as CHIP and have been formally assessed. This hypothetical account seems to support the rule of thumb utilised by many educators working with CHIP: that Victorians identify only about 20% of CHIP in their schools.
2.1 Underachievement - Definition

Underachievement can be defined as a discrepancy between expectation and performance (Tannenbaum, 1983). Expectation may be embodied in the score a student attains on an individual ability measure, such as the Stanford-Binet Scale or Wechsler Intelligence Scale. A student’s performance might be considered to be poor if it falls below a set grade, may be lower than grades previous attained, or, if there is a discrepancy between the known ability level and the current performance level. The performance level may be measured by an instrument such as the WIAT (Wechsler Individual Achievement Test, (Wechsler, 1993)) or the OLSAT (Otis-Lennon School Achievement Test, (Otis & Lennon, 1989)), or, in an Australian context, the Progressive Achievement Tests (ACER, 1985; 1997).

2.1.1 Underachievement - Measurement

In the late 1990s, almost all US research on underachievement measurement used a discrepancy-formula between Grade Point Average (GPA) and tested ability (Supplee, 1990). In the US context where students are routinely tested on both ability and achievement measures, underachievement can be mathematically confirmed and the underachiever clearly identified. In Australia such mathematical confirmation of underachievement is not possible given the absence of Grade Point Averages and mandated testing. To accept as accurate the assertion by a teacher, parent or student that underachievement is present may be insufficient given the lack of objectivity and possible lack of consensus in such an assertion. Further, without some form of
objective, quantifiable data as confirmation there is the difficulty of comparisons between students who have been labelled underachievers.

In Victoria, quantifying underachievement remains difficult. School-based testing of students may not occur until the penultimate year of secondary schooling. Thus achievement and underachievement may well remain subjective concepts prior to the completion of secondary school. Even in the final years of secondary schooling, no Australia-wide examination exists along the lines of the American Scholastic Aptitude Tests (SATs), nor do Australian Colleges and Universities utilise the Grade Point Average system for students’ achievement reporting. Indeed, it is explicit within Ministerial 6 (Victorian Ministry of Education, 1986) that no student’s performance is to be evaluated against that of another student. Such an edict makes both identification and confirmation of underachievement in all students difficult and, often, subjective. The difficulties with identification and confirmation of underachievement exist for all students but perhaps more so for Victorian CHIP.

Despite any Australian difficulties, in US studies the discrepancy between expectation and performance might be considered as the most common conceptual definition of gifted underachievement (Baum, Renzulli & Hébert, 1995a; Dowdall & Colangelo, 1982; Whitmore, 1980; Wolfe, 1991). A small group of researchers make no attempt to specifically define underachievement (Richert, 1991; Rimm, 1997a) with Rimm (1997a), as an example, considering underachieving students as “students [who] are not working up to their ability in school” (p 18). However, many researchers have worked towards operationalising CHIP underachievement (Colangelo, Kerr, Christensen & Maxey, 1993; Gowan, 1955; 1957; Green, Fine & Tollefson, 1988; Krouse & Krouse, 1981; Supplee, 1990) and utilise discrepancies between IQ score and achievement test scores as the criterion for underachievement.
Where an ability score is known and where an achievement test is conducted, by definition a negative discrepancy can be regarded as an indicator of underachievement. The difficulty in determining underachievement in the CHIP population is that the achievement test usually records performance utilising norms which pertain to the child's current grade level. Whether it is satisfactory for CHIP to perform at their grade-for-age class level when their potential indicates they may be functioning as well, or even better, than children in a higher class is worthy of question. Discrepancies between a child's potential as indicated on a test of cognitive functioning and a child's performance as measured by school and teacher reports have been the concern of many parents and teachers of CHIP (Alsop, 1994; 1998, personal communication; Byrne, 1993b). CHIP may, or may not, achieve at even an average level in school. A key aspect of the acronym CHIP is potential, for such potential may not be realised, resulting in what is known as underachievement. It appears no Australian research has addressed the question of underachievement in formally assessed CHIP (personal communication, Ministry of Education, 1999). It is an area only rarely addressed even in single case studies in Australia (Gross, 1993).

Thus, in arriving at a definition of CHIP underachievement that could be operationalised for the present study, the researcher utilised the student's IQ score as measured on the Stanford-Binet (L-M) (Terman & Merrill, 1973). The stanine of this score was compared to their actual performance on two achievement measures in Reading Comprehension and Mathematics utilising norms for the student's current year level. Underachievement was evidenced when the result on the achievement measure of Reading Comprehension, Mathematics or both was at least two stanines lower than their IQ score. This definition has been used previously (Supplee, 1990). A stanine converts any set of scores into a transformed scale, standardised to have a
mean of 5 and a standard deviation of approximately 2. For every 100 scores the
lowest 4% of cases fall in the first stanine; the highest 4% in the ninth stanine; the
next 7% of cases fall into the second and eighth respectively (Kaplan & Saccuzo,
1989).

The key learning areas of Mathematics and Reading Comprehension were
examined as these two areas were able to be assessed by tests which appeared to be
popularly in use in Australia as achievement instruments (ACER, 1999, personal
communication).

2.2 Types of Underachievement

Many researchers conceive of underachievement as a homogenous construct
and little emphasis appears to have been placed upon whether different types of
underachievement exist. However, a handful of researchers (Sellin & Birch, 1981;
Tannenbaum 1983; Whitmore, 1980) have considered that there may be different
types of underachievement. These different types may contribute to why research into
the causes and concomitants of underachievement results in findings that are often
inconclusive. It has been suggested that there may be up to five types of
underachievement: Natural, Covert, Overt, Situational and Chronic although these
types are not always clearly discriminated and overlap between the types can be
observed (Sellin & Birch, 1981; Tannenbaum 1983; Whitmore, 1980).

2.2.1 Natural Underachievement

Natural Underachievement is defined by the difference between the rapid rate
of cognitive development and the slower acquisition of life experiences in a gifted and
talented child. In the 1990s certain aspects of this type of underachievement are
acknowledged as the ‘asynchrony’ of the gifted child, as in the Columbus Group
definition (1991) of giftedness,

Giftedness is asynchronous development in which advanced cognitive abilities and heightened
intensity combine to create inner experiences and awareness that are qualitatively different
from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness
of the gifted renders them particularly vulnerable and requires modifications in parenting,
teaching and counseling in order for them to develop optimally.

The Columbus Group, 1991

In considering giftedness to be “asynchronous development” all gifted children, by
definition, might be considered to experience some degree of Natural
Underachievement.

To explain Natural Underachievement Sellin and Birch (1981) used an
element of a 10 year-old CHIP with an IQ of 140 who has mental age – or level of
cognitive development – of 14 years. A child’s Mental Age is obtained through the
formula:

\[
\text{Mental Age (MA)} = \frac{\text{Intelligence Quotient (IQ score)} \times \text{Chronological Age (CA)}}{100}
\]

(adapted from Binet’s (1905) original formula)

Sellin and Birch (1981) assert that it would be unreasonable to expect the 10-year-old
to behave cognitively like the average 14-year-old. They explain,

[There are physiological differences, differences in both quantity and quality of experience,
differences in personal and social expectations by and of others, and differences in self-
perception and self-concept. Thus some shortfall in achievement if the criterion is mental age
seems “natural”.

Sellin & Birch, 1981, p 77
Sellin and Birch (1981) suggest that the degree of acceptance for the shortfall would be three-quarters of the difference between chronological age (CA) and mental age (MA) in the academic/cognitive domain. The shortfall would be two-thirds of the difference between CA and MA in the social/affective domain and one-fourth of the difference between CA and MA in the motor domain. Justification for these shortfall ratios is not provided. Using the above formula an achievement expectancy age may be computed. To continue Sellin and Birch’s (1981) example:

Take three-fourths of the difference between chronological age (CA) and mental age (MA). Add the result to the chronological age. Use that result as an indicator of the child’s achievement expectancy. For example, given that MA = 14 year, CA = 10 years, IQ = 140,

\[
\text{MA (14) - CA (10) = Difference (4)}
\]

\[
\frac{3}{4} \times 4 = 3
\]

\[
\text{CA (10) + 3 = 13 (Achievement expectancy age)}
\]

The rule of two-thirds and the rule of one-fourth can be used in the same way to obtain achievement expectancy grade level estimates… It must be remembered that the result is an approximation and should be bounded ± one year.

Sellin & Birch, 1981, p 78

The child of high intellectual potential in the above example has an IQ of 140 and a chronological age of 10. At age 10 a child would usually be in Grade 4 in Victoria. Sellin and Birch (1981) would suggest that achievement less than an Australian Grade 6 (that is 13 years of age minus 1 year) would be cause for concern. There is an absence of research utilising Sellin and Birch’s (1981) achievement expectancy age. Whether utilising shortfall ratios and the achievement expectancy age (Sellin & Birch, 1981) provides valuable information about underachievement in gifted population has not been explored.

2.2.2 Covert Underachievement.

An example of covert underachievement would be the child who performs at the top of the class but who could easily perform at the top of the next class or beyond
if allowed an opportunity to work at the level of which they are capable. Good or
better than average progress at school often disguises covert underachievement. As
Sellin and Birch (1981) note,

educational neglect, misunderstanding, and a lack of fulfillment (sic) of gifted and talented
young people means that everyone is sufficiently rewarded by reaching their too low
objectives and the child’s significant underachievement remains undiscovered

Sellin & Birch, 1981, p 79

Covert underachievement is largely a product of inappropriately designed or
targeted educational offerings (Whitmore, 1980). Inappropriate, that is, for CHIP;
quite appropriate, perhaps, for the age-peers of the CHIP. To determine the
appropriate level of the curriculum needed for CHIP to be stimulated and to be more
likely to perform at a level commensurate with their potential, achievement testing
needs to be conducted. Achievement testing when conducted in Victorian schools is
aimed at assessing the child’s performance at current grade level. According to the
Australian Council for Education Research (ACER) (1999) two of the most-
popularly-used tests in Australian schools to determine reading comprehension and
maths achievement are the Progressive Achievement Tests. The manuals for these
tests do not mention the possibility of utilising the tests to determine higher than
current grade ability (PAT Maths-R Manual, 1997; PAT Reading Comprehension
Manual, 1985). However, both manuals mention that a lower base-level (that is a
starting point for the test) may be required with children who are less able.

No mention is made of the opportunity to employ the tests out-of-level for
CHIP students whose underachievement may be unrecognised when comparisons are
only made to their chronological grade peers. When out-of-level testing does not take
place CHIP continue to be compared to chronological grade peers and their Covert
Underachievement may remain unrecognised and untreated.
2.2.3 Overt Underachievement.

Underachievement may be the result of physiological or psychological causes. Students who are behaviourally disordered, emotionally disturbed, neurologically handicapped or minimally brain damaged may not achieve at a level commensurate with their classmates, with their assessed ability, or, with their earlier (pre-trauma) performance levels. In these instances the underachievement may be perceived as a by-product of the trauma and may not be the primary focus in working with the child.

Overt underachievement may also be seen in children who have a learning disability. An intellectual assessment might indicate that a learning-disabled child is considered to be a CHIP. A learning disability such as the child's inability to read, however, will depress scores on any achievement test conducted. Subsequently, educators may work to correct this educational deficiency and as a result the child's achievement levels as measured by achievement testing, improve.

In the examples above the issue of concern is not underachievement *per se* but the physiological or psychological disturbance. Interventions with the child are not aimed directly at addressing achievement levels. Whether underachievement of a CHIP in the present study is attributable to either psychological, physiological or the presence of a learning disability will need to be determined by the collection of parental data.

As well, overt underachievement may also be seen in a group of children whose idea of perfection is so rigid that these CHIP are discontented with any performance short of meeting their personal goals. These CHIP produce little for fear that it will be less than perfect. This crippling perfectionism has been noted extensively in the gifted literature (Adderholdt-Elliot, 1987; Kerr, 1991; Rimm, 1986; Robinson & Noble, 1991; Roedell, 1984; Strang, 1951; Whitmore, 1980). This type
of underachievement, however, is not always recognised as underachievement rather being attributed to the child's poor organisational skills that results in their inability to hand in work on time. Parental and student information about perfectionistic tendencies of CHIP may aid the understanding of underachievement.

2.2.4 Situational Underachievement.

In Situational Underachievement a student performs at less than their tested ability in specific circumstances. Thus the student who does not enjoy a particular subject, teacher, or who is under some personal stress of a temporary nature (for example, geographic relocation, bereavement or familial divorce) may not produce work up to an earlier standard (Clark, 1983; Fine, 1967; Whitmore, 1980). If those working with the CHIP have knowledge of the student's background and preferences such situational underachievement can be monitored so that when circumstances change usual achievement levels can be expected.

2.2.5 Chronic Underachievement.

In Chronic Underachievement the pattern of underachieving repeatedly occurs and cannot be linked to organic (physical or mental) causes or to a learning disability. It may also be considered likely that underachievement has become chronic when the achievement levels of a child fail to improve after the triggering event of Situational Underachievement has passed. As well, it is also highly likely, that a chronic underachiever may never have achieved in their school setting.

Out-of-level achievement testing or a test of intellectual functioning uncovering the child's potential ability may reveal a chronic pattern of underachievement that has previously gone unrecognised. By the time that it is
revealed that the child who has had so little success in the schooling is a CHIP, underachievement is very likely chronic. Children with a history of school failure who are assessed as CHIP perplex both parents and educators equally. The parent may ask how it is that the school has never noticed their child's potential. School personnel, on the other hand, query how it is that a child of high intellectual potential does not achieve at even grade level. Those working with chronic underachieving CHIP must attempt to determine the reasons for underachievement of many years' duration.

2.3 Why do Discrepancies Exist between Ability and Performance?

Raph and Tannenbaum (1961) noted in their thirty-year review (1931-1961) of more than 90 empirical studies on underachievement in gifted and general populations that the reasons why discrepancies between ability and achievement exist were not clear. They found the literature offered no definitive way of explaining why some CHIP did not fulfil their academic potential and that that there was no clear profile of attributes to distinguish underachievers from achievers matched on academic potential. Raph and Tannenbaum (1961) concluded that "only one characteristic differentiates all underachievers from all achievers: the fact that one group succeeds at school and the other does not" (cited Tannenbaum, 1983, p 210).

Reviews such as those of Asbury (1974) and Ziv (1977) also noted conflicting and inconclusive results as to why students underachieve and as to whether a clear profile of attributes distinguished underachievers from achievers. However, others such as Taylor (1964) and Whitmore (1980) found consistently discriminating characteristics of achievers and underachievers. Such contradictory findings are possible for a number of reasons.
Firstly, researchers may have utilised different formulas to calculate underachievement and whilst much of the research utilised a discrepancy-based formula the parameters may be different. As an example, a study may compare GPA to grades in high school. This study asserts students are underachieving if they score in the top 2% on a group ability measure but earn a C or below in one subject at school (as an example, Green, Fine & Tollefson, 1988). Another study compares GPA to a WIAT (Wechsler, 1993) achievement test scores and compares a stanine 9 on an ability measure and a stanine 7 or below on an achievement measure as evidence of underachievement (Supplee, 1990). Without a single operationalised definition of underachievement the comparability of the two studies – and the comparability of students they define as underachievers - is hard to ensure.

As well, underachievement may have a number of diverse aetiologies. As has been examined, what is researched and labelled as underachievement may consist of different types and result from different causes. Whether, as an example, chronic underachievers and covert underachievers can be directly compared is unknown. Few studies collect qualitative data from parents and the child so it is difficult to ascertain whether there are differing causes and types of underachievement present in the children under study.

2.4 CHIP Underachievement

In the absence of objective testing to ascertain achievement levels, and with the de-emphasis on quantifiable definitions of CHIP, it is surprising any underachievers in Victoria are identified. Inevitably, however, some underachievers do come to the attention of the parents and teachers and some of these students are CHIP.
US researchers into gifted underachievement claim between 15% and 50% of gifted students are underachieving (Gallagher, 1975; Gowan, 1955; Green, Fine & Tollefson, 1988; National Commission on Excellence in Education, 1984; Terman & Oden, 1947; Wolfe, 1991). Studies citing 50% underachievement levels (Gallagher, 1975; Gowan, 1955; National Commission on Excellence in Education, 1984; Terman & Oden, 1947) suggest that about half of the CHIP who score in the top 5% on individualised intelligence tests (IQ score 125+) do not match their ability with comparable school achievement. However Green, Fine and Tollefson (1988) and Wolfe (1991) suggest the figure for a gifted population is closer to 15% underachievement. Part of this variance may be attributed to the lack of a consistent definition of gifted and to the varieties of formulas utilised to measure underachievement.

No Australian figures for underachievement have been suggested for CHIP. Similarly, no figures of underachievement are suggested for Victorian students overall (Ministry of Education, 1999, personal communication). If underachievement of CHIP in Australia is comparable to that in the US then of the approximately 35,000 CHIP students across both Primary and Secondary Victorian schools (Ministry of Education Census Data 1999, personal communication), between 5000 (15%) and 17500 (50%) CHIP underachieve each year in Victoria. Clearly, this is not a minor concern.

2.5 Can CHIP Underachievement be Prevented?

Whitmore (1980) considers that workshops to enhance self-esteem, social skills programs and academic remediation are crucial to addressing CHIP underachievement. Rimm (1986) however, suggests that underachievement may be
more rightly considered an imbalance in familial power, and that to 'cure' underachievement most often requires working within the family, rather than testing or changing educational offerings. In Victoria, where appropriately designed curriculum is not mandated the lack of appropriate educational offerings cannot be excluded from any consideration of underachievement.

For Whitmore (1980) it is the interplay of appropriately designed curriculum offerings and the way the child perceives themselves and others which are highly significant variables in the achievement levels of CHIP. Working with CHIP underachievers for some ten years, Whitmore (1980) concluded:

Chronic underachievement by gifted students can be prevented by the provision of appropriate educational programs and early patterns of underachievement can be reversed through special education in elementary school. Educational programs for achieving and underachieving gifted students are one and the same: the only difference...is the amount of teacher time and effort directed towards such objectives as enhancing self-esteem, developing social skills, and remediating academic deficiencies. (p 197)

In Victoria, where the educational philosophy of the times may be considered as anti-testing the gaps in knowledge of a CHIP may not be uncovered until the final years of schooling. However, academic deficiency is only one area where underachieving CHIP may need assistance.

Pervasive negative societal and educational attitudes can see some CHIP display lower levels of self-esteem than their non-CHIP peers and can lead them to perceive that their abilities may not be valuable (Alsop, 1994; Start, 1989; 1992). This perceived lack of value appears to be confirmed for the CHIP when Australian society enjoys the fall from glory of the "Tall Poppies" (Feather, 1991) and when the education system seems to value conformity of academic performance (Senate Select Committee, 1998).
For some CHIP self-esteem enhancement, social skills workshops and remediation will be insufficient to reverse underachievement. Students in the top 5% need to reduce their speed of the learning by two-thirds to stay with the regular class and could process twice as much information as the average student (Start, 1990). For these students subject or year level acceleration might be the most appropriate way to meet their educational needs. Acceleration is often viewed negatively by many educators. This is despite much research evidence to the contrary (see Kulik & Kulik, 1992, for a comprehensive summary of research into acceleration of CHIP). Consistently CHIP have been shown to benefit socially and academically by being accelerated to the level of their intellectual peers (Kulik & Kulik, 1992). As Van Tassel-Baska (l989) argues "of all the interventions schools provide for the gifted, acceleration is the best supported by research" (p 15). Acceleration is not just a way of progressing through school or the curriculum at a faster than normal pace but should be recognised as a process by which a CHIP student is placed in a level of education commensurate with their abilities.

Of a possible dozen or so accelerative education options (Passow, Goldberg Tannenbaum & French, 1955; Gallagher, 1975; Davis & Rimm, 1989; Southern & Jones, 1991), there are three that seem most likely to be considered within Australian and Victorian contexts. These are early school entry; grade skipping (usually one grade but sometimes more) and, content or subject acceleration (Braggett, 1992; Gross, 1984; Victorian Department of Education, 1995). Having suggested the three most preferred options for acceleration in Australian schools it is important to realise that although preferred, these options are not commonplace (Braggett, 1992; Senate Select Committee, 1988).
Despite a lack of Australian research, a number of studies into the positive effects of acceleration on US students are cited by Victorian, and other Australian States' Departments of Education (NSW Department of Education, 1991; Victorian Department of Education, 1995). A few Australian studies exist on Selective High Schools where the six years of secondary schooling are compacted into five years and in these instances an entire class cohort supports each student as the class accelerates together (as an example see Murphy, 1994 on University High School in Victoria). Whether individuals who have been accelerated outside of this supportive but mainstream environment benefit and are less likely to underachieve does not appear to have been explored beyond single case studies of highly exceptional students (Gross, 1993). In an Australian context there is no evidence to suggest that accelerated students do not underachieve nor is there evidence that a lack of acceleration results in underachievement. Without research no conclusions can be drawn.

However, the consequences of not providing an appropriate educational experience for CHIP are known and appear to be relevant in any discussion of underachievement. These attributes include lower achievement and productivity; apathy to formal schooling; increased likelihood of ‘dropping out’; reduced learning motivation; poor study habits and boredom. The student will experience emotional frustration and social difficulties resulting from an inability to adjust to peers who do not share advanced interests. (Hollingworth, 1942; Marland, 1972; Stanley, 1979)

Despite such negative outcomes and despite the likely presence of a substantial number of CHIP in Victorian schools, little is known about identifying these children or meeting their educational needs in an Australian context. In the Bright Futures (1999) document there are five checklists for identifying giftedness in children for parents and teachers; three are referenced to US sources and the other two
are compilations from overseas sources. Almost no Australian research has been conducted about the nature of CHIP or the nurture of these special children. Underachievement is mentioned but rarely elaborated upon. It seems that the Victorian Department of Education is prepared to acknowledge but not promote local research into CHIP and their education. Study into this area is overdue.
Chapter 3: Variables Impacting upon Achievement Levels: School, Family, Peers and Self-Perceptions

3.0 Reviewing the Literature of the Variables that may Contribute to Underachievement

Although CHIP may be considered as possessing an exceptional potential for success whether they achieve at a level commensurate with their high intellectual potential depends upon a complex interplay of variables. These variables can include the student's school, their family, their peers and the child's self-perceptions. By examining each of these factors an understanding of the variable's impact upon the achievement of Australian CHIP may become clearer.

As was noted, CHIP in Australia are usually educated within mainstream schools and are likely to receive an education identical to their non-CHIP peers. Therefore, three aspects of the literature inform the present study: what we know of the general population, what is known of the CHIP population, and, what is known about achievers and underachievers in both populations.

3.1 Attitudes to Education, School and Learning in the General Population

The Australian education system aims to achieve some profound goals as McGaw, Piper, Banks and Evans (1992) reported when they surveyed more than 7000 schools:

School effectiveness is about a great deal more than maximising academic achievement. Learning and the love of learning; personal development and self-esteem; life skills, problem solving and learning how to learn; the development of independent thinkers and well rounded confident individuals; all rank as highly or more highly as the outcomes of effective schooling as success in a narrow range of academic disciples

McGaw et al, 1992, p 172
Despite such ideals, various Australian studies conducted during the 1970s and 1980s (Anderson, Saltet & Vervoorn, 1980; Batten, 1989; Connell, Stroobant, Sinclair, Connell & Rogers, 1975; Poole, 1983) reported less than positive outcomes. These studies found that Australian students held a predominantly neutral attitude to school, "[t]he consensus is tepid, neither here nor there, a wishy-washy refusal to praise or condemn. The majority of teenagers, it appears, just tolerate school..." (Connell et al, 1975, p 229) and find their schooling experience to be "pale grey" in colour (Batten, 1989, p 5).

A longitudinal study of Australian students found that only four in every one hundred students at Year 12 had a positive attitude towards school and enjoyed their learning experience (Byrne, 1993; McGuigan, 1992). The statistic of only four students in one hundred expressing a positive attitude towards school is comparable to the figure of 5% of students quoted for the US (Reglin, 1993).

Ainley, Reed and Miller (1986) noted that student satisfaction in Years 7 through 12 does not appear stagnant and through Years 7 to 12 follows a U-shaped pattern. This U-shape suggests that attitudes become least favourable in the middle years of schooling and then improve (Ainley et al, 1986). However, on some curriculum-related aspects of school a steady decline in attitudes to school and to students feeling good about themselves as students has been reported (Ainley et al, 1986; Epstein, 1981).

It has been noted that males respond in a generalised, adverse way to school (Ainley, Golman & Reed, 1990; Batten, 1989; Epstein, 1981). As well, males are more likely than females to respond negatively to their teachers and see their schoolwork as irrelevant and not worthwhile (Batten, 1989). Specifically, males feel less positive than females about school in general, about their teacher/student...
relationships, in their socialisation, in the relevance of the curriculum, and in feeling successful as a student (Ainley et al, 1986; Batten, 1989; Power, 1984). Whether such gender differences with respect to attitudes to school are present in an Australian CHIP population has not been explored.

An Australian longitudinal study of 2900 students examined Year 9 students as they progressed through to Year 12 (Byrne, 1993; McGuigan, 1992). The study detailed ability scores (utilising the Ravens Progressive Matrices, (Raven, 1983)) and achievement scores (as measured by the Otis-Lennon School Achievement Test, (Otis & Lennon, 1989)). For this group of students it was found that at both Year levels the group most likely to express boredom at school were boys of all abilities and achievements. For female students those girls who scored highly on the Ravens and were achieving in their current year were also likely to express boredom. Thus, it seems feasible that a CHIP population may express boredom more frequently than the general population.

3.1.1 Attitudes to Education, School and Learning in the CHIP Population

Over the past 75 years CHIP researchers have expressed concern that ‘gifted’ children do not always respond favourably towards education and schools (Hollingworth, 1942; Senate Select Committee, 1988; Terman, 1925). Terman (1925) noted that many of his gifted children languished in school and failed “to develop the ambition and habits of work necessary to make them successful in college” (cited in Shurkin, 1992, p 155). Working with profoundly gifted children Hollingworth (1942) expressed concern that because of boredom with the curriculum her subjects “receive[d] daily practice in habits of idleness and daydreaming” (p 270). In the 1970s the US Office of Education Report on the gifted and talented (commonly
known as the Marland Report, 1972) emphasised that boredom would result from discrepancies between the child’s knowledge and the school’s offering, thus leading to underachievement and behaviour disorders affecting self and others. The Marland Report stressed that early identification would enable schools to “prevent rather than to attempt to cure underachievement” (Marland Report, 1972, p 12).

In the US, a major study by Bloom (1985) sought eminent adults’ views on their schooling either retrospectively or through secondary sources. Bloom (1985) concluded that the influence of K-12 schooling on his sample of eminent individuals was minimal and often inconsequential when considered in retrospect. Bloom’s conclusions lent support to the findings of earlier non-retrospective studies of CHIP by MacKinnon (1956) and Roe (1953). It should be noted that Bloom’s (1985) participants, as were MacKinnon’s (1956) and Roe’s (1953) were in the science field and care should be taken not to generalise to all academic giftedness.

Working with CHIP high school students and utilising a measure of the classroom environment, Nelson (1984) concluded the climate of the classroom did not appear to be a major factor in his students’ achievement. Whilst VanTassel-Baska (1989) found the majority of her CHIP students experienced school favourably, she also noted, “20% disliked school and found it boring and 39% found it easy” (p 35). However, if the majority of Van Tassel-Baska’s (1989) students experienced school favourably this would seem to be in contrast with the more general dissatisfaction expressed by the general population of their schooling experience (Reglin, 1993). Thus it is interesting to note that Van Tassel-Baska’s (1989) students were Talent Search participants. Many of these students had been receiving a differentiated educational experience both in their regular schools and in the summer schools that they had attended. Their differentiated educational experience appears to have
decreased the incidence of boredom and dissatisfaction with school that other students may experience. If receiving an education appropriately targeted to one’s needs is more inherently satisfying than receiving a mainstream undifferentiated option it is possible that Victorian CHIP will be less than satisfied than their US CHIP counterparts with their schooling.

The recognition of the school’s role in CHIP underachievement has also been noted in Australia. State and National Reports in the 1970s and 1980s concluded that CHIP were “possibly the most disadvantaged groups in our schools for they generally have not received sufficient stimulation to achieve their full potential” (NSW Education Department, 1977; Senate Select Committee, 1988).

In the Australian context, few Australian studies appear to have asked CHIP (or their parents) for their levels of school or educational satisfaction. In a study into the counselling needs of parents of CHIP, Alsop (1994) found that parents of CHIP were less positive about the education system meeting their child’s needs than were other parents. Alsop (1994) cited data commissioned by the Australian Institute of Family Studies which suggested the majority of Australian parents surveyed were complimentary of and highly satisfied with, most aspects of their children’s primary schools. Alsop’s (1994) group of CHIP parents revealed schooling experiences which left them feeling “hurt, angry and isolated” (Alsop, 1994, p 154). The further collection of parent information on their child’s school and their level of satisfaction with that school, may provide important insights into whether CHIP parents hold differing views to other parents regarding a school’s ability to meet their child’s needs.

There are only a small number of individual case studies conducted of profoundly gifted students in Australia. In her case-study analysis of a small number
of profoundly gifted students Gross (1993) concluded that for these students educational experiences were in the main highly unsatisfactory, if not totally inadequate.

Attitudes towards school impact upon a student’s motivations to learn. The motivation to learn and the belief that students have about themselves as learners influences the way all students contextualise their learning process and meet learning outcomes (Biggs & Telfer, 1987; Paris & Newman, 1990). As Kirby and Biggs (1981) found, “[w]ell-motivated and achieving students selected strategies congruent with their motivational pattern and used them effectively, while poor achievers used...strategies...which were non-congruent with their prevailing motivational patterns” (cited in Biggs, 1987, p 87). Whether well motivated and achieving CHIP select strategies that are congruent with their motivational pattern has not been explored.

In an Australian study, Ainley (1993) tracked a small sample of 19 highly able girls (mean IQ = 129) through their secondary schooling, using the Learning Process Questionnaire (Biggs, 1987). Ainley (1993) also utilised the Quality of School Life Scale (Ainley et al 1986) to measure the student’s feelings about school and their preferred learning strategies. The finding was that 37% of the students were disengaged from school at Year 7; 31.5% were disenchanted at Year 9, and, 26% were disinterested in terms of the quality of their involvement with their school learning at Year 11 (Ainley, 1993). Conversely, CHIP and students in the general population, with a more committed style of engagement to their learning showed more general satisfaction with school. These more committed students felt more strongly than uncommitted students about the relevance of school. These committed students also
had greater confidence in their ability to succeed and had significantly higher school achievement scores than the uncommitted group.

Ainley's (1993) findings suggest that one in three CHIP might display a low engagement with their learning and low satisfaction regarding their schooling experience across the years of secondary school. Ainley's (1993) sample size was small and female so generalisation to the wider CHIP population should be made only with caution.

In summary, studies researching CHIP perceptions of their education seem to suggest that CHIP views on school and education, where no differentiated education is offered, are not as favourable as when differentiated education is offered (Gross, 1993; McGuigan, 1992; Van Tassel Baska, 1989). It is also possible that the degree of dissatisfaction to schooling may vary according to the general ability of the students. Gross' (1993) students were all profoundly gifted students with IQ scores in excess of 160 whilst Ainley's (1993) sample had mean IQs of 129. Gross' (1993) students and their parents reported exceptionally low satisfaction with schooling while Ainley's (1993) students were less dissatisfied.

Gender too, may be a factor in the level of dissatisfaction. Gross' (1993) students were both male and female, whilst all Ainley's (1993) students were female. The research literature seems to highlight two aspects worthy of further study: does the level of general ability account for differences in perception of school satisfaction, and, are there gender differences in the perception of school satisfaction for Victorian CHIP?
3.1.2 Attitudes to Education, School and Learning in the CHIP Population which may be Attributable to Gender Differences

Ainley’s (1993) “one in three” figure for CHIP girls may be similar for CHIP boys. Although a higher number of boys than girls express low school satisfaction in the general population (McCall, Evahn & Kratzner, 1992; Kulieke & Olszewski-Kubilius, 1989; McGuigan, 1992), the CHIP literature suggests CHIP boys and girls appear to respond in similar rather than different ways (Clark, 1983; Olszewski-Kubilius & Kulieke, 1989). Thus CHIP boys and girls may be likely to underachieve in similar numbers.

There is, however, some evidence to suggest that the ways in which girls underachieve may be more ‘covert’ than the underachievement of boys (Kerr, 1991). CHIP girls appear to be more likely than CHIP boys to hide their giftedness with CHIP girls more likely than CHIP boys to “walk away from their own outstanding talent” (Buescher & Higham, 1989, p 120). Buescher and Higham (1989) further noted that there was a general trend towards deliberate masking of talents as CHIP in mainstream classes grew older, with girls specifically preferring the strategy of pretending not to know as much as they do. Researchers with particular interest in gifted girls call the process ‘blending’ (Kerr, 1991).

Both ‘walking away’ and ‘blending’ have particularly been noted as being present at adolescence for all girls but being most noticeable in gifted girls. US researchers have suggested various syndromes to account for the phenomena (Clance & Imes, 1978; Dowling, 1981; Horner, 1972) but no Australian studies have directly confirmed the incidence of this behaviour in Australian girls.

If Australian CHIP girls seek to hide their abilities it may be not only more difficult to identify CHIP girls in classrooms but it may also be that CHIP girls are
more likely to not be considered as underachievers, given their tendency towards 'blending'. Awareness of the female CHIP tendency to 'blend' is important in trying to accurately determine the ratios of male underachievers to female underachievers. Further, it is important in trying to ascertain whether in the CHIP population there are higher levels of males who are disenchanted with school as there are in the general population (Batten, 1989; McGuigan, 1992). Male underachievers outnumber female underachievers by ratios of two to one (Sellin & Birch, 1981) and other studies cite figures up to three or four males to one female underachiever (Wolfle, 1991). It may well be the case that CHIP female underachievers are present in similar numbers to CHIP male underachievers but have better 'blending' techniques and as such are not tested on their achievement levels in the same numbers as boys (Kerr, 1991; Silverman, 1991). Whether boys and girls underachieve in similar numbers and whether their underachievement is qualitatively similar has not been explored for Australian students.

3.1.3 Attitudes to Education, School and Learning in Underachieving CHIP

Dowdall and Colangelo (1982) found the attitudes to school and the personality characteristics of their CHIP underachievers to be similar to that of non-CHIP underachievers, perhaps sharing with their CHIP peers only high scores on IQ tests. Their conclusion of common characteristics in underachievers – regardless of ability - is further supported by the findings of McCall et al (1992) whose longitudinal study found that underachievers differ from students with the same mental ability but not from students with the same grades.

McCall et al (1992) found that the main themes which distinguished underachievers and the same mental ability group included “low future educational and occupational aspirations and expectations and lower perception of current and
future educational abilities, general competence, and self-esteem for the underachievers” (p 84). McCall et al’s (1992) finding suggests that there may be a difficulty in isolating CHIP underachievers in a non-testing environment such as Victoria because they may blend well in a classroom and become indistinguishable from their non-CHIP classmates including underachieving classmates.

In Australia, perhaps because of the difficulties in identifying underachievers and identifying CHIP few studies have attempted to identify CHIP underachievers in classrooms. Although Australian research is limited that which has been conducted suggests similar trends to those found in the US. This research shows high levels of disenchantedment with school, especially in bright students (Byrne, 1993; McGuigan, 1992) and most especially in males (Batten, 1989). It is arguable that in CHIP populations where male and female students are of equally high ability both may express boredom and experience underachievement in similar numbers.

In one of these Australian studies Ainley (1993) found that her nineteen CHIP girls displayed two distinct styles of engagement with their learning. One ‘committed’ group showed a high degree of concern in searching for personal meaning and relevance in their studies but these students tackled their studies with careful organisation and a syllabus-oriented strategy to obtain high marks. This group Ainley (1993) called ‘achievers’. The second ‘detached’ group scored close to the overall group average on their search for meaning but scored well below the average score in their concern for grades and desire to be highly organised. This group Ainley (1993) called ‘underachievers’. Utilising the Learning Process Questionnaire (Biggs, 1987) Ainley (1993) found her detached group scored highly on a ‘Surface’ Approach to schooling. A Surface Approach can be described as doing the minimum required to get through work requirements and often concentrating on factual details and rote
learning (Biggs, 1987). Ainley's (1993) finding that there was a negative relationship between scores on the Surface Approach scale and school achievement concurred with studies reported in the manual of the Learning Process Questionnaire (Ainley et al 1986; Ramsden, Martin & Bowden, 1989). There have been no other studies on CHIP populations to determine if the consistently negative relationship between 'Surface' Approach and school achievement exists for other Australian CHIP students and for CHIP of abilities higher than Ainley's (1993) mean IQ of 129.

If it is accepted that some CHIP students might be considered as "doing the minimum required to get through" (Biggs, 1987, p 15), and are detached from their learning (Ainley, 1993) then studies altering the curriculum these students receive may offer some insights. Studies in the late 1980s and early 1990s (Baum, Emerick, Herman, & Dixon, 1989; Baum & Owen, 1988; Emerick 1992) noted consistently positive outcomes when a specially designed curriculum was offered to CHIP underachievers. One study even noted a reversal in the cycle of underachievement (Baum, Renzulli & Hébert, 1995a) by utilising teachers trained in the use of creative productivity as part of the Enrichment Triad Model. In a more recent study of 220 talented 7th and 8th graders, Heine (1997) found that in classes where more complex opportunities were afforded, students experienced significantly more motivation orientation and their achievement improved by half a grade, compared to students in less complex classrooms. As well as increased achievement, positive outcomes included increased self-esteem, academic self-efficacy and increased overall motivation.

These findings suggest that more challenging curriculum can increase the level of achievement and even perhaps raise declining achievement levels to levels more commensurate with CHIP abilities. Further it appears that a CHIP-appropriate
education can increase self-esteem, academic self-efficacy and overall motivation. There is an implication that a better match between ability and curriculum should improve psychosocial variables. CHIP who are experiencing an education more commensurate with their abilities should not only be achievers but they should score more highly on measures of self-esteem and academic self-efficacy than their CHIP peers who have no such differentiated offering.

Whitmore (1980) used the term ‘boring’ for the education which many of her underachieving CHIP experienced. However, Whitmore (1980) was also concerned that a teacher’s instructional style and the learning style of CHIP were often incompatible and that teachers established a social climate in the classroom which often fostered competition even as it denied individual differences and emphasised conforming obedience. Whitmore (1980) believed that a lack of appropriate educational provisions for CHIP when coupled with inappropriate teaching and a classroom climate that was negative would predict underachievement. This would be manifested in one of three patterns of behavioural response to the school setting (a) non-communicative and withdrawn, (b) passively complying to ‘get by’, or (c) aggressive/disruptive ‘problem’ students.

Thus teacher attitudes, and not just educational offerings, may play a role in underachievement, although this is an area only rarely considered (Van Tassel-Baska, 1989; Whitmore, 1980). One CHIP interviewed by Van Tassel-Baska (1989) perceived her teachers’ attitudes as an ‘invitation to underachieve’,

For the most part my teachers were uninspired, boring, and bored. They taught the same sequence of the same readings in the same manner year after year, and all the students sensed this. I think that many of the teachers interpreted brighter students as students who needed less teaching and stimulation rather than more. Their attitudes were almost an invitation to underachieve, to perform in terms of what they would accept rather than what you were capable of.

VanTassel-Baska, 1989, p 167
The work of Whitmore (1980) and Van Tassel-Baska (1989) seems to suggest that if CHIP are offered appropriate educational experiences and CHIP-understanding teachers then academic achievement should be higher on objective measures than for CHIP who are offered no differentiated provisions. Attitudes to education, school and learning should also be more positive for students offered a differentiated curriculum than for those in mainstream, undifferentiated school settings. Research may confirm this for CHIP in Victorian classrooms.

3.2 The Influence of the Family in the General Population

The family environment includes variables such as the parents’ attitudes towards their children, the children’s attitude towards their parents, relationships among family members, the parent’s philosophies and values, and, the way family life is structured. Studies of children in the general population from pre-school-age through to adolescence suggest that children’s positive encounters with their parents are linked to their perceptions of having friends, being liked and possessing social skills (Bronfenbrenner, 1979; Bullock & Pennington, 1988; Easterbrooks & Lamb, 1979). Bronfenbrenner (1979) saw the home environment as the single most important influence on how a child performs in school.

Factors such as Cohesion, Expressiveness and Conflict as measured by the Family Environment Scale (FES) (1994) are considered to reflect a ‘family harmony’ dimension (Moos & Moos, 1994). When assessed on the FES (1994) harmonious families are considered to be families who score highly on the Cohesion and Expressiveness scales and obtain low scores on the Conflict Scale. Harmonious family environments are defined under the FES as those emphasising expression, exchange of ideas, support and low conflict. These characteristics are considered to
be important to children feeling competent in the cognitive domain (Bullock & Pennington, 1988) and having better mental health and fewer behavioural problems (Connell, Callahan & Loyd, 1991).

Harmonious family environments may also be considered to be more important to children's self-esteem and overall adjustment than specific family values or value orientation (Cornell & Grossberg, 1987). Cornell and Grossberg (1987) noted that children's academic self-esteem (as assessed by their classroom teachers) was highly positively correlated with personal self-esteem and lower anxiety. "Family Harmony" therefore, impacts upon personal and academic arenas for children. Indeed for children – CHIP or not – and irrespective of age, it appears that the influence of the home environment extends into the area of academic achievement more profoundly than their relationship with their peers (Leonoff, 1992).

3.2.1 The Influence of the Family in the CHIP Population

In his study into the lives of eminent individuals Albert (1980) refers to giftedness as an 'organiser' for family life. The assessment of a child as 'gifted' can have a profound effect upon some families. For many parents the assessment of their child as 'gifted' can bring an enormous sense of relief; for others a sense of burden to do what is right for the child (Roedell, 1989). Bloom (1985) in his study of gifted musicians, athletes, scholars and artists in the main reports unusually close-knit and cohesive families as well as commenting specifically upon the high levels of maternal involvement in the development of their CHIP. Bloom (1985) noted the primary 'contribution' of the family was as the child's first teacher on the road to talent development, parallelizing Van Tassel-Baska's (1989) claim for disadvantaged CHIP. For disadvantaged CHIP (low SES and ethnic minority students) VanTassel-Baska
(1989) sees parents as representing "the critical element in their child's current and future talent development" (p71). In the gifted population, Cornell and Grossberg (1987) noted the importance of family members' cooperative interactions for the gifted child's adjustment. These interactions, they believed, should be minimal in conflict and maximum in freedom for personal expression to ensure the gifted child's adjustment (Cornell & Grossberg, 1987).

Cornell and Grossberg (1987) noted in their work with CHIP that more cohesive family relationships were associated with more favourable cognitive development and school achievement. Similarly, Nelson (1984) noted that adolescent CHIP who came from families which were supportive, structured and had high levels of interaction, had high levels of peer, scholastic and general self-concept.

The family and home environments of Australian CHIP children have rarely been reported. In Australia the few published studies appear to concentrate upon personality characteristics of parents of CHIP (Alsop, 1994) or to simply review American literature (Boyle, 1988).

3.2.2 The Influence of the Family on Achievers and Underachievers in the General Population

Research into the families of academic achievers and underachievers has been conducted to determine whether certain familial characteristics are present in the families of underachievers that are absent in those of achievers. Wood, Chapin and Hannah (1988) found that adolescents who perceived their family environments to be cohesive, supportive and who provided cultural and religious values did not experience achievement difficulties compared to adolescents whose families were not
supportive and did not provide such values. These difficulties led to underachievement in children of such families.

Similarly, children whose parents were accepting and supportive tended to see themselves as more confident, worthy and good, than those children of critical parents (Abraham & Christopherson, 1984; Coopersmith, 1967). As well, high levels of familial conflict have generally been noted as being detrimental to children’s achievement and adjustment (Leonoff, 1992). Caplan (1997) argues strongly for considering the interplay between the home, interpersonal dimensions and personality traits in underachievement. She asserts that family environment variables and self-concept measures can accurately predict overall student adjustment and academic achievements.

There may, however, be some gender differences in the importance of the family. McCall et al (1992) found parental opinions were more intimately tied to achievement for girls than boys. Female underachievers had fewer friends than female achievers and less parental support for their desired occupations. Parenthetically these female underachievers were more likely to be the youngest child in their families and to have distant relationships with their mothers. On the basis of their research Kulicke and Olszewski-Kubilius (1989) conjectured that male achievers whose families provided an environment that offered them many intellectually oriented activities may have felt less socially connected to their peers and in less need of support from those peers. Thus the role of the family as a support network may be different for achievers and underachievers and for males and females.

In the majority of studies of underachievement and school failure, though, high levels of conflict between teenagers and their parents have been noted (Cockram & Beloff, 1978; Rimm, 1986, 1991; Walters & Stinnet, 1971), as have high levels of
marital discord in academically underachieving children (Marchesano, 1994; Rimm, 1986). Not all research, however, has found the family and home environment to be a significant factor in underachievement. In their longitudinal study of 435 primary school aged New Zealand students, Chapman, Lambourne and Silva (1990) concluded that no family background or intellectual variable had a direct effect on academic self-concept. Indeed FES (Moos & Moos, 1994) scores showed no correlations with academic self-concept and achievement.

Within a Family Systems approach and using a number of controlled studies Amerikaner and Omizo (1984) confirmed Minuchin’s (1974) observation that the more chaotic and disorganised the family structure, the higher the incidence of academic problems and emotional disturbances (including attentional deficits and conduct disorders). Of special note were conflicts within the family system, which were expressed through triangulated relationships. In these family relationships the child’s underachievement is considered symptomatic of the dysfunctional interactions between family members, most usually parents (Fine & Pitts, 1980; Marchesano, 1994; Rimm, 1986).

Parental relationships that are dysfunctional can provide a facilitating environment for underachievement. According to Rimm (1986) children who have ‘Underachievement Syndrome’ come from families which provide these facilitating environments and thereby “increase the risk of initiating family configurations which support underachievement” (p 23-4). Working with underachievers, including CHIP underachievers, Rimm (1986) suggests a number of underachiever prototypes all of whom display the high-risk conditions of early childhood that she asserts can initiate an ‘Underachievement Syndrome’. These conditions include that all underachievers will be ‘over-welcome’ children who may display early health problems; have parents
with specific marital problems, and may be bestowed with an adult status too early when children (Rimm & Lowe, 1988). Whilst there are conflicting findings on the significance of the home environment in studies of families of achievers and underachievers it would seem that parental support and familial conflict need to be considered as possible contributing factors in underachievement.

3.2.3 The Influence of the Family on Achievers and Underachievers in the CHIP Population

The studies of eminent individuals by Bloom (1985) and Albert (1980) suggest the influence parents have on the lives of their children in the area of talent development and academic achievement is extremely high. Although parents are influential, whether CHIP achievers believe they receive significantly more support from both parents as well as having significantly less conflict with parents than do CHIP underachievers does not seem to have been widely explored.

However, as was noted in Section 3.1.3, the attitudes of CHIP underachievers and non-CHIP underachievers to school have been found to be similar (Dowdall & Colangelo, 1982; McCall et al, 1992). Thus, in terms of family variables it may be expected that CHIP achievers and underachievers would be similar to those of their non-gifted counterparts where it was noted that families of achievers displayed more support and less parental conflict (Leonoff, 1992; Marchesano, 1994).

A number of studies have shown that CHIP and their families score low on Achievement Orientation as measured by the FES (Moos & Moos, 1994). Such a finding would suggest that while CHIP and their families value intellectual and other activities (dimensions on which they score highly) they do not value them in a context

If competition is not valued then task achievement linked to school-based or national examinations and competitions may inspire little intrinsic motivation for CHIP. Extrinsic motivation has been associated negatively with achievement in a recent CHIP study (Heine, 1997). Achievement was found to be dependent on ability and task enjoyment but not cognitive ease (Heine, 1997). To avoid competition – and comparison with classroom peers - CHIP may deliberately mask their abilities. If CHIP indeed avoid competition then this finding would have an impact on teaching and classroom practices with CHIP.

Much of the research of CHIP families of achievers and underachievers utilises the FES (Moos & Moos, 1994). In a study of 224 CHIP the children across all ages tended to view their family less favourably than did their parents (Bodenstein, 1997). A similar finding was noted earlier in the work of Karnes and D’Illio (1988) with CHIP families. Low Control scores, particularly in families with high Active-Recreational Orientation and Intellectual-Cultural Orientation scores, (Cornell & Grossberg, 1987) reflect a relative lack of emphasis on set rules and procedures in family life and have been noted as important for adjustment and achievement for CHIP children and adolescents.

An important distinction must be made between a lack of emphasis on set rules and chaotic and disorganised family structure. Where there is a relative lack of emphasis on set rules and procedures in a family with high intellectual–cultural orientation CHIP may well be freer to question and challenge traditional conventions. Such questioning – particularly during adolescence – may see positive adjustment and intellectual growth. However generally in families, as Minuchin (1974) observed, the
more chaotic and disorganised the family structure, the higher the incidence of academic problems and emotional disturbances in all children, including children of higher abilities (Marchesano, 1994). Being free to question and challenge does not imply chaos and disorganisation.

Whitmore (1980), in contrast to Rimm (1988; 1991; 1995), sees parents as most usually offering supportive and productive home environments for their underachieving CHIP. Rimm (1986) asserts that “the risk for these gifted children comes from both attention addiction and too much power” (Rimm, 1986, p 33). Other researchers have found differing results on the impact and nature of the family in cases of CHIP underachievement. In their research into the family environments of CHIP underachievers, Green, Fine and Tollefson (1988) concluded that their research did not support the suggestion that family conflicts and disturbance would predict underachievement in CHIP. However the researchers did note that the families of underachieving CHIP boys were less satisfied with their families than were the families of achieving CHIP boys (Green et al, 1988). Kulieke and Olszewski-Kubilius (1989) noted no significant relationship between CHIP self-concept and any of the subtests that suggested parental emphasis on achievement and education. Although, they did note that parental emphasis on academic achievement was associated with higher achievement for female CHIP. Again, differences on the basis of gender may need to be explored.

Seeking some explanation as to why conflicting results have been found, several possibilities arise. Differences in the definitions of giftedness and underachievement have already been noted and can make comparison difficult. As well, gifted children and creative children are different and the influence of the family upon both may well be different. That family dynamics with respect to achievement
levels for gifted individuals and creative individuals is quite different, was noted in Olszewski-Kubilius, Kulieke and Buescher (1987),

[F]amily climate variables such as quality of relationships between family members, cohesiveness, parental acceptance of the child, stress on conformity to parental values are very interesting because they differentiate among families that produce creative individuals and high-achieving, scholastically competent individuals.

Creatively gifted children have family environments that stress independence rather than interdependence, are less child-centred, have tense family relationships and more expression of negative affect resulting in both a cognitive freeing and motivation to attain power or leadership. Scholastic achievers on the other hand, come from family environments that are cohesive, child-centred and where parent-child identification is strong resulting in high achievement motivation.

Olszewski-Kubilius, Kulieke and Buescher, 1987, p 25

As well as potentially problematic definitions of giftedness, many of the studies in this area are of adolescent CHIP. Adolescence is considered a time of separation from parental influence as the adolescent strives to establish a separate identity (Erikson, 1968). Some care should be taken to discern, if possible, whether parental and familial tensions might be directly attributable to the child being a CHIP, to the child’s underachievement or to the particular developmental stage of the sample.

In a study of adolescent CHIP (Green et al, 1988) adolescents were perceived as being significantly higher than their parents on the Achievement Orientation on the FES (Moos & Moos, 1994) while mothers and fathers perceived a significantly greater degree of Expressiveness than did their children. The researchers concluded that underachieving and achieving gifted adolescents may perceive difficulty communicating with their parents and that such differences in expressiveness “probably reflect the developmental stage of the student rather than their achievement patterns” (Green et al, 1988, p 271). An awareness of adolescence as it impacts on the group under study is likely to be important.
3.3 The Influence of Peers in the CHIP Population

The use of the word 'peer' presents a challenge in the literature on gifted populations adding, no doubt, to some of the contradictory finds in the area (Goertzel et al, 1978; Hollingworth, 1942; Kulik & Kulik, 1992; Schneider, 1987; Terman & Oden, 1947; Webb, Meckstroth & Tolan, 1982). Part of the challenge associated with the word 'peer' lies in its definition. Literature outside the CHIP field usually refers to peers, age-mates and classmates as though these terms were synonymous but distinctions may need to be made in the instance of CHIP where peers, age-mates and classmates will not necessarily be the same.

CHIP, and not just CHIP who may be accelerated in their schooling, will have 'intellectual peers' who are some years older than the chronological age of the CHIP. Thus, it becomes necessary to qualify 'with age-mates' rather than the more generic term 'peer'. CHIP may have multiple peers depending upon the activity being undertaken. The chronological ten-year-old CHIP may have intellectual peers who are fourteen or fifteen; may have social maturity peers of twelve or thirteen, and, physical peers of ten and a half years (Clark, 1983; Webb et al, 1982).

Failure to recognise this distinction can explain conflicting results in studies of social and peer relationships in CHIP populations. Studies that cite social difficulties for CHIP often measure relationships with age-mates and classmates not with their intellectual peers (Silverman, 1995; Webb et al, 1982). Students who have been accelerated, as an example, report better relationships with their new classmates than with their previous classmates, given that their new classmates are closer to their intellectual peers (Kulik & Kulik, 1992). In her study of the social relationships among accelerants, Rogers (1991a & b) reports that social adjustment, maturity, trend
towards leadership and participation in co-curricular activities at school improved dramatically among grade accelerants.

CHIP peer relationships seem rarely positive when peers are considered as age-mates. Goertzel et al (1978) in their study of eminent persons found that 16% of the eminent were rejected or bullied by peers when they were children. It has been asserted that relationships with age-mates or classmates become increasingly difficult with increasing IQ (Hollingworth, 1942). Similar peer difficulties have been noted with CHIP who possess divergent or highly creative abilities (Torrance, 1965). This has led some sources to posit that there may be an optimal or maximal IQ level above which adaptation and coping do not appear to be facilitated by one’s intellectual abilities (Hollingworth, 1942; Schneider 1987).

There are two common themes in the literature on CHIP: one which indicates that CHIP enjoy popularity, leadership opportunities and superior social skills (Terman & Oden, 1947); another suggesting aloneness, loneliness and social isolation (Hollingworth, 1926; 1942; Webb et al, 1982). Those articles that offer the ‘loner’ view are more prevalent especially in the case of profoundly gifted children (Clark, 1983; Delisle, 1982; VanTassel-Baska, 1989; Webb et al, 1982; Whitmore, 1980; 1985). Delisle (1982) has identified several key social behaviours (fear of success or failure, perfectionism and peer isolation or ostracization) which he identifies as possibly precipitating overt anti-social and even suicidal events in CHIP adolescents’ lives.

One possible explanation for the perception of CHIP as either leader or loner may be individual personality types. However, it is also likely to be attributable to the extent to which one is a CHIP. Those individuals at the higher levels of ability (IQ 145+ or 3 standard deviations above the mean) seem to experience the most social
isolation. This isolation may be attributed to being grouped with chronological age-mates who do not share similar interests, communicate at a different level and operate conceptually at less challenging levels (Gross, 1993; Hollingworth, 1942). For CHIP, in part, these chronological age-mates view their behaviour as CHIP as unacceptable or aberrant and according to Higham and Beuscher (1987) some gifted students are "[o]bjects of unnecessary, non-supportive scrutiny in the classroom" (p 28). This appears to be particularly so where the child's IQ increases past 160+ (four standard deviations from the mean) (Gallagher & Crowder, 1957; Gross, 1993; Hollingworth, 1942; VanTassel-Baska, 1989).

3.3.1 The Influence of Peers on Achievers and Underachievers in the General Population

In terms of achievers and underachievers Leonoff (1992) in a study of 1142 high school students from the general population, over 200 of whom were identified as underachievers, found non-significant differences between achievers and underachievers in reported conflict with peers or support from peers. However, gender may be an important variable in academic achievement with some differences in family relationships and achievement levels being noted in other studies (McCall et al, 1992; Kulieke & Olszewski-Kubilius, 1989).

3.3.2 The Influence of Peers on Achievers and Underachievers in the CHIP Population

Whitmore, (1980; 1985; 1986) believed CHIP underachievers had particular difficulties in making and maintaining friendships because they displayed behaviour patterns which reflected their feelings of low self-esteem, their lack of belief in their
ability to influence outcomes in school, an unrealistic self-concept and negative attitudes towards school.

There appears to be little current research interest in the peer support structures that may impact upon CHIP underachievers and CHIP achievers. Studies that do exist consider differences between profoundly gifted individuals (Hollingworth, 1942) or are retrospective studies of eminent individuals (Goertzel et al, 1978). Both these studies are quite dated but they also deal with highly exceptional individuals whose experiences were confounded by their level of their exceptionality or by the pursuit of their talent. There are no published Australian studies.

3.4 The Influence of the Child’s Self-Perceptions: Comparing Children in the General and CHIP Populations

The difficulty of considering ‘gifted’ children as a homogenous grouping has been highlighted in Section 1.3. To consider CHIP underachievers’ perceptions of themselves the differing ability levels of CHIP needs to be explored. Other variables where the children may differ include age (see Section 3.2) and whether children are in designated differentiated educational settings (Section 3.1.2). There are also possible effects of gender, although a similarity of response regardless of gender in CHIP populations has been consistently noted in CHIP responses on instruments such as the FES (Moos & Moos, 1994), other measures (Buescher & Higham, 1989; Olszewski-Kubilius & Kulicke, 1989) and the Coopersmith Self-Esteem Inventory (Gross, 1993).

CHIP junior-high girls resembled CHIP junior-high boys in values, personality characteristics, expressed need, and perceptions of competence and self-worth
(Olszewski-Kubilius & Kulieke, 1989). The resemblance led the authors to conclude that "[g]ifted females and gifted males are more similar than different on personality profiles, and those difference that exist are generally consistent with sex stereotypes" (Olszewski-Kubilius & Kulieke, 1989, p 130). Johnson (1997) found no significant differences between CHIP males and females on the psychosocial factors of attributional style, perceived level of social support, self-concept and general values. Thus, in considering CHIP in Section 3.4 unless specific gender differences are cited CHIP refers to both male and female children.

Higher scores have been found when comparing CHIP to the general population on measures of self-esteem and self-concept, indicating more positive psychological profiles, better adjustment and lower levels of anxiety (Olszewski-Kubilius & Kulieke, 1989). In a study of CHIP Milgram and Milgram (1976) found that their sample of CHIP in grades four to eight gave fewer indications of psychological disturbance, compared to same-age general peers. In contrast the older non-CHIP students had a more positive body image, described themselves more positively, and reported a greater sense of personal worth and self-confidence, compared to their CHIP counterparts.

Consistently, in studies of CHIP and general population, it seems that CHIP place more weight upon certain personal characteristics than do non-CHIP students. CHIP value their intellectual abilities as a measure of their worth and place much less emphasis than general students on how physically attractive they are to others (Buescher & Higham, 1989; Olszewski, Kulieke & Willis, 1987). Buescher and Higham (1989) found that a substantial majority of their subjects viewed themselves as being academically competent (80%) and generally worthy (71%), yet only about half of the group members viewed themselves as competent in social acceptability
and physical appearance (48%). Buescher et al (1989) noted that regardless of age, CHIP satisfaction with their appearance consistently received the lowest scores and that the physical appearance scores for girls decline steadily from age 12 onward, as do the global self-worth scores reported (Buescher & Higham, 1989). The finding that CHIP place more emphasis on their intellectual abilities as a measure of their worth and conversely much less emphasis on how attractive they are to others has been widely reported (Buescher & Higham, 1989; Olszewski-Kubilius & Kulieke, 1989; Olszewski, Kulieke & Willis, 1987).

A number of studies reported lower levels of anxiety and higher adjustment levels among CHIP when compared to norming groups of the same-age children drawn from the general population (Bodenstein, 1997; Davis & Connell, 1985; Milgram & Milgram, 1976; Nelson, 1984; Olszewski-Kubilius & Kulieke, 1989). Gender differences have been noted. In a study of talent-search participants the males had significantly higher means for scholastic competence, behavioural conduct, and global self-worth than the norming sample males (Olszewski-Kubilius & Kulieke, 1989). Davis and Connell (1985) found lower levels of anxiety about school for high IQ fourth, fifth and sixth graders, compared to general students the same age. In a recent study of 95 CHIP and 90 general high school students Johnson (1997) found no significant differences between CHIP males and females on psychosocial factors (attributional style, perceived level of social support, self concept and general values).

Nelson (1984) found strong correlations between scores on the Family Environment Scale (Moos & Moos, 1994) subscales and various types of adjustment for CHIP. Of importance to his subjects' peer self-concept were high scale scores on Cohesion, Expressiveness, Intellectual-Cultural Orientation, Active-Recreational Orientation and Organization, with Conflict significantly inversely related. For both
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scholastic and general self-concept: Cohesion, Intellectual-Cultural Orientation, Active-Recreational Orientation, Moral-Religious Emphasis, and Organization with Conflict and Control both significantly inversely related. Expressiveness was also positively related to general self-concept. Thus in terms of self-concept when CHIP are compared to children within the general population there should be distinctively higher scores on measures of self-concept, particularly in the scholastic and general domains (Janos, Fung & Robinson, 1985).

It seems that in comparing CHIP with their general population age-mates there are fewer indications of psychological disturbance (Milgram & Milgram, 1976) lower levels of anxiety and higher adjustment levels (Olszewski-Kubilius & Kulieke, 1989; Davis & Connell, 1985), but low CHIP satisfaction with their physical appearance (Buescher & Higham, 1989).

3.4.1 The Influence of the Self-Perceptions of the Underachieving Child in the General Population

Mandel and Marcus (1988) outline the personalities of underachievers expressed in the terms of the Diagnostic and Statistical Manual of Mental Disorders (DSM III-R) (American Psychiatric Association, 1987; rev. 1994). Using the DSM as a basis for description of different personality styles or types of underachievers Mandel and Marcus caution that they do not necessarily presume psychopathology or abnormality but are “merely using the label in an attempt to capture a personality style with its various characteristics” (1988, p 114). Mandel and Marcus (1988) consider that there are five DSM-III-R categories likely to include the majority of underachieving students. These are (i) The Overanxious Disorder; (ii) The Academic Problem; (iii) The Identity Disorder and (iv) The Conduct Disorders, and (v)
Oppositional Defiant Disorder. For each of the five diagnostic categories Mandel and Marcus (1988) hypothesise that there are core characteristics. They suggest that each type requires specific diagnostic testing, presents differently at interview and has identifying family relationships. They offer a practical diagnosis and elaborate upon a differential treatment for each type.


"[l]ow self esteem leads the underachiever to non-productive avoidance behaviours both at school and home. For example, underachievers may avoid a productive effort by asserting that school is irrelevant and that they see no reason to study material for which there is no use.... If they do not study, they can use the non-studying as a rationale for the failure, thus protecting their precarious feelings of self-worth."  

Rimm, 1991 p 334

It would be important to include in any research on underachievement self-esteem inventories designed to ascertain how children feel about themselves and, in the case of CHIP, their unique abilities in a variety of areas including social, familial and academic.

3.4.2 The Influence of the Self-Perceptions of the Underachieving Child in the CHIP Population

There are personality attributes that are thought to influence underachievement in CHIP. These traits may be unique to CHIP underachievers. The first of these is perfectionism, a drive that makes the gifted student discontent with any performance
short of meeting their personal goals (Adderholdt-Elliot, 1987; Kerr, 1991; Rimm, 1986; Robinson & Noble, 1991; Roedell, 1984; Strang, 1951, Whitmore, 1980). The second attribute is supersensitivity where emotional sensitivity and emotional intensity distinguish most CHIP from their non-gifted 'peers' (Dabrowski & Piechowski, 1977; Silverman, 1983; Webb et al, 1982). Whilst research from the 1940s to the 1980s has contributed to a recognition and understanding of the predisposition of CHIP to perfectionism (Carroll, 1940; Hollingworth, 1942; Pringle 1970; Strang 1951; Whitmore, 1980), the role of perfectionism and supersensitivity in contributing to underachievement has not been widely researched.

Olszewski-Kubilius, Kulieke and Krasney (1988) noted ambiguous and conflicting findings in their overview of the empirical literature of the 1960s, 1970s and 1980s regarding personality dimensions of CHIP achievers and underachievers. Whilst CHIP achievers had a tendency to be higher in responsibility and measures of self or internal control than CHIP underachievers, Olszewski-Kubilius et al (1988) noted that on other personality dimensions the differences tended to favour the underachievers.

Other studies, however, suggested that when compared to CHIP achievers, CHIP underachievers were more socially immature (Hecht, 1975; Purkey, 1970; Zilli, 1971) and had more emotional problems (Hecht, 1975; Pringle, 1970). On most personality tests CHIP underachievers responded in ways indicating antisocial personality characteristics (Delisle, 1982; Kerr, 1991; Purkey, 1970; Whitmore 1980). Kerr (1991) noted that the problems of CHIP underachievers, for example perfectionism, are long term rather than situational. The most consistent finding is that CHIP underachievers display lower self-esteem than achieving CHIP (Colangelo

No research into CHIP underachievement exists within an Australian context. It is possible to suggest, however, that undifferentiated and 'boring' curricula (The Marland Report, 1982; Senate Select Committee, 1988; Whitmore, 1980), grouping with non-CHIP peers and negative perceptions of 'giftedness' will see lower self-esteem — particularly in the school arena — for all CHIP, and especially for underachieving CHIP.

3.5 Aims and Hypotheses of the Present Study

Little research has been conducted with CHIP in Victorian schools. A possible 35,000 CHIP in Victorian schools, of whom a substantial number are likely to be underachieving, is a significantly large group to warrant examination. A review of the literature suggests that underachievement is a complex interplay of school, family and individual characteristics of the underachiever. Some of these characteristics will be specific to CHIP students.

As discussed in Section 2.4 a discrepancy formula utilising a student's IQ score on the Stanford-Binet (L-M) (Terman & Merrill, 1973) will be compared to their actual performance on two achievement measures. Underachievement will be evidenced when the result on the achievement measure is two stanines or more lower than their IQ score utilising norms pertaining to the student's current year levels.

The following hypotheses will be tested:
Hypothesis One: That 33% of CHIP in the present study will underachieve in either Reading or Mathematics. The figure of 33% represents a middle point in the figures estimated as being between 15% and the 50% underachievement in the gifted population cited in the literature.

Hypothesis Two: That underachieving CHIP will display poorer study and learning habits than achieving CHIP.

Hypothesis Three: That on a measure of school satisfaction, CHIP will be less satisfied than the test norms for all children

Hypothesis Four: That on a measure of school satisfaction underachieving CHIP will score significantly lower than achieving CHIP.

Hypothesis Five: That CHIP FES scores will show more familial conflict than the test norms for the general population.

Hypothesis Six: That underachieving CHIP family relationships will display more familial conflicts and tension than the families of achieving CHIP.

Hypothesis Seven: That CHIP will have lower self-esteem than the test norms for all children.

Hypothesis Eight: That underachieving CHIP will have lower self-esteem than achieving CHIP.
Hypothesis Nine: That CHIP who have been accelerated (early entry, grade skipping, subject acceleration) will perform better on measures of achievement, student satisfaction, school satisfaction and self-esteem than CHIP who have not been accelerated.

Hypothesis Ten: That CHIP whose IQ score is 145+ will perform significantly differently from those whose score lies within the range 125 – 144 IQ on all assessment indicators.
4.0 Type I Error

Given the small sample size (N=50) and the ensuing extensive analysis of the current group under study due concern must be given to the possibility of Type I error (Tabachnick & Fidell, 1996). A Type 1 error occurs if the null hypothesis is rejected when it is actually true. The purpose of conducting the current research is to determine whether differences on a dependent variable are likely to be due to chance or to non-chance factors. If a null hypothesis is rejected then there is a basis for concluding that the independent variable has had an effect. In the current research all statistical analyses have utilised a .05 significance level, meaning that the null hypothesis is rejected no more than 5% of the time when it is true. The presence of a number of highly significant findings (such as at .01, .001 and .000 significance levels) suggest that Type I error has been minimised in the present study where possible beyond the .05 significance level.

4.1 Participants

Participants were recruited on the basis of age and a minimum IQ score of 125 on a previous assessment on the Stanford-Binet (L-M) Intelligence Scale. All participants were recruited from the Melbourne Metropolitan area. Potential participants were students whose parents had given permission to release limited data to approved researchers through the CHIP Foundation. Of the possible 107 families of children of high intellectual potential who might be recruited 63 families declined to participate, giving an overall response rate of 41% or 44 families, totalling 50 students. Families who declined to participate were not asked for their reasons and as
little background data exists on these families regarding demographics such as SES, parental occupation etc it is not possible to ascertain whether the CHIP families who chose to participate may be generalised to represent all CHIP.

Only children comprised 62% of the sample, and the sample also included six pairs of siblings. At the time of the administration of questionnaires and achievement testing the children were between the ages of 9 to 14 years and were currently attending school as on-campus students. Of the participants there were 27 males (\(M_{\text{age}}=11.7\) years, \(SD=1.14\)) and 23 females (\(M_{\text{age}}=11.3\) years, \(SD=1.30\)). There was no significant difference in age between male and female participants (\(t_{(48)}=.23, p>.05\)).

Previously tested on the Stanford-Binet (L-M) Intelligence Scale, (Terman & Merrill, 1973) the children in the sample had recorded IQ scores between 125 and 200 on the Stanford-Binet (L-M) (\(M_{\text{IQ}}=142, SD=14.1\)). In considering gender and IQ, male IQ scores (\(M_{\text{IQ}}=142.5\) IQ, \(SD=15.7\)) and female IQ scores (\(M_{\text{IQ}}=141.7, SD=12.3\)) showed no significant difference (\(t_{(48)}=.21, p>.05\)) The distribution of IQ in the sample is contained in Table 1.

<table>
<thead>
<tr>
<th>IQ score</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 - 129</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>130 - 134</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>135 - 139</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>140 - 144</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>16.0</td>
</tr>
<tr>
<td>145 - 149</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>150 - 154</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>144 - 159</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>160 - 164</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>165 - 169</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>195 - 200</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>23</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Grade levels of the sample was from Grade 4 to Year 9, with 29.6% of males and 34.8% of females being in Grade Six at the time of testing. The distribution showed no association between grade and gender ($\chi^2(5) = 4.64, p > .05$).

As well as information regarding the current grade level of their child, parents provided information on whether their child had been accelerated. If accelerated, parents were asked to specify the nature of the acceleration. Fifty-six percent of children had not been accelerated, whilst 44% had experienced some form of acceleration which might result in them not being in the grade expected for their chronological age. Table 2 shows the acceleration types experienced by the children in the sample.

Table 2

<table>
<thead>
<tr>
<th>Acceleration Options by Gender</th>
<th>Freq</th>
<th>Male</th>
<th>Female</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No acceleration</td>
<td>28</td>
<td>17</td>
<td>11</td>
<td>56.0</td>
</tr>
<tr>
<td>Grade acceleration</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>12.0</td>
</tr>
<tr>
<td>Subject acceleration</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>8.0</td>
</tr>
<tr>
<td>Early entry</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>16.0</td>
</tr>
<tr>
<td>Early entry plus grade</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>Early entry plus subject</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>27</td>
<td>23</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Parents were asked to provide details of their children’s schooling in terms of type of schooling attended (Department of Education, Independent or Religious), whether the school was single sex or coeducational and whether the school was primary, primary and secondary combined or secondary only. Parental data revealed that the majority of children were in Independent/Private schools, as shown in Table 3. There was no significant association between types of schooling and gender ($\chi^2(2) = .61, p > .05$)
Table 3

Type of School Currently Attended

<table>
<thead>
<tr>
<th></th>
<th>Freq</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Education</td>
<td>17</td>
<td>34.0</td>
</tr>
<tr>
<td>Independent/Private</td>
<td>30</td>
<td>60.0</td>
</tr>
<tr>
<td>Religious</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Approximately one third of the sample (30%) were currently attending schools that offered only primary education, whilst only six students (12%) were in a secondary-only environment. In terms of the school being coeducational or single-sex in its structure, almost 60% of the sample were educated in coeducational environments as shown in Table 4. The different school types showed no significant association with gender ($\chi^2 (2) = 3.44, p >.05$).

Table 4

Type of School Environment

<table>
<thead>
<tr>
<th>School Environment</th>
<th>Freq</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single sex</td>
<td>19</td>
<td>38.0</td>
</tr>
<tr>
<td>Coeducational</td>
<td>29</td>
<td>58.0</td>
</tr>
<tr>
<td>Not provided</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Parents provided the number of schools that their child had attended and, if applicable, why schools were changed. As can be seen in Table 5 only 14 students were still in their original schools or had changed school only by ‘natural’ progression from primary to secondary. The number of school changes and the reasons for the change showed no significant association ($\chi^2 (3) = 4.11, p >.05$).
Table 5

Number of Schools Attended

<table>
<thead>
<tr>
<th>Number of schools attended</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>only school or primary to secondary change only</td>
<td>14</td>
<td>28.6</td>
</tr>
<tr>
<td>two schools</td>
<td>19</td>
<td>38.8</td>
</tr>
<tr>
<td>three schools</td>
<td>12</td>
<td>24.5</td>
</tr>
<tr>
<td>more than three schools</td>
<td>4</td>
<td>8.2</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>100.1</td>
</tr>
</tbody>
</table>

When the 35 of the 49 parents (71.5%) whose children had changed schools were asked the reasons for changing 91.4% expressed “dissatisfaction with the present school” as the reason for the change. The reasons were not significantly associated with gender ($\chi^2 (4) = .65, p>.05$).

4.2 Materials

Data was collected from students and their parents. Test instruments were selected on the basis of a review of the literature and either availability and/or accepted use in Australia. Thus, although the Wechsler Individual Achievement Test (WIAT, Wechsler, 1993) is available in Australia it is not widely used and does not have Australian norms, therefore the Progressive Achievement Tests in Reading Comprehension (ACER, 1985) and Progressive Achievement Tests – Mathematics Revised (ACER, 1997) were utilised.

Gross’ (1993) study had shown that children of high intellectual potential responded in highly significant ways on a number of individual items of a number of psychological measures such as the Coopersmith Scales and that these highly significant responses were ‘lost’ when only domain and subscale scores were considered. To identify whether significant responses were present on individual
items and whether such responses showed differences between achievers and underachievers all measures were considered at the level of individual item as well as at the subscale or domain level.

As all students had previously completed an individual ability assessment on the Stanford-Binet (L-M) (Terman & Merrill, 1973) ability assessments were not required.

4.2.1 Material Completed by Parents

4.2.1.1 Behavioural Academic Self-Esteem (BASE) (Coopersmith & Gilberts, 1981).

Parents completed the Behavioural Academic Self-Esteem (BASE) which is an observational rating scale of 16 items that assesses the academic self-esteem of children in five areas: Student Initiative (6 items), Social Attention (3 items), Success/Failure (2 items), Social Attraction (3 items), and Self-Confidence (2 items). Parents were asked to complete the BASE on the basis of knowledge gained about their child at the last parent-teacher interview with parents rating their children according to the frequencies of behaviours (1 = never, 5 = always). Coopersmith and Gilberts (1981) describe three levels of academic self-esteem (high-moderate-low), with a score at the mean minus one standard deviation equating to “low”; at the mean equating to “moderate”, and a score at the mean plus one standard deviation equating to “high”.

Coopersmith and Gilberts (1981) cite means and standard deviations for each BASE factor and BASE total score for gifted children, normed on a sample of 109 gifted students of both sexes in third through sixth grade. No details regarding the sample are cited with the exception that “[g]ifted students had much higher mean
ratings on all factors and the BASE total score than did regular students” (Manual, pVII-10).

Internal consistency based on the intercorrelations of factor scores with the total BASE scores resulted in reliabilities of BASE ratings of .83 for boys and .84 for girls. Coefficient alpha reliability of the five areas in the present study was: Student Initiative (.88); Social Attention (.72); Success/Failure (.85); Social Attraction (.56), and Self-Confidence (.49). Reliability of all items on the BASE was .88.

4.2.1.2 Parent Demographic Questionnaire.

Parents completed a questionnaire (Appendix A) of 17 questions designed by the researcher. Eleven questions utilised a likert scale (1 = totally disagree, 10 = totally agree). Two short-answer questions sourced parent information on acceleration and school reports from the previous year. Three demographic questions required parents to check (tick) the correct option. One question was forced-choice providing a descriptive term and its opposite and asked the parent to select the appropriate term to describe their child on a number of characteristics. The questionnaire sought to ascertain parent opinions of their children’s school (8 items), their children’s interests (4 items) and current school performance (5 items).

4.2.2 Material Completed by Parents and Children.

4.2.2.1 Family Environment Scale (FES) (Moos & Moos, 3rd Edition, 1994).

Parents and children completed the Family Environment Scale (FES) a 90 item self-report questionnaire. The FES assesses the family climate and the level of agreement amongst family members on ten subscales each of nine items. These 10 subscales are clustered into three domains: the Relationship Dimension totalling 27
items (subscales: Cohesion, Expressiveness and Conflict); the Personal Growth Dimension totalling 45 items (subscales: Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation and Moral-Religious Emphasis), and the System Maintenance Dimension totalling 18 items (subscales: Organisation and Control).

Moos and Moos (1994) cite internal consistencies (Cronbach's alpha) for each of the 10 subscales between .61 for independence and .78 for cohesion, intellectual-cultural orientation and moral-religious orientation. Two-month Test-Retest Reliability is in the acceptable range, varying from a low of .68 for independence to a high of .86 for cohesion. The computation of a Family Incongruence Score is possible through the calculation of the absolute difference between family members on each of the 10 subscales. Moos and Moos (1994) cite means and standard deviations for Normal and Distressed Families. Reliabilities for the present study were variable ranging between .00 and .80 and are shown in Table 6.

Table 6

Alpha Coefficients for Parent and Children FES Subscales

<table>
<thead>
<tr>
<th>Subscale Name</th>
<th>Reliability of the FES Subscales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent</td>
</tr>
<tr>
<td>Cohesion</td>
<td>.75</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>.53</td>
</tr>
<tr>
<td>Conflict</td>
<td>.66</td>
</tr>
<tr>
<td>Independence</td>
<td>.23</td>
</tr>
<tr>
<td>Achievement Orientation</td>
<td>.52</td>
</tr>
<tr>
<td>Intellectual-Cultural Orientation</td>
<td>.42</td>
</tr>
<tr>
<td>Active-Recreational Orientation</td>
<td>.65</td>
</tr>
<tr>
<td>Moral Religious Emphasis</td>
<td>.63</td>
</tr>
<tr>
<td>Organisation</td>
<td>.64</td>
</tr>
<tr>
<td>Control</td>
<td>.56</td>
</tr>
<tr>
<td>Family Harmony (inc Cohesion, Expressiveness, Conflict)</td>
<td>.57</td>
</tr>
</tbody>
</table>
The Independence Subscale showed .23 reliability for parent and .00 for child respondents. Moos and Moos (1994) cite this subscale as the lowest of the subscales with reliability at .61. This scale also has the lowest stability over time in test-retest studies (Moos & Moos, manual, p 22). Due to the low subscale reliability the Independence scale was not used in any analyses.

4.2.3 Material Completed by Children

As previously mentioned the Australian Council for Education Research (ACER) (1999) cites the Progressive Achievement Tests (PAT) as two of the most-popularly-used tests in Australian schools to determine reading comprehension and maths achievement (PAT-Read and PAT-Maths). As the PATs were also suggested by the Bright Futures (1995; 1999) documents as suitable achievement tests in the identification and assessment of gifted children it was decided to utilise these tests in the two Key Learning Areas (KLAs) under assessment.

4.2.3.1 The Progressive Achievement Test in Reading Comprehension (PAT-Read)


All students completed the Progressive Achievement Tests in Reading Comprehension (PAT-Read) which is designed to assess reading comprehension in year levels three through nine. The PAT-Read is a group administered test taking a maximum of 40 minutes to complete. Students are presented with a graded passage of reading followed by a series of multiple choice questions. These questions are designed to measure both factual and inferential comprehension. Dependent upon their grade level, children are expected to complete either 41 or 47 questions. The basal level and the end point are determined by the child’s current grade level.
To assess a child’s achievement level in relation to the class the appropriate questions on the test are completed and no further questions are completed even if time permits. Thus an able child might finish the appropriate section within twenty minutes but not be allowed to progress further. However, out-of-level achievement testing allows the child to begin at a higher, basal level and/or allows the child to continue to complete all questions whilst time permits.

Given the known higher ability levels of the students the researcher chose to begin testing children at one year beyond their grade level and allowed the children to complete as much of the test as time permitted. In this way scores at grade level, as well as scores out-of-level, could be obtained for all children.

The Australian Council of Educational Research (ACER) report the reliability of the test at each grade level in terms of the Kuder-Richardson Reliability Coefficient (KR-20) which range from a low of .87 at Grade Five to a high of .92 at Year Eight. Correlation indices were obtained from some 15 comparisons of the PAT-Read with other Australian Comprehension tests and indicated medium to high relationships with correlations in the range of .65 to .86.

4.2.3.2 Progressive Achievement Test – Mathematics Revised (PAT-Maths R) (ACER, 1997).

The Progressive Achievement Tests – Mathematics Revised (PAT Maths-R) provides information about the level of achievement attained by students on levels 1 – 5 of the National Mathematics Profiles. The group-administered test measures the level of mathematical knowledge via three graded booklets. Booklet 1A of 37 questions is designed for the 4th, 5th and 6th year of schooling in Victoria and emphasises National Profile levels 2 and 3. Booklet 2A comprises 39 questions and is
designed for the 6th, 7th, 8th and 9th year of schooling in Victoria and emphasises National Profile levels 3 and 4. Booklet 3A comprises 41 questions and is designed for the 7th, 8th and 9th year of schooling and emphasises National Profile Levels 4 and 5. The choice of booklet, where more than one booklet may be used at a particular year level, is determined on the basis of the level of advancement of the group under testing. The higher level booklet was chosen on all occasions where choice was available. This choice was made to allow sufficient scope for students to demonstrate their mathematical abilities without 'hitting the ceiling' of the test at their year level. As an example, a 5th grade student would complete Booklet 2A rather than 1A thereby allowing the student to demonstrate their ability to complete work at higher year levels.

All booklet levels of the PAT Maths-R take 45 minutes to complete. Students complete all questions in the Booklet regardless of their current year level without the use of a calculator although working paper is provided.

Test reliability of the PAT Maths-R has been expressed in terms of the Kuder-Richardson Reliability Coefficient (KR-20) and is cited as .91 for Booklet 1A; .90 for Booklet 2A and .92 for Booklet 3A. In terms of validity, ACER reports that Rasch item calibration procedures were utilised in constructing the test and that all items in the final test fit the Rasch model satisfactorily. Thus the test can be regarded as indicating a student's status on a single underlying variable measuring a single trait.

4.2.3.3 Mathematics Competency Test (MCT) (Vernon, Millar & Izard, 1996).

A few students in the higher year levels (Year 8 and 9) would likely achieve such high scores at grade level that their (highest) level of achievement would remain unknown on the PAT Maths-R. There is little choice of test that discriminated at this
higher level so the Mathematics Competency Test (MCT) (Vernon, Millar & Izard, 1996) which has an age range to ‘adults’ was chosen. The MCT comprises 46 questions that are open-ended and require constructed responses rather than the recognition of a correct multiple-choice answer. The test is group administered and takes 30 minutes to complete. Scores were interpreted relative to the reference group provided in the manual (Vernon et al, 1996). Vernon et al (1997) report a reliability coefficient of .94 for the reference group (N = 839) and from a single administration.

4.2.3.4 Coopersmith Self-Esteem Inventory (SEI) (Coopersmith, 1981).

Children completed the Coopersmith Self-Esteem Inventory (SEI) (Coopersmith, 1981). The SEI is a brief self-report questionnaire measuring attitudes towards the self in social, academic and personal contexts. The School Form, which comprises 58 forced choice (ie yes/no) items was completed. This form provides scores for self-esteem in four contexts: Social, Home, Academic and General. The scale also comprises a lie scale. Gilberts (1981) reviewed over 100 studies utilising the SEI during the 1970s and cites KR20s across all grade levels as ranging from .80 to .86. Coopersmith (1981) cites studies showing adequate concurrent validity and predictive validity. The SEI was selected because of its brevity, ease of administration and on the basis that the SEI was utilised in much of the US research. Further, whilst Australian research is limited, Gross’ (1993) study of exceptionally gifted students utilised the SEI.

Alpha coefficients in the present study were good in each of the contexts: Social (.74) Home (.82), Academic (.64), General (.86) and Lie scale (.60). The reliability overall on the SEI was .92.
4.2.3.5 Quality of School Life Scale (QSL) (Ainley, Reed & Miller, 1986).

All students completed the Quality of School Life Scale (QSL) (Ainley, Reed & Miller, 1986). The Quality of School Life Scale comprises forty statements that are prefaced by the stem “My school is a place where...”. Students are asked to indicate the extent to which they agree with each statement on a four point likert scale (1 = definitely disagree, 4 = definitely agree). Administration is untimed. The scale aims to ascertain affective responses of students to their school life by assessing the general feeling of well being (5 items) and general negative feelings (5 items). The student’s feeling about five specific domains of school life: Achievement (5 items); Opportunity (6 items); Status (5 items); Identity (6 items); and, Teachers (6 items) are measured. Two items are excluded from the subscale scores for achievement and status respectively. The subscales were shown to be reliable with alpha coefficients ranging from .75 to .84.

For the present study alpha coefficients of the two affective domains and five school specific domains were all high. For the two affective domains: general feeling of well being showed an alpha coefficient of .86 and general negative feelings showed an alpha of .83. The student’s feelings about five specific domains of school life were also high being Achievement (.77); Opportunity (.83); Status (.88); Identity (.89); and, Teachers (.89). The overall reliability for the entire test was very high (.93).

4.2.3.6 Learning Process Questionnaire (LPQ) (Biggs, 1987).

Students completed the Learning Process Questionnaire (LPQ) (Biggs, 1987) a 36-item, self-report questionnaire designed to ascertain motives and strategies in student learning. Three motive and three strategy subscales are assessed utilising 5-point likert scale, from 5 ("This item is always or mostly always true of me") to 1
('This item is never or only rarely true of me'). The range of scores for any one of the motive and strategy subscales is from 6 to 30 and each motive-strategy combination defines a distinct approach to learning:

(i) 'surface' approach learners: those whose approach might best be described as doing the minimum required to get through work requirements, often concentrating on factual details and rote learning;

(ii) 'deep' approach learners: those whose learning is characterised by a deep desire to search for meaning and who display an intrinsic interest in what is being learned;

(iii) 'achieving' approach learners: those who are mainly interested in getting good marks and are deliberate and careful in planning and seek to learn to the test, and

(iv) 'deep-achieving' approach learners: those who search for personal meaning and relevance but do so with careful organisation and a syllabus-oriented strategy to obtain high marks. - (LPQ manual, Biggs, 1987, p15).

Biggs (1987) cites internal consistency data as being satisfactory with alpha coefficients at age 14 between .46 and .77, with the Surface Motive showing least consistency. Test-Retest reliability (four months interval between testing) is also generally considered satisfactory. Cornell (1986) and Edwards (1986) showed alpha coefficients that ranged from .49 for the Surface Strategy to .72 for the Achieving Strategy.

In the present study the alpha coefficients for all items comprising the Motive subscale was .62, specifically Surface Motive (.31), Deep Motive (.60) and Achieving
Motive (.55). The Strategy subscale across all items was .68, with Surface Strategy (.49), Deep Strategy (.84) and Achieving Strategy (.72).

4.2.3.7 Thinking about my School.

A questionnaire designed by the researcher, Thinking about my School (Appendix B), comprised 26 questions designed to ascertain how the child felt about school using a 4-point likert scale (1 = not at all, 4 = most times). Included were questions about teachers, as an example, “My teacher listens carefully to my ideas” and “Teachers are happy at school”. This ‘Teacher’ subscale comprised 11 items and the alpha coefficient for this subscale was .82. Questions about friendliness of the school, eg “I have many friends at school” and “I look forward to going to school” (7 items), showed a reliability of .83 for this ‘School’ subscale. A third subscale, ‘schoolwork’ of 5 items included questions about schoolwork, eg “I am learning a lot this year”, “Hard work pays off at school”, and had a reliability of .69. The further items “I would like to see many things change at my school (Item 11) and “School work is boring” (Item 12) did not add to the reliability of any subscale and were deleted from analysis. The alpha coefficient for the entire questionnaire excluding items 11 and 12 was .91.

4.2.3.8 Compared to Other Boys and Girls.

A questionnaire designed by the researcher, Compared to Other Boys and Girls (Appendix C), comprised 47 questions to be answered using a 5-point likert scale (1 = not so good, 5 = excellent). The questions asked the child to compare themselves to “other boys and girls your age” on a range of aspects including academic ability, physical and social attributes.
Items in the academic ability subscale included “being able to concentrate” and “learning things rapidly”, totalling 29 questions, and the subscale had an alpha coefficient of .94. Ten questions comprised a social relations subscale with items of the type “being active in social affairs with my own sex” and “getting a lot of fun out of life” and reliability was .88 for this subscale. A third subscale, Creativity, included 6 items such as “having new and original ideas” and “letting my imagination go when I want to”. The alpha coefficient for this subscale was .80. A final subscale asked the subject to compare themselves to others in terms of physical attributes (6 items) and physical prowess in sports (2 items) and included items such as “having nice facial features” (attribute) and “being good at sports” (prowess). This last subscale had a reliability of .83. Overall, the alpha coefficient for the entire questionnaire was very high at .95.

4.3 Procedure

The researcher prepared a proposal to the Ethics Committee of the CHIP Foundation including a brief rationale and background. The covering letter (Appendix D) requested permission to source the CHIP Foundation database of children who had been assessed and whose profile fitted certain parameters. The parameters included that the children’s birth dates were between 1984 to 1989; that they achieved a minimum IQ score of 125 on the Stanford-Binet (L-M) (Terman & Merrill, 1973) and that the family home was located in Metropolitan Melbourne. The Chairman of the CHIP Foundation granted permission to conduct the research utilising personal details obtained through the CHIP Foundation. The researcher was presented a list of students who fitted the profile desired.
As children would need to be assessed on achievement measures a second permission letter was sent to the CHIP Foundation (Appendix E) to request personal details such as addresses. After further explanations were provided in a telephone call a third letter and proposal (Appendix F) was sent to the CHIP Foundation. The Ethics Committee of the CHIP Foundation granted final approval. In addition, Swinburne University's Ethics Committee granted approval to conduct the research.

A letter (Appendix G) was sent to 115 parents. The letter sought approval for the parents and their children to participate in the research and sought possible testing times. Eight letters were “returned to sender”, leaving 107 possible respondents. A follow-up letter and package of information was then sent (Appendix H) to 55 families who had given their permission to participate (51% response rate). After seeking further information five families chose to discontinue their involvement. Finally, forty-four families (41% response rate) agreed to participate and completed testing and questionnaires. All correspondence to parents included Reply Paid Envelopes to a Post Office Box established by the researcher.

Data was collected between November 1997 and March 1998. As data from both parents and their children was to be collected a number of group times were scheduled at the premises of the CHIP Foundation to which parents and their children were invited. Concurrent with testing of their children, parents completed their own testing requirements (in approximately one hour), had refreshments and then attended a seminar on Underachievement, conducted by the researcher. Approximately 50% of families (21 families) elected to attend these sessions at the CHIP Foundation. The remaining 23 families were contacted individually to arrange a time for testing either in their own home or in a place of their choice.
At the group testing sessions, parents and children were addressed regarding the purposes of the study and the level of feedback both parties would receive. What would, and would not, be reported back to parents was clearly outlined to both parents and their children. The researcher stated that individual and personal comments made by children would not be reported back to parents however results of achievement testing in mathematics and reading and general information about preferred approaches to learning would be included in a written report to parents. Question time was allowed. Parents and children were then separated. Parents completed a series of questionnaires in untimed conditions.

The researcher addressed all children once again ensuring they understood the requirements of the testing and the level of reporting that would be provided to parents. Whilst their parents had given permission for their participation the student’s individual verbal willingness to participate was also sought. This was obtained from all children as they collected their first package of tests. Any questions were addressed. The students were then assessed on all the instruments under fully supervised conditions. It was stressed that children could work at their own speed to complete the tests but that there were some tests for which maximum time allocations existed. Completion of the entire test battery took between two and three hours depending on individual speed of completion. Questionnaire completion and testing was administered on one occasion. Supervisors during the children’s testing were individuals who had sufficient knowledge of the test instruments to answer questions should they arise. Refreshments were provided for the children. A similar test protocol was followed for individual administration of the test battery with the exception that the researcher conducted all supervision.
At the time of their agreement to participate in the study parents were informed that they would receive a brief report on their child’s performance on the achievement testing and a brief statement as to the child’s preferred approaches to learning. A copy of the format of report and its content is contained in Appendix I.
CHAPTER 5: RESULTS

5.1 Data Analysis

Data analysis was undertaken using Statistical Package for the Social Sciences (SPSS) for Windows (Release 10.1, SPSS Inc, 1999).

5.1.1 Notes on Determining Underachievement Status

An initial decision had to be made as to whether a subject's poor performance on both the Progressive Achievement Test in Mathematics and the Progressive Achievement Test in Reading Comprehension would be needed to identify them as an underachiever. Or alternatively, whether poor performance on only one of the measures would be sufficient. Prior to making such a decision a series of T-tests and Chi-Square analyses were undertaken to ensure that significant differences would not be missed by any decision made. In terms of achievement status subjects might be placed in one of four categories: (i) an underachiever on both PAT measures; (ii) an underachiever on the PAT-Maths-R; (iii) an underachiever on the PAT-Read, or (iv) an achiever on both PAT measures. Whilst there was a non-significant trend towards an association between gender and each of four possible categories of achievement status ($\chi^2_{(3)} = 7.33, p = .06$) there were no other significant differences attributable to, or associations between, any other variables (age, IQ, school type etc) being tested. A decision was made to consider two categories (i) underachievers who performed poorly on either PAT measure and (ii) achievers.
5.2 Underachievement Status

To determine which students were underachievers a discrepancy formula was utilised. A student’s IQ score on the Stanford-Binet (L-M) (Terman & Merrill, 1973) was compared to their actual performance utilising the norms for their current grade level on the two achievement measures: the PAT Maths and the PAT Read. Underachievement was considered to be present when the result on either of the achievement measures was two stanines, or more, lower than the stanine of their IQ score (Supplee, 1990).

Utilising this formula, 38% of the sample may be considered as underachievers as shown in Table 7.

Table 7

<table>
<thead>
<tr>
<th>Underachievement Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underachiever in both maths and reading</td>
<td>7</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Underachiever in maths</td>
<td>7</td>
<td>14.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Underachiever in reading</td>
<td>5</td>
<td>10.0</td>
<td>38.0</td>
</tr>
<tr>
<td>Achiever</td>
<td>31</td>
<td>62.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

5.2.1 Age, Gender, IQ and Underachievement Status

There was no significant association between gender and underachievement status ($\chi^2(1) = 1.03, p > .05$) nor was there a significant difference in age between achievers and underachievers ($t(48) = -1.90, p > .05$) with the mean age of underachievers being 11.95 years ($SD = .91$ years) and the mean age of achievers as 11.30 years ($SD = 1.32$ years). Similarly, both family size and underachievement
status ($\chi^2(3) = 1.33, p > .05$) and the position of the child in the family and their underachievement status ($\chi^2(2) = .92, p > .05$) showed no significant association. There was a significant difference in the mean IQ scores of achievers and underachievers with the underachievers having a lower mean IQ score on the Stanford-Binet (L-M) than the achievers ($t_{(48)} = -2.39, p = .02$). The mean IQ of underachievers was 136.30 (SD = 7.59) and the mean IQ of achievers was 145.70 (SD = 16.0).

5.2.2 Grade Level, Schooling Type, Acceleration and Underachievement Status

There was a significant association between grade level and achievement ($\chi^2(5) = 12.84, p < .05$) as shown in Table 8, with 47% of underachievers being in Year 7.

### Table 8

<table>
<thead>
<tr>
<th>Grade Levels of Underachievers and Achievers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Status</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Current Grade</td>
</tr>
<tr>
<td>Grade 4</td>
</tr>
<tr>
<td>Grade 5</td>
</tr>
<tr>
<td>Grade 6</td>
</tr>
<tr>
<td>Grade 7</td>
</tr>
<tr>
<td>Grade 8</td>
</tr>
<tr>
<td>Grade 9</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

There was no significant association between the type of school the child attended (State, Private or Religious) and achievement status ($\chi^2(2) = .13, p > .05$) nor was there a significant association between single sex and co-educational environments and underachievement status ($\chi^2(2) = .41, p > .05$).

Whether a student had experienced acceleration in any form and their achievement status was examined. There was no association between whether a
student had experienced acceleration and their achievement status \( \chi^2 (1) = 2.4, p > .05 \).

5.3 Parental Views

Parents were asked to report on their children’s school, teachers and the subjects their children were studying using a likert scale (1 = totally disagree with the statement given; 10 = totally agree with the statement given). The mean scores of parents of underachieving and achieving students are shown in Table 9. Parents of achieving children held a significantly higher belief that the school understood their child’s needs than did parents of underachieving children \( t(46) = -1.94, p = .05 \). As well, parents of underachieving children saw their children as being significantly less interested in school than did parents of achieving children \( t(46) = -2.88, p = .006 \). In considering how their child was performing in school the mean parent score for underachievers was significantly lower, indicating significantly poorer performance, than that of parents of achievers \( t(46) = -2.67, p = .01 \).

When parents were asked to choose one of two words, paired as opposites, to describe their child, the parents of underachievers did not answer in a significantly different way from the parents of achievers on the “achiever – underachiever” paired choice \( t(40) = -1.75, p > .05 \). Parent’s perceptions of their child’s social relationships were assessed. Parents of underachieving children when asked to select one choice to describe their child on the paired opposite “Very Social – Only a few friends” did not report their child as having significantly less or more friends than did parents of achieving children \( t(42) = 1.43, p > .05 \); \text{Mean}_{UA} = 0.69; \text{Mean}_A = 0.46 \).
<table>
<thead>
<tr>
<th>Parent comment</th>
<th>Mean score of parents of underachievers</th>
<th>Std deviation</th>
<th>Mean score of parents of achievers</th>
<th>Std deviation</th>
<th>t value (df = 46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with my child’s current school</td>
<td>5.68</td>
<td>2.31</td>
<td>6.69</td>
<td>2.16</td>
<td>-1.54</td>
</tr>
<tr>
<td>This school has responded fully to my child’s special educational needs</td>
<td>4.89</td>
<td>2.45</td>
<td>5.38</td>
<td>2.35</td>
<td>- .69</td>
</tr>
<tr>
<td>Overall, I find all my child’s teachers are understanding of his/her special needs.</td>
<td>4.89</td>
<td>2.37</td>
<td>5.66</td>
<td>2.39</td>
<td>-1.07</td>
</tr>
<tr>
<td>I believe my child’s current school is capable of ‘handling’ my child’s special needs.</td>
<td>5.89</td>
<td>2.60</td>
<td>6.31</td>
<td>2.55</td>
<td>- .55</td>
</tr>
<tr>
<td>My child’s current school understands my child’s needs</td>
<td>4.47</td>
<td>2.43</td>
<td>5.79</td>
<td>2.23</td>
<td>-1.935 *</td>
</tr>
<tr>
<td>Overall, I feel my child’s interest in school is totally disinterested (1) – totally interested (10)</td>
<td>5.63</td>
<td>2.48</td>
<td>7.52</td>
<td>2.03</td>
<td>-2.88 **</td>
</tr>
<tr>
<td>In the subject(s) he/she likes best I feel his/her interest level is totally disinterested (1) – totally interested (10)</td>
<td>7.84</td>
<td>2.01</td>
<td>8.58</td>
<td>1.86</td>
<td>-1.31</td>
</tr>
<tr>
<td>In the subject(s) he/she likes least I feel his/her interest level is totally disinterested (1) – totally interested (10)</td>
<td>3.47</td>
<td>1.68</td>
<td>4.72</td>
<td>2.63</td>
<td>-1.84</td>
</tr>
<tr>
<td>Overall, I feel my child’s performance in school is poor performance (1) – excellent performance (10)</td>
<td>6.84</td>
<td>1.77</td>
<td>8.14</td>
<td>1.55</td>
<td>-2.67 **</td>
</tr>
<tr>
<td>In the subject(s) he/she likes best I feel his/her performance level is poor performance (1) – excellent performance (10)</td>
<td>8.22</td>
<td>1.99</td>
<td>8.97</td>
<td>1.52</td>
<td>-1.45</td>
</tr>
<tr>
<td>In the subject(s) he/she likes least I feel his/her performance level is poor performance (1) – excellent performance (10)</td>
<td>4.89</td>
<td>2.14</td>
<td>5.90</td>
<td>2.02</td>
<td>-1.62</td>
</tr>
</tbody>
</table>

* p ≤ .05  ** p ≤ .01  (1 = totally disagree, 10 = totally agree)
On only two choices – care taken by the children and interest in reading - did parents of underachievers differ in their responses from parents of achievers. Parents of underachievers perceived their children in a significantly different way from parents of achievers on “careful – careless”. Parents of underachievers considered their children to be significantly more careless \((t_{(40)} = -2.15, p = .04; \text{Mean}_{UA} = 0.24; \text{Mean}_A = 0.56)\). On the paired opposites “avid reader – disinterested reader” parents of underachievers perceived their children as significantly less interested in reading compared to parents of achievers who perceived their children as avid readers \((t_{(43)} = 4.07, p = .000; \text{Mean}_{UA} = 0.47; \text{Mean}_A = .90)\).

Utilising parent's ratings of their children on the BASE, only one BASE factor was found to significantly differ between underachievers and achievers: social attention. Parents of underachievers answered significantly lower than did parents of achievers on this factor \((t_{(45)} = -2.49, p = .02; \text{Mean}_{UA} = 12.62; \text{Mean}_A = 11.23)\). On all other BASE factors the answers of parents of underachievers and achievers were not statistically different.

BASE scores were also analysed against the norms provided for ‘gifted children’ (Coopersmith & Gilberts, 1981). Results of the analyses are provided in Table 10. As can be seen in Table 10 parents of CHIP report significantly lower self-esteem in their children at school in the areas of Success/Failure, Social Attraction and as a total score than the norms for reports on Gifted Children in the US. On three of the five domains and overall, underachievers were reported to have significantly lower self-esteem in the academic (schooling) domain.
Table 10

Mean Scores of BASE Domains for CHIP\(^1\) and \(^2\) and ‘Gifted’ Populations

<table>
<thead>
<tr>
<th>BASE Domain</th>
<th>Manual Gifted Children Mean</th>
<th>CHIP(^1) Regardless of achievement status</th>
<th>Underachievers Mean</th>
<th>CHIP(^2) Achievers Mean</th>
<th>(t)</th>
<th>df(46)</th>
<th>(t)</th>
<th>df(46)</th>
<th>(t)</th>
<th>df(46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Initiative</td>
<td>24.72</td>
<td>24.38</td>
<td>-0.54</td>
<td>23.06</td>
<td>-1.30</td>
<td>25.21</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Attention</td>
<td>12.28</td>
<td>12.11</td>
<td>-0.62</td>
<td>11.28</td>
<td>-2.16*</td>
<td>12.62</td>
<td>1.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success/ Failure</td>
<td>7.61</td>
<td>6.26</td>
<td>-4.84***</td>
<td>5.94</td>
<td>-3.02**</td>
<td>6.45</td>
<td>-3.80***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Attraction</td>
<td>11.69</td>
<td>10.55</td>
<td>-3.97***</td>
<td>10.06</td>
<td>-3.40**</td>
<td>10.86</td>
<td>-2.36*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Confidence</td>
<td>8.38</td>
<td>8.34</td>
<td>-1.8</td>
<td>7.94</td>
<td>-1.08</td>
<td>8.58</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>64.66</td>
<td>61.53</td>
<td>-2.48*</td>
<td>58.28</td>
<td>-2.68*</td>
<td>63.55</td>
<td>-0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\ast p \leq .05\)  \(\ast\ast p \leq .01\)  \(\ast\ast\ast p \leq .001\)

**NOTE:**

CHIP\(^1\) = \(t\)-tests between scores in the manual for gifted children and scores for CHIP regardless of achievement status

CHIP\(^2\) = \(t\)-tests between scores in the manual for gifted children and scores for CHIP achievers and underachievers
As shown in Table 11, an analysis of individual items on the BASE revealed four items that significantly differed between CHIP underachievers and CHIP achievers.

Table 11

<table>
<thead>
<tr>
<th>BASE No</th>
<th>Prompt Item</th>
<th>Underachievers</th>
<th>Achievers</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>(df=45)</td>
</tr>
<tr>
<td>6</td>
<td>This child easily adapts to changes in procedures</td>
<td>3.67 1.09</td>
<td>4.21 .726</td>
<td>-2.09*</td>
</tr>
<tr>
<td>7</td>
<td>This child is quiet in class, speaks in turn and talks appropriately</td>
<td>3.61 .850</td>
<td>4.14 .789</td>
<td>-2.16*</td>
</tr>
<tr>
<td>8</td>
<td>This child talks appropriately about his or her school accomplishments</td>
<td>3.67 .970</td>
<td>4.17 .658</td>
<td>-2.13*</td>
</tr>
<tr>
<td>16</td>
<td>This child appreciates his or her work, work products and activities</td>
<td>3.67 .970</td>
<td>4.37 .660</td>
<td>-2.71**</td>
</tr>
</tbody>
</table>

* p ≤ .05 ** p ≤ .01
(I = never, 5 = always)

5.4 Study and Learning Habits of Underachieving and Achieving CHIP

An analysis of the Learning Motives and Strategies utilised by achieving and underachieving students, as measured by the LPQ, indicates that the mean scores of underachieving students were significantly higher than scores obtained by achieving students on Surface Strategy (t(47) = 2.33, p = .02) and Surface Motive (t(47) = 2.01, p = .05). Mean scores for underachieving and achieving students on the Deep and Achieving Strategies and Motives were not significantly different.

An analysis of individual responses on the LPQ highlighted four questions that differed between CHIP underachievers and achievers shown in Table 12.
Table 12

LPQ items Differing between CHIP Underachievers and Achievers

<table>
<thead>
<tr>
<th>Prompt Item</th>
<th>Underachievers</th>
<th>Achievers</th>
<th>t (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>4</td>
<td>I tend to study only what's set; I usually don't do anything extra.</td>
<td>3.79</td>
<td>1.31</td>
</tr>
<tr>
<td>7</td>
<td>I am put off by a poor mark on a test and worry about how I will do on the next test.</td>
<td>3.68</td>
<td>1.16</td>
</tr>
<tr>
<td>22</td>
<td>In most cases I try to work through things so that I do only enough to make sure I pass and no more. I will continue my studies only for as long as necessary to get a good job.</td>
<td>2.47</td>
<td>1.02</td>
</tr>
<tr>
<td>31</td>
<td>* p ≤ .05 ** p ≤ .01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(5 = always or mostly always true of me; 1 = never or only rarely true of me)

Utilising a series of t-tests, the responses on the LPQ of CHIP achievers and underachievers were also analysed with respect to the general population reported in the LPQ manual and are shown in Table 13.

Table 13

Mean Scores on the LPQ for General Population, and CHIP Underachievers and Achievers

<table>
<thead>
<tr>
<th>LPQ Domains</th>
<th>General Population</th>
<th>CHIP Regardless of status</th>
<th>CHIP Underachievers</th>
<th>CHIP Achievers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Motive</td>
<td>21.42</td>
<td>18.79**</td>
<td>20.07</td>
<td>17.98**</td>
</tr>
<tr>
<td>Surface Strategy</td>
<td>17.08</td>
<td>16.65</td>
<td>18.26*</td>
<td>15.63</td>
</tr>
<tr>
<td>Deep Motive</td>
<td>19.42</td>
<td>20.37</td>
<td>19.74</td>
<td>20.77</td>
</tr>
<tr>
<td>Deep Strategy</td>
<td>16.73</td>
<td>18.28*</td>
<td>17.16</td>
<td>18.98*</td>
</tr>
<tr>
<td>Achieving Motive</td>
<td>19.66</td>
<td>22.00**</td>
<td>21.21</td>
<td>22.50*</td>
</tr>
<tr>
<td>Achieving Strategy</td>
<td>18.02</td>
<td>19.45*</td>
<td>18.89</td>
<td>19.80*</td>
</tr>
</tbody>
</table>

* t-test significant when compared to general population mean at p ≤ .05
** t-test significant when compared to general population mean at p ≤ .000
CHIP students employ Deep and Achieving Strategies and Motives more than students in the general population. It is CHIP achievers more than CHIP underachievers who utilise less Surface Motives than the general population and significantly more often employ Deep and Achieving Strategies and Motives than the general population. CHIP underachievers employ significantly more often Surface Strategies – more often than their achieving CHIP peers and more often than the general population. A significant preference to utilising a Surface Approach (with congruent Strategy and Motive) to learning was displayed by underachievers ($t_{(47)} = 2.64, p \leq .01$).

5.5 School Satisfaction of CHIP compared to the General Population

Levels of satisfaction of CHIP with their schooling were measured utilising the Quality of School Life Scale (QSL). As can be seen in Table 14 the CHIP group differed from the norming sample of Australian students (Ainley et al, 1986) in a number of aspects of their reported satisfaction with their schooling.

Table 14

Mean QSL Scale Scores for CHIP and the General Population

<table>
<thead>
<tr>
<th>Scale</th>
<th>Norming Sample Manual</th>
<th>CHIP (n = 50)</th>
<th>t</th>
<th>df = 47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>13.5</td>
<td>14.73</td>
<td>2.57*</td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>17.4</td>
<td>17.94</td>
<td>1.17</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>12.6</td>
<td>17.74</td>
<td>9.78***</td>
<td></td>
</tr>
<tr>
<td>Opportunity</td>
<td>18.6</td>
<td>19.93</td>
<td>2.87**</td>
<td></td>
</tr>
<tr>
<td>Identity</td>
<td>18.8</td>
<td>19.11</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Achievement</td>
<td>15.4</td>
<td>20.18</td>
<td>12.04***</td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>9.6</td>
<td>9.08</td>
<td>-1.11*</td>
<td></td>
</tr>
</tbody>
</table>

* $p \leq .05$  ** $p \leq .01$  *** $p \leq .001$
CHIP reported significantly more positive experiences of school in the domains of Positive Affect, Status, Opportunity and Achievement than the general population. As well, CHIP reported lower levels of general negativity than do students of the general population.

When compared to their grade peers in the general population the current group of CHIP students and the general population norms could be compared for three grade levels: Years 7, 8 and 9. Results showed that CHIP as a group have a significantly higher perception of the prestige afforded to them in school in Years 7 (Status $t_{(11)} = 4.3, p = .000$) and Year 8 (Status $t_{(4)} = 23.67, p = .000$). As well, CHIP are significantly more confident in their ability to be successful at schoolwork at Year 7 (Achievement $t_{(11)} = 3.86, p = .003$), Year 8 (Achievement $t_{(4)} = 4.09, p = .015$) and Year 9 (Achievement $t_{(4)} = 14.8, p = .005$) when compared to their grade peers in the general population.

5.5.1 School Satisfaction and Gender

In the present study CHIP girls did not rate more highly than CHIP boys in terms of Positive Affect and Identity. In comparison to the general population, as shown in Table 15, CHIP boys score significantly more highly on four of the six QSL domains.
Table 15

Comparison of Scores on the QSL for the General Population and CHIP by Gender

<table>
<thead>
<tr>
<th>Scale</th>
<th>Norming Sample Manual</th>
<th>CHIP Males (n = 27)</th>
<th>df = 26</th>
<th>CHIP Females (n = 22)</th>
<th>df = 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>13.5</td>
<td>15.30</td>
<td>3.06*</td>
<td>14.04</td>
<td>.70</td>
</tr>
<tr>
<td>Teachers</td>
<td>17.4</td>
<td>18.18</td>
<td>.99</td>
<td>17.64</td>
<td>.32</td>
</tr>
<tr>
<td>Status</td>
<td>12.6</td>
<td>18.45</td>
<td>7.93**</td>
<td>16.86</td>
<td>5.96**</td>
</tr>
<tr>
<td>Opportunity</td>
<td>18.6</td>
<td>20.92</td>
<td>4.55**</td>
<td>18.70</td>
<td>.14</td>
</tr>
<tr>
<td>Identity</td>
<td>18.8</td>
<td>19.57</td>
<td>1.07</td>
<td>18.54</td>
<td>-.29</td>
</tr>
<tr>
<td>Achievement</td>
<td>15.4</td>
<td>20.60</td>
<td>9.92**</td>
<td>19.68</td>
<td>7.08**</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>9.60</td>
<td>8.78</td>
<td>-1.56</td>
<td>9.45</td>
<td>-1.75</td>
</tr>
</tbody>
</table>

* p ≤ .01 ** p = .000

For the CHIP boys in the present study (spanning grades 4 through 9) school is significantly more positive for them than it is for either their female CHIP peers or the broader general population. This was both generally (Positive Affect) and in the belief they held in the relevance of school (Opportunity).

When gender differences were analysed on individual items of the QSL highlighted two items suggested gender differences might be associated with quality of school life. “The things I learn will help me in my adult life” ($\chi^2(2) = 5.86, p = .05$) and “The work I do is good preparation for my future” ($\chi^2(2) = 10.92, p = .012$) were responded to significantly more positively by CHIP boys than CHIP girls.

5.5.2 School Satisfaction of Underachieving and Achieving CHIP

In reporting upon the quality of their school life using domains measured by the QSL, underachieving and achieving CHIP did not report their school experiences as being significantly different. Thus in terms of affective responses of achieving and underachieving CHIP students to their school life in terms of general well being ($t(47) = .14, p>.05$) and general negative feelings ($t(47) = .41, p>.05$) no significant
differences were noted. Similarly, CHIP achievers and underachievers reported no significant differences on specific domains such as Achievement ($t_{(47)} = .13, p > .05$); Opportunity ($t_{(47)} = .41, p > .05$); Status ($t_{(47)} = .39, p > .05$); Identity ($t_{(47)} = .41, p > .05$), and Teachers ($t_{(47)} = .46, p > .05$).

An analysis of individual QSL items revealed five items on the QSL that differed between CHIP underachievers and CHIP achievers, as shown in Table 16.

**Table 16**

<table>
<thead>
<tr>
<th>QSL No</th>
<th>Prompt Item</th>
<th>Underachievers Mean</th>
<th>SD</th>
<th>Achievers Mean</th>
<th>SD</th>
<th>$t$ (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>I feel depressed</td>
<td>1.95</td>
<td>.85</td>
<td>1.50</td>
<td>.68</td>
<td>-2.03 *</td>
</tr>
<tr>
<td>8</td>
<td>I like learning</td>
<td>2.74</td>
<td>.81</td>
<td>3.30</td>
<td>.70</td>
<td>-2.58 *</td>
</tr>
<tr>
<td>22</td>
<td>I know how to cope with the work</td>
<td>3.05</td>
<td>.78</td>
<td>3.43</td>
<td>.57</td>
<td>-1.98 *</td>
</tr>
<tr>
<td>32</td>
<td>I learn to get along with other people</td>
<td>2.97</td>
<td>.63</td>
<td>3.47</td>
<td>.68</td>
<td>-2.56 *</td>
</tr>
<tr>
<td>39</td>
<td>I find that learning is a lot of fun</td>
<td>2.68</td>
<td>.75</td>
<td>3.13</td>
<td>.68</td>
<td>-2.16 *</td>
</tr>
</tbody>
</table>

* $p \leq .05$

(1 = definitely disagree, 4 = definitely agree).

As well, when asked about their perceptions of the school in terms of teaching staff, school friendliness and the level and nature of schoolwork, underachievers and achievers did not answer significantly differently. Although as can be seen in Table 17 some items on the questionnaire did differ between achievers and underachievers.
Table 17

"Thinking about School..." items Differing between CHIP Underachievers and Achievers

<table>
<thead>
<tr>
<th>No</th>
<th>Prompt Item</th>
<th>Underachievers Mean</th>
<th>Underachievers SD</th>
<th>Achievers Mean</th>
<th>Achievers SD</th>
<th>t (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Teachers expects kids to do too much work</td>
<td>2.74</td>
<td>.99</td>
<td>2.07</td>
<td>.83</td>
<td>2.56**</td>
</tr>
<tr>
<td>21</td>
<td>At school I get blamed for things I didn't do</td>
<td>2.21</td>
<td>.92</td>
<td>1.50</td>
<td>.68</td>
<td>3.10**</td>
</tr>
<tr>
<td>22</td>
<td>At school there is too much pressure to be perfect</td>
<td>2.16</td>
<td>.90</td>
<td>1.67</td>
<td>.84</td>
<td>1.94*</td>
</tr>
</tbody>
</table>

* p ≤ .05 ** p = .01

(1 = not at all; 4 = most times)

CHIP achievers and underachievers were compared to the general population cited in the QSL manual (Ainley et al., 1986). Some significant differences were found in relation to the responses of the general population on Positive Affect, Opportunity and highly significant responses on Status and Achievement, as shown in Table 18.

As can be seen in Table 18 when CHIP achievers and underachievers were compared separately to the general population CHIP underachievers were not significantly different from the general population in terms of reported general positive feelings about school (Positive Affect) or in terms of the perceived relevance of schooling (Opportunity). Both underachievers and achievers score significantly higher than the norming sample on the factors of degree of prestige accorded to them by significant others in the school (Status) and in their sense of confidence in their ability (Achievement). Whilst declining achievement has been noted with increasing grade level the QSL domain Status has not been noted as altering across grade level, so it would appear that CHIP perceive that others afford them prestige at a level higher than that which is perceived by students generally.
Table 18

Mean QSL Scale Scores for CHIP Underachievers and Achievers Compared to the General Population

<table>
<thead>
<tr>
<th>Scale</th>
<th>Norming CHIP Sample - Manual</th>
<th>CHIP UnderAch (n = 19)</th>
<th>Std Deviation</th>
<th>t df = 18</th>
<th>CHIP Achievers (n = 31)</th>
<th>Std deviation</th>
<th>t df = 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>13.5</td>
<td>13.8</td>
<td>3.06</td>
<td>.49</td>
<td>15.3</td>
<td>3.47</td>
<td>2.80**</td>
</tr>
<tr>
<td>Teachers</td>
<td>17.4</td>
<td>17.4</td>
<td>3.49</td>
<td>.03</td>
<td>18.3</td>
<td>4.06</td>
<td>1.17</td>
</tr>
<tr>
<td>Status</td>
<td>12.6</td>
<td>17.2</td>
<td>3.15</td>
<td>6.32***</td>
<td>18.1</td>
<td>3.99</td>
<td>7.56***</td>
</tr>
<tr>
<td>Opportunity</td>
<td>18.6</td>
<td>19.4</td>
<td>2.90</td>
<td>1.27</td>
<td>20.2</td>
<td>3.45</td>
<td>2.59**</td>
</tr>
<tr>
<td>Identity</td>
<td>18.8</td>
<td>18.5</td>
<td>3.17</td>
<td>-.35</td>
<td>19.5</td>
<td>4.34</td>
<td>.84</td>
</tr>
<tr>
<td>Achievement</td>
<td>15.4</td>
<td>19.4</td>
<td>2.59</td>
<td>6.77***</td>
<td>20.7</td>
<td>2.83</td>
<td>10.18***</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>9.6</td>
<td>9.6</td>
<td>3.44</td>
<td>-.03</td>
<td>8.8</td>
<td>3.20</td>
<td>-1.40</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; ***p = .000
5.6 Family Environments of CHIP and the General Population

The family environment of CHIP families was compared to those of the general population as reported in the Manual of the FES (Moos & Moos, 1994). Table 19 shows the mean scores reported by Moos and Moos (1994) and the mean scores for the present CHIP Families.

In the CHIP families, CHIP youth reported significantly less emphasis on Cohesion \( (t_{46} = -4.16, p = .000) \), Expressiveness \( (t_{46} = -4.65, p = .000) \) and Intellectual-Cultural Orientation \( (t_{46} = -5.29, p = .000) \) and more emphasis than their parents on Achievement \( (t_{46} = 2.41, p \leq .05) \). CHIP youth report less familial Conflict than their parents, although not significantly so.

In comparing CHIP parents to those of the general population CHIP parents report more emphasis on Cohesion \( (t_{47} = 2.17, p \leq .05) \) and significantly more emphasis on Intellectual-Cultural Orientation \( (t_{47} = .6.27, p = .000) \) than parents in the general population. CHIP parents also reported significantly less emphasis on the Moral-Religious aspect of the family \( (t_{47} = -7.01, p = .000) \). This lack of interest in the Moral-Religious emphasis in the family was shared by CHIP children who reported significantly lower emphasis than their general population peers \( (t_{47} = -5.03, p = .000) \).

A measure of Family Harmony may be obtained by combining scores on Cohesion, Expressiveness and Conflict. A harmonious family environment would display high levels of Cohesion and Expressiveness and low levels of Conflict. Parents report significantly more harmony in their families than their children \( (t_{46} = 5.55, p = .000) \).
### Table 19

Mean Scores on the FES for CHIP Families and the General Population

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Mean score of Parents</th>
<th>Mean score of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Moos Moos</td>
<td>CHIP Parents</td>
</tr>
<tr>
<td>Cohesion</td>
<td>6.80</td>
<td>7.39</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>5.68</td>
<td>5.89</td>
</tr>
<tr>
<td>Conflict</td>
<td>3.76</td>
<td>3.79</td>
</tr>
<tr>
<td>Achievement Orientation</td>
<td>5.60</td>
<td>5.25</td>
</tr>
<tr>
<td>Intellectual-Cultural</td>
<td>5.92</td>
<td>7.16</td>
</tr>
<tr>
<td>Active-Recreational</td>
<td>5.55</td>
<td>6.04</td>
</tr>
<tr>
<td>Moral-Religious Emphasis</td>
<td>5.19</td>
<td>3.14</td>
</tr>
<tr>
<td>Organisation</td>
<td>5.54</td>
<td>5.42</td>
</tr>
<tr>
<td>Control</td>
<td>4.97</td>
<td>4.49</td>
</tr>
</tbody>
</table>

* p < .05; ** p = .000

NB: The Independence subscale reliabilities for the current study were exceptionally low and the scale is not included here.
5.6.1 Family Environments of Underachieving and Achieving CHIP

Both parents' and their children's mean scores on the FES were analysed in regard to the children's achievement status. Neither children nor their parents perceived the family environments of underachievers and achievers to be significantly different. Mean scores on the global measure of Family Harmony were likewise not statistically different for families of underachieving and achieving CHIP.

Parents of CHIP underachievers and achievers reported in a significantly different way on a number of items on the FES, as shown in Table 20.

Table 20
Parents - FES items Differing between CHIP Underachievers and Achievers

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Item</th>
<th>Underachievers Mean</th>
<th>Underachievers SD</th>
<th>Achievers Mean</th>
<th>Achievers SD</th>
<th>t (df=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co</td>
<td>We put a lot of energy into what we do at home</td>
<td>.368</td>
<td>.496</td>
<td>.724</td>
<td>.455</td>
<td>-2.56*</td>
</tr>
<tr>
<td>ARO</td>
<td>We often go to movies, sports events, camping etc</td>
<td>.737</td>
<td>.452</td>
<td>.448</td>
<td>.506</td>
<td>2.01*</td>
</tr>
<tr>
<td>ARO</td>
<td>Family members are not very involved in recreational activities outside work or school</td>
<td>1.00</td>
<td>.000</td>
<td>.827</td>
<td>.384</td>
<td>1.95*</td>
</tr>
<tr>
<td>Ex</td>
<td>We are usually very carefully about what we say to each other</td>
<td>.368</td>
<td>.496</td>
<td>.655</td>
<td>.484</td>
<td>-1.99*</td>
</tr>
</tbody>
</table>

*p ≤.05 Co = Cohesion, ARO = Active-Recreational Orientation, Ex = Expressiveness

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Similarly CHIP who were underachievers responded differently to CHIP achievers on a number of FES items as shown in Table 21.

Table 21

<table>
<thead>
<tr>
<th>Item</th>
<th>Underachievers</th>
<th>Achievers</th>
<th>t (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRE Family members attend church, synagogue or Sunday school fairly often</td>
<td>.263 .452</td>
<td>6.67E .254</td>
<td>1.95*</td>
</tr>
<tr>
<td>ORG Activities in our family are pretty carefully planned</td>
<td>.789 .419</td>
<td>.467 .507</td>
<td>2.32*</td>
</tr>
<tr>
<td>MRE In our family each person has different ideas about what is right or wrong</td>
<td>.316 .478</td>
<td>6.67E .254</td>
<td>2.38*</td>
</tr>
</tbody>
</table>

* p ≤.05  MRE = Moral-Religious Emphasis, ORG = Organization

The responses of parents of CHIP achievers and underachievers were also compared to ascertain whether either group responded significantly differently to the responses of parents and children in families in the general population (Moos & Moos, 1994). This analysis suggests that CHIP children – either achievers or underachievers – are not significantly different from their peers in the general population with the exception of Moral-Religious emphasis. However parents of underachievers do show some significant differences from their counterparts in the general population as can be seen in Table 22. Parents of CHIP achievers and underachievers perceive their family as offering significantly higher levels of Intellectual-Cultural Orientation than families in the general population (achievers t(47) = 3.29, p = .004; underachievers t(47) = 5.60, p = .000) although their children do not perceive this.
Table 22

Mean Scores on the FES of Underachieving and Achieving CHIP Families Compared to the General Population

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Mean Score of Parents</th>
<th>Mean Score of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under Achiever Mean</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co</td>
<td>7.10</td>
<td>2.05</td>
</tr>
<tr>
<td>Ex</td>
<td>6.14</td>
<td>1.44</td>
</tr>
<tr>
<td>Con</td>
<td>3.95</td>
<td>2.50</td>
</tr>
<tr>
<td>Ind</td>
<td>6.41</td>
<td>1.21</td>
</tr>
<tr>
<td>Ach Or</td>
<td>4.84</td>
<td>1.92</td>
</tr>
<tr>
<td>ICO</td>
<td>7.16</td>
<td>1.64</td>
</tr>
<tr>
<td>ARO</td>
<td>6.58</td>
<td>2.22</td>
</tr>
<tr>
<td>MRE</td>
<td>3.79</td>
<td>2.37</td>
</tr>
<tr>
<td>Org</td>
<td>5.21</td>
<td>2.10</td>
</tr>
<tr>
<td>Crl</td>
<td>4.63</td>
<td>1.86</td>
</tr>
</tbody>
</table>

*p < .05; **p < .005; ***p = .000
5.6.2 Family Incongruence Score

Utilising scores of parents and children on the FES it is also possible to calculate a Family Incongruence Score (Moos & Moos, 1994). The Family Incongruence Score is a measure of the disagreement between the scores of family members over the entire FES instrument. Moos and Moos (1994) report that the Family Incongruence Score for the FES has a mean of 15.31 and a standard deviation of 5.30 for ‘normal’ families. The mean for ‘distressed’ families was 17.07 (SD 5.71). The mean for CHIP families was 18.91 (SD 5.62).

When CHIP families were compared against the mean for normal families they were significantly higher than the mean for normal families ($t_{(46)} = 4.4, p = .000$), indicating distress was present. Families of CHIP underachievers ($t_{(18)} = 3.76, p \leq .001$) are also significantly higher than normal families, as are families of CHIP achievers ($t_{(29)} \leq 2.69, p \leq .01$). Utilising the ‘distressed’ mean of Family Incongruence CHIP families continue to score higher than the mean for distressed families ($t_{(46)} = 2.25, p \leq .05$). Families of CHIP underachievers were also significantly higher than other distressed families ($t_{(18)} = 2.3, p \leq .05$). However families of CHIP achievers are not significantly higher than the mean of other distressed families ($t_{(27)} = 1.1, p > .05$).

Based on their responses on the FES, CHIP families display high levels of disagreement between family members. Over 51% of the CHIP families scored at the mean or above as distressed. Some 21% of CHIP families were placed one standard deviation above the mean for distressed families and six percent of CHIP families scored two standard deviations above the mean for distressed families.
5.7 Self-Esteem of CHIP compared to the General Population

Children completed the Coopersmith Self Esteem Inventory (SEI) and their scores across each domain were analysed against those for the general population of Grade 6 children cited in the Manual for the SEI (Owen & Gustafson, 1971).

This group of CHIP children is considerably different from Grade 6 peers cited in the manual, reporting significantly higher self-esteem on all domains except the home domain, where their scores were not significantly different, as seen in Table 23. CHIP, overall, report significantly higher self-esteem than children in the general population ($t_{47} = 2.96, p = .005$)

Table 23

Mean Scores on the Coopersmith Self-Esteem Inventory for CHIP and the General Population

<table>
<thead>
<tr>
<th>Coopersmith Domain</th>
<th>Coopersmith Mean score General Population</th>
<th>Coopersmith Mean score CHIP</th>
<th>SD</th>
<th>$t$</th>
<th>df = 48</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>33.5</td>
<td>37.17</td>
<td>10.44</td>
<td>2.46*</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>10.0</td>
<td>12.25</td>
<td>3.87</td>
<td>4.07***</td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>11.1</td>
<td>11.66</td>
<td>4.69</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>9.7</td>
<td>11.49</td>
<td>3.78</td>
<td>3.32**</td>
<td></td>
</tr>
<tr>
<td>Total Scale Score</td>
<td>64.4</td>
<td>72.57</td>
<td>19.32</td>
<td>2.96**</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p ≤ .01; ***p = .000

5.7.1 Self-Esteem of Underachieving and Achieving CHIP

Differences between the SEI scores of underachievers and achievers were assessed. No significant differences between self-esteem of achievers and underachievers were found on any of the domains as measured by the SEI; nor on any individual items of the SEI.
In considering the Grade level of CHIP achievers and underachievers against self esteem scores for the grade levels reported in the SEI manual neither CHIP achievers or underachievers scored significantly differently to the general population at any grade level. However, the total scores, irrespective of grade level, suggest that CHIP achievers display significantly higher self esteem than that displayed by the general population ($M_{Ach} = 74.3, SD = 19.4; M_{GP} = 63.8, SD = \text{not given}; t_{(31)} = 2.95, p < .01$).

Children were asked to compare themselves with boys and girls of their own age in areas of social relations, creativity and physicality / sporting skills. CHIP responses of underachievers and achievers were not statistically different in any of these areas (social relations $t_{(47)} = -1.14, p > .05$; creativity $t_{(47)} = -.11, p > .05$; physicality / sporting skills $t_{(47)} = .15, p > .05$).

When asked to compare themselves to other students of their age on academic ability students identified as underachieving showed mean scores which were significantly lower than those of achieving students ($t_{(47)} = -2.64, p = .01$). An analysis of the individual items on the self-report questionnaire "Compared to Other Children" was undertaken to identify any sources of difference between CHIP underachievers and CHIP achievers. Several items elicited different responses as noted in Table 24.
Table 24

"Compared to other children" items Differing between CHIP Underachievers and Achievers

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Underachievers Mean</th>
<th>SD</th>
<th>Achievers Mean</th>
<th>SD</th>
<th>t</th>
<th>(df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Learning things rapidly</td>
<td>4.00</td>
<td>.667</td>
<td>4.50</td>
<td>.630</td>
<td>-2.65**</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Being able to read well</td>
<td>4.21</td>
<td>1.08</td>
<td>4.70</td>
<td>.466</td>
<td>-2.18*</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Remembering what I've learned</td>
<td>3.68</td>
<td>1.00</td>
<td>4.20</td>
<td>.761</td>
<td>-2.04*</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Solving problems in ways others haven't tried</td>
<td>3.58</td>
<td>.769</td>
<td>4.07</td>
<td>.868</td>
<td>-2.00*</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Knowing how to do maths</td>
<td>4.16</td>
<td>.898</td>
<td>4.67</td>
<td>.479</td>
<td>-2.58**</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Being a good student</td>
<td>3.68</td>
<td>.820</td>
<td>4.30</td>
<td>.877</td>
<td>-2.46*</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Being a leader – one to get things started with my own sex</td>
<td>3.11</td>
<td>.937</td>
<td>3.63</td>
<td>.890</td>
<td>-1.98*</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Thinking up answers to problems; answers no one has thought of</td>
<td>3.53</td>
<td>.697</td>
<td>4.20</td>
<td>.714</td>
<td>-3.25**</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Being able to concentrate</td>
<td>3.32</td>
<td>1.11</td>
<td>3.93</td>
<td>1.01</td>
<td>-2.00*</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Spending most of my time on my work; not mucking around</td>
<td>3.21</td>
<td>.787</td>
<td>3.77</td>
<td>.898</td>
<td>-2.21*</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Being interested in new things, being excited by all there is to learn</td>
<td>3.58</td>
<td>.768</td>
<td>4.13</td>
<td>.776</td>
<td>-2.44*</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Knowing what to do to get the right answer to a problem</td>
<td>3.89</td>
<td>.937</td>
<td>4.37</td>
<td>.718</td>
<td>-1.99*</td>
<td></td>
</tr>
</tbody>
</table>

* p ≤ .05  ** p ≤ .01
(1 = not so good; 5 = excellent)

5.8 Effects of Acceleration

Analyses were undertaken to determine whether CHIP who had been accelerated (n = 22) performed in a different way on measures of student satisfaction, school satisfaction, family environment and self-esteem when compared to CHIP who had not been accelerated (n = 28). Of the 28 students who had not been accelerated 20 students were achieving (71.4%), of the 22 who had been accelerated 11 students were underachieving (50%).
5.8.1 Accelerants and Achievement Levels

A significant difference was found in terms of parent perceptions of academic performance between students who had been accelerated (accelerants) and students who had not been accelerated (non-accelerants). Parents of accelerants reported that interest in the school subjects least liked by their child was significantly higher than the interest of non-accelerants in their least liked subjects ($t_{(46)} = -2.16 \ p < .05$). All other student and parent indicators of achievement showed no significant differences between accelerants and non-accelerants. An analysis of the individual items of the BASE similarly revealed no items that differed between accelerants and non-accelerants.

5.8.2 Accelerants and Learning Strategies and Motives

An analysis of the Learning Strategies and Motives utilised by accelerants and non-accelerants, as measured by the LPQ, showed that the mean scores of accelerants was significantly higher than scores obtained by non-accelerants on Deep Motive, Deep Strategy and Achieving Motive. A non-significant trend was also noted on Achieving Strategy ($t_{(47)} = -1.76, \ p = .08$). These differences are displayed in Table 25.

Table 25

Scores of Accelerants and Non-Accelerants on the LPQ

<table>
<thead>
<tr>
<th>LPQ Domain</th>
<th>Mean score of Accelerants</th>
<th>Std dev</th>
<th>Mean score of Non Accelerants</th>
<th>Std dev</th>
<th>$t$</th>
<th>df = 47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Motive</td>
<td>18.58</td>
<td>4.47</td>
<td>18.96</td>
<td>2.93</td>
<td>.36</td>
<td></td>
</tr>
<tr>
<td>Deep Motive</td>
<td>21.82</td>
<td>3.77</td>
<td>19.18</td>
<td>4.21</td>
<td>-2.28*</td>
<td></td>
</tr>
<tr>
<td>Achieving Motive</td>
<td>23.36</td>
<td>3.93</td>
<td>20.89</td>
<td>3.98</td>
<td>-2.18*</td>
<td></td>
</tr>
<tr>
<td>Surface Strategy</td>
<td>16.04</td>
<td>4.83</td>
<td>17.14</td>
<td>3.24</td>
<td>.95</td>
<td></td>
</tr>
<tr>
<td>Achieving Strategy</td>
<td>20.73</td>
<td>4.66</td>
<td>18.41</td>
<td>4.51</td>
<td>-1.76</td>
<td></td>
</tr>
</tbody>
</table>

* $p \leq .05$ **$p \leq .02$
In terms of an overall approach, CHIP accelerants employed Deep Approaches ($t_{(47)} = -2.75; \ p \leq .01$), Achieving Approaches ($t_{(47)} = -2.36; \ p \leq .05$) and Deep-Achieving Approaches ($t_{(47)} = -2.85; \ p \leq .01$) significantly more frequently than their non-accelerated CHIP peers. Achieving accelerants employed Deep ($t_{(20)} = -2.33; \ p \leq .05$) and Deep-Achieving ($t_{(47)} = -2.22; \ p \leq .05$) Approaches more than underachieving accelerants.

Several individual items on the LPQ did differ between non-accelerants and accelerants as shown in Table 26.
Table 26
LPQ items Differing between CHIP Non-Accelerants and Accelerants

<table>
<thead>
<tr>
<th>LPQ No</th>
<th>Item</th>
<th>Non-Accelerants</th>
<th>Accelerants</th>
<th>$t$ (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>While I realise that others sometimes know better than I do, I feel I have to say what I think is right</td>
<td>3.22 ± 1.09</td>
<td>3.91 ± 1.19</td>
<td>-2.14 *</td>
</tr>
<tr>
<td>9</td>
<td>I have a strong desire to do best in all my studies</td>
<td>3.89 ± .974</td>
<td>4.68 ± .568</td>
<td>-3.38 ***</td>
</tr>
<tr>
<td>11</td>
<td>In reading new material I am often reminded of material I already know and see the latter in a new light</td>
<td>3.07 ± 1.17</td>
<td>3.89 ± .873</td>
<td>-2.69 **</td>
</tr>
<tr>
<td>21</td>
<td>I would rather be highly successful even though this might make me unpopular with some of my classmates</td>
<td>3.41 ± 1.31</td>
<td>4.18 ± 1.00</td>
<td>-2.28 *</td>
</tr>
<tr>
<td>26</td>
<td>I feel that I might one day be able to change things in the world that I now see as wrong</td>
<td>2.26 ± 1.29</td>
<td>3.41 ± 1.22</td>
<td>-3.18 **</td>
</tr>
<tr>
<td>29</td>
<td>I find most new topics interested and often spend extra time trying to find out more about them</td>
<td>2.67 ± 1.00</td>
<td>3.36 ± 1.29</td>
<td>-2.13 *</td>
</tr>
<tr>
<td>30</td>
<td>When a test is returned I go over it carefully correcting all errors and trying to understand why I made the original mistakes</td>
<td>3.22 ± 1.05</td>
<td>4.41 ± .854</td>
<td>-4.27 ***</td>
</tr>
<tr>
<td>35</td>
<td>I spend a great deal of my free time finding out more about interesting topics which have been discussed in different classes</td>
<td>2.11 ± 1.34</td>
<td>2.91 ± 1.34</td>
<td>-2.07 *</td>
</tr>
</tbody>
</table>

* $p \leq .05$  ** $p \leq .01$  *** $p \leq .001$

($5 = \text{always or mostly always true of me}; \ 1 = \text{never or only rarely true of me}$)
5.8.3 Accelerants and Levels of Student Satisfaction

No differences between the scores of accelerants and non-accelerants were noted on any of the dimensions of the Quality of School Life Scale (QSL) nor on any global self-report measures of school friendliness, schoolwork or social relations.

Responses to individual questions on both scales did however differ between accelerants and non-accelerants. “My school is a place where students are very friendly” (t(47) = 2.07; p < .05) was the only item on the QSL that differed between accelerants (M = 2.82, SD 1.00) and non-accelerants (M = 3.33, SD 0.74). On the self-report “Compared to other children” questionnaire three items differed between the two groups, as noted in Table 27.

Table 27
“Compared to others . . .” items Differing between CHIP Non-Accelerants and Accelerants

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Non-Accelerants</th>
<th>Accelerants</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Being good at sport</td>
<td>3.52</td>
<td>.976</td>
<td>2.82</td>
</tr>
<tr>
<td>12</td>
<td>Being good at things requiring</td>
<td>3.59</td>
<td>.971</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>physical skill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Being a good athlete</td>
<td>3.56</td>
<td>1.12</td>
<td>2.73</td>
</tr>
</tbody>
</table>

*p ≤ .05  **p ≤ .01

(1 = not so good; 5 = excellent)

5.8.4 Accelerants and Family Environments

Both children's and parents' scores on the FES were analysed to determine whether accelerants and non-accelerants reported differences in their family environments. Children who had been accelerated reported significantly higher scores on Intellectual-Cultural Orientation (t(47) = -2.00, p ≤ .05) and significantly
lower scores on Active-Recreational Orientation ($t_{(47)} = 2.04, p \leq .05$) than did their non-accelerated peers. Parents of accelerants reported significantly higher scores on Moral-Religious Emphasis ($t_{(47)} = -2.08, p < .05$) than did the parents of non-accelerants.

On the FES when individual items were analysed, CHIP who had been accelerated responded significantly differently from CHIP who had not been accelerated, as shown in Table 28.

Table 28

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Item</th>
<th>Non-Accelerants</th>
<th>Accelerants</th>
<th>T (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex</td>
<td>Family members often keep their feelings to themselves</td>
<td>.407 .501</td>
<td>.727 .456</td>
<td>-2.31*</td>
</tr>
<tr>
<td>Ex</td>
<td>We say anything we want around the home</td>
<td>.185 .396</td>
<td>.591 .503</td>
<td>-3.16**</td>
</tr>
<tr>
<td>Ind</td>
<td>There is very little privacy in our family</td>
<td>.852 .362</td>
<td>.546 .570</td>
<td>2.46*</td>
</tr>
<tr>
<td>ICO</td>
<td>We rarely have intellectual discussions</td>
<td>.482 .509</td>
<td>.773 .429</td>
<td>-2.14*</td>
</tr>
<tr>
<td>Ind</td>
<td>Family members almost always rely on themselves when a problem comes up</td>
<td>.649 .477</td>
<td>.364 .492</td>
<td>2.05*</td>
</tr>
<tr>
<td>Org</td>
<td>Family members make sure their rooms are neat</td>
<td>.556 .506</td>
<td>.273 .456</td>
<td>2.03*</td>
</tr>
<tr>
<td>ICO</td>
<td>Family members often go to the library</td>
<td>.482 .509</td>
<td>.773 .429</td>
<td>-2.14*</td>
</tr>
<tr>
<td>Ctl</td>
<td>We can do whatever we want in our family</td>
<td>.926 .267</td>
<td>.682 .477</td>
<td>2.26*</td>
</tr>
<tr>
<td>Org</td>
<td>Money is not handled very well in our family</td>
<td>1.00 .000</td>
<td>.768 .427</td>
<td>2.84 **</td>
</tr>
</tbody>
</table>

Ex= Expressiveness, Ind = Independence, ICO = Intellectual-Cultural Orientation, Org = Organization, Ctl = Control

*p \leq .05    ** p \leq .01
When individual items on the FES were analysed the parents of accelerated CHIP responded significantly differently on some items from their counterparts who had children who had not been accelerated, as seen in Table 29.

Table 29
Parents - FES items Differing between CHIP Non-Accelerants and Accelerants

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Item</th>
<th>Non-Accelerants</th>
<th>Accelerants</th>
<th>t (df = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICO</td>
<td>We often talk about political and social problems</td>
<td>0.539 0.508</td>
<td>0.818 0.395</td>
<td>-2.10*</td>
</tr>
<tr>
<td>ARO</td>
<td>We spend most weekends and evenings at home</td>
<td>0.462 0.508</td>
<td>9.09 2.94</td>
<td>3.02**</td>
</tr>
<tr>
<td>Ctl</td>
<td>We can do whatever we want in our family</td>
<td>0.911 0.272</td>
<td>0.682 0.477</td>
<td>2.14*</td>
</tr>
<tr>
<td>Ach</td>
<td>“Work before play&quot; is the rule in our family</td>
<td>0.615 0.496</td>
<td>0.864 0.351</td>
<td>-1.97*</td>
</tr>
</tbody>
</table>

ICO = Intellectual-Cultural Orientation, ARO = Active-Recreational Orientation, Ctl = Control, Ach = Achievement

*p ≤ .05 ** p ≤ .01

5.8.5 Accelerants and Self-Esteem

Significant differences were noted between accelerants and non-accelerants on the Coopersmith Self-Esteem Inventory (SEI) with accelerants scoring significantly lower than non-accelerants on the measures of self esteem both generally and overall as shown in Table 30.
Table 30

Mean Scores for Accelerants and Non-Accelerants on the SEI

<table>
<thead>
<tr>
<th>Coopersmith Domain</th>
<th>Mean Score of Accelerants</th>
<th>Std dev</th>
<th>Mean Score of Non-Accelerants</th>
<th>Std dev</th>
<th>t (df = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>10.44</td>
<td>5.07</td>
<td>12.67</td>
<td>4.19</td>
<td>1.69</td>
</tr>
<tr>
<td>School</td>
<td>11.26</td>
<td>3.88</td>
<td>11.67</td>
<td>3.76</td>
<td>.373</td>
</tr>
<tr>
<td>Social</td>
<td>11.36</td>
<td>4.15</td>
<td>12.96</td>
<td>3.52</td>
<td>1.46</td>
</tr>
<tr>
<td>General</td>
<td>33.12</td>
<td>10.39</td>
<td>40.48</td>
<td>9.42</td>
<td>2.60**</td>
</tr>
<tr>
<td>Total Scale Score</td>
<td>66.19</td>
<td>19.06</td>
<td>77.78</td>
<td>18.25</td>
<td>2.17*</td>
</tr>
</tbody>
</table>

*p ≤ .05  ** p ≤ .01

Significant items on the SEI that differed between non-accelerants and accelerants are shown in Table 31.

Table 31

SEI items Differing between CHIP Non-Accelerants and Accelerants

<table>
<thead>
<tr>
<th>SEI No</th>
<th>Item</th>
<th>Non-Accelerants</th>
<th>Accelerants</th>
<th>t (df = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Things usually don’t bother me</td>
<td>.667 .480</td>
<td>.364 .492</td>
<td>2.17*</td>
</tr>
<tr>
<td>3</td>
<td>There are a lot of things about myself</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I’d change if I could</td>
<td>.556 .506</td>
<td>.227 .429</td>
<td>2.42*</td>
</tr>
<tr>
<td>16</td>
<td>There are many times when I’d like to leave home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>.852 .362</td>
<td>.591 .503</td>
<td>2.11*</td>
</tr>
<tr>
<td>24</td>
<td>I often wish I were someone else</td>
<td>.779 .429</td>
<td>.500 .512</td>
<td>2.08*</td>
</tr>
<tr>
<td>26</td>
<td>I never worry about anything</td>
<td>.259 .447</td>
<td>5.32 .215</td>
<td>1.41*</td>
</tr>
<tr>
<td>30</td>
<td>I spend a lot of time daydreaming</td>
<td>.667 .480</td>
<td>.227 .429</td>
<td>3.34**</td>
</tr>
<tr>
<td>34</td>
<td>Someone always has to tell me what to do</td>
<td>.963 .192</td>
<td>.636 .492</td>
<td>3.17**</td>
</tr>
<tr>
<td>56</td>
<td>I’m a failure</td>
<td>1.00 .000</td>
<td>.834 .351</td>
<td>2.02*</td>
</tr>
</tbody>
</table>

*p ≤ .05  ** p ≤ .01

5.8.6 Accelerants and IQ Score

CHIP students who had not been accelerated had significantly lower IQ scores (M_{IQ} = 138.6, SD = 10.7) than students who had been accelerated (M_{IQ} = 146.6, SD
16.7), \( t_{(48)} = -2.07 \; p < .05 \). A further analysis was undertaken to determine whether IQ level was an important variable in the consideration of self-esteem scores of accelerants and non-accelerants. The group of non-accelerated moderate-CHIP students with IQ scores between 125 - 144 scored significantly higher on the SEI domain of general self-esteem \( (t_{(29)} = 2.29, \; p < .05) \) than accelerated students of the same IQ range. No other significant differences were noted.

5.9 Levels of CHIP

To determine whether CHIP whose IQ scores were within the range 125 – 144 differed significantly to CHIP whose scores were 145+ on the Stanford-Binet (L-M) (Terman & Merrill, 1973) in their responses on all assessment instruments a series of t-tests were conducted. Sixty-four percent of students had IQ scores within the range of 125 – 144 (moderate-CHIP). Eighteen students or 36% of students had IQ scores of 145 and above (high-CHIP). The mean IQ score of moderate-CHIP was 133.91 (SD 5.72) and the mean IQ score of high-CHIP was 156.72 (SD 12.69). The difference in IQ was highly significant \( (t_{(48)} = -8.76, \; p = .000) \).

The mean age of moderate-CHIP was 11.44 years (SD 1.08 years) with high-CHIP being 11.72 years (SD 1.45 years); this difference was not significant \( (t_{(48)} = - .79, \; p > .05) \). There was also no association between gender and IQ grouping as moderate- or high-CHIP \( (\chi^2(1) = .03, \; p > .05) \). An analysis of schooling types of moderate-CHIP and high-CHIP showed that there was no significant association between school type (independent, state etc) and IQ grouping as moderate- or high-CHIP \( (\chi^2(2) = 4.28, \; p > .05) \). There was no significant association between IQ grouping as moderate- or high-CHIP and single sex/co-educational school environment \( (\chi^2(2) = 2.99, \; p > .05) \). Nor was there a significant association between IQ grouping as
moderate- or high CHIP and primary/secondary school environments \( \chi^2(2) = 3.87, p > .05 \). As well, there was no significant association between the number of schools attended and IQ grouping as moderate- or high CHIP \( \chi^2(2) = 6.16, p > .05 \) nor the reasons for changing school and IQ grouping as moderate- or high CHIP \( \chi^2(4) = 6.19, p > .05 \).

5.9.1 Levels of CHIP and Achievement

There was no association between achievement levels and the IQ grouping of the CHIP as either moderate- or high CHIP \( \chi^2(1) = 2.97, p > .05 \).

5.9.2 Levels of CHIP and Student Satisfaction

There were no significant differences in student responses on the QSL for moderate CHIP as compared to high CHIP. It was noted, however, that student responses showed a non-significant trend on questions of Identity on the QSL scale with moderate CHIP responding more positively than high CHIP \( t(47) = 1.86, p = .07 \). As shown in Table 32, only two items on the QSL were found to differ between moderate CHIP and high CHIP.

Table 32

<table>
<thead>
<tr>
<th>QSL No</th>
<th>Item</th>
<th>Moderate CHIP Mean</th>
<th>SD</th>
<th>High CHIP Mean</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I feel proud to be a student</td>
<td>3.29</td>
<td>.739</td>
<td>2.67</td>
<td>1.14</td>
<td>2.33 *</td>
</tr>
<tr>
<td>6</td>
<td>I feel it's easy to get to know other</td>
<td>3.42</td>
<td>.720</td>
<td>2.78</td>
<td>.943</td>
<td>2.68 **</td>
</tr>
<tr>
<td></td>
<td>people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(* p < .05 \quad ** p \leq .01 \)

\(1 = \text{definitely disagree}, 4 = \text{definitely agree}\).
Parental responses on the self-report questionnaires and on the BASE showed no significant differences on any of the global scales between parents of moderate and high CHIP. Similarly, parental responses on individual items did not significantly differ between moderate-CHIP and high-CHIP groups.

On the self-report questionnaires moderate-CHIP answered in a significantly more positive manner than high-CHIP on two dimensions. Moderate-CHIP students found their school significantly more friendly than their high-CHIP counterparts \( t_{(47)} < .05 \). Similarly moderate-CHIP found the level and type of their schoolwork more appropriate than did their high-CHIP counterparts \( t_{(47)} = 2.05, p < .05 \). Individual items which differed between moderate-CHIP and high-CHIP are shown in Table 33.

Table 33

"Thinking about my school..." items Differing between moderate-CHIP and high-CHIP

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Moderate-CHIP</th>
<th>High-CHIP</th>
<th>( t ) (df = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Hard work pays off at school</td>
<td>3.59 .664</td>
<td>3.05 1.05</td>
<td>2.19*</td>
</tr>
<tr>
<td>8</td>
<td>Kids listen if you say what you think</td>
<td>3.10 .700</td>
<td>2.39 .850</td>
<td>3.15**</td>
</tr>
<tr>
<td>13</td>
<td>The feelings and ideas of kids are important at our school</td>
<td>3.19 .833</td>
<td>2.56 .922</td>
<td>2.49*</td>
</tr>
<tr>
<td>14</td>
<td>I have many friends at school</td>
<td>3.55 .723</td>
<td>2.83 1.10</td>
<td>2.75**</td>
</tr>
<tr>
<td>18</td>
<td>My teacher listens carefully to my ideas</td>
<td>2.90 .978</td>
<td>2.28 .826</td>
<td>2.28*</td>
</tr>
<tr>
<td>25</td>
<td>I feel relaxed and happy when I am working in the classroom</td>
<td>3.26 .814</td>
<td>2.67 .908</td>
<td>2.36*</td>
</tr>
</tbody>
</table>

\* \( p < .05 \) \ ** \( p \leq .01 \)

(1 = not at all; 4 = most times)

5.9.3 Levels of CHIP and Learning Strategies and Motives

On the Learning Process Questionnaire (LPQ), high-CHIP reported utilising Achieving Motives significantly more often than their moderate-CHIP counterparts.
All other responses on either Strategy or Motive were not significantly different between moderate and high CHIP groups. Only one item on the LPQ differed between CHIP in either group ($t_{(47)} = -2.37, p < .05$), with high-CHIP responding significantly more positively ($M = 3.72, SD = 1.37$) on "I like the results of tests to be put up publicly so I can see by how much I beat some others in class" than moderate-CHIP ($M = 2.7, SD = 1.56$).

5.9.4 Levels of CHIP and Self-Esteem

On the Coopersmith Self-Esteem Inventory (SEI) high-CHIP reported significantly lower levels of self-esteem in the domain of Social Self-Esteem than their moderate-CHIP peers ($t_{(47)} = 2.10, p < .05$). No other significant differences in self-esteem were noted, although some individual items did differ between moderate-CHIP and high-CHIP as displayed in Table 34.

Table 34

<table>
<thead>
<tr>
<th>SEI No</th>
<th>Item</th>
<th>Moderate-CHIP</th>
<th>High-CHIP</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Most people are better liked than I am</td>
<td>.677 ± .475</td>
<td>.333 ± .485</td>
<td>2.43*</td>
</tr>
<tr>
<td>28</td>
<td>I'm easy to like</td>
<td>.871 ± .341</td>
<td>.611 ± .502</td>
<td>2.16*</td>
</tr>
<tr>
<td>35</td>
<td>I'm often sorry for the things I do</td>
<td>.419 ± .502</td>
<td>.722 ± .461</td>
<td>-2.10*</td>
</tr>
<tr>
<td>39</td>
<td>I'm pretty happy</td>
<td>.968 ± .180</td>
<td>.778 ± .428</td>
<td>2.18*</td>
</tr>
<tr>
<td>43</td>
<td>I understand myself</td>
<td>.967 ± .180</td>
<td>.715 ± .457</td>
<td>2.75 **</td>
</tr>
<tr>
<td>44</td>
<td>No one pays much attention to me at home</td>
<td>.930 ± .250</td>
<td>.667 ± .485</td>
<td>2.53 **</td>
</tr>
</tbody>
</table>

* $p < .05$  ** $p < .01$
5.9.5 Levels of CHIP and Family Environments

Both moderate-CHIP and their parents reported significantly higher Active-Recreation Orientation on the FES than the high-CHIP families (children: $t_{(47)} = 1.98$, $p \leq .05$; parents: $t_{(46)} = 2.32$, $p < .05$). There were no other significant differences between the moderate- and high-CHIP children on the FES.

Parents of moderate-CHIP reported significantly higher levels of Moral-Religious Emphasis than did parents of high-CHIP ($t_{(46)} = 2.08$, $p < .05$). An analysis of individual items revealed some significant differences in both children and parent responses as shown in Table 35.
### Table 35

**FES items Differing between moderate-CHIP and high-CHIP Children and their Parents**

<table>
<thead>
<tr>
<th>FES Domain</th>
<th>Item</th>
<th>Moderate-CHIP</th>
<th>High-CHIP</th>
<th>t (df=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children’s Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARO</td>
<td>We spend most weekends and evenings at home</td>
<td>.458</td>
<td>.506</td>
<td>5.56</td>
</tr>
<tr>
<td>MRE</td>
<td>Family members attend church, synagogue or Sunday school fairly often</td>
<td>.226</td>
<td>.425</td>
<td>.000</td>
</tr>
<tr>
<td>Con</td>
<td>Family members rarely become openly angry</td>
<td>.323</td>
<td>.475</td>
<td>.611</td>
</tr>
<tr>
<td>Ctl</td>
<td>There is one family member who makes most of the decisions</td>
<td>.387</td>
<td>.495</td>
<td>.722</td>
</tr>
<tr>
<td>Co</td>
<td>There is a feeling of togetherness in our family</td>
<td>877</td>
<td>.341</td>
<td>.611</td>
</tr>
<tr>
<td>MRE</td>
<td>We don’t believe in heaven or hell</td>
<td>695</td>
<td>.459</td>
<td>.333</td>
</tr>
<tr>
<td>Ind</td>
<td>There is very little privacy in our family</td>
<td>839</td>
<td>.374</td>
<td>.500</td>
</tr>
<tr>
<td>Ind</td>
<td>It’s hard to be by yourself without hurting someone’s feeling in our household</td>
<td>871</td>
<td>.341</td>
<td>.550</td>
</tr>
<tr>
<td><strong>Parent’s items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARO</td>
<td>We spend most weekends and evenings at home</td>
<td>.452</td>
<td>.506</td>
<td>.000</td>
</tr>
<tr>
<td>ARO</td>
<td>Friends often come over for dinner or to visit</td>
<td>.677</td>
<td>.475</td>
<td>.235</td>
</tr>
<tr>
<td>ARO</td>
<td>We often go to the movies, sports events, camping etc</td>
<td>.742</td>
<td>.445</td>
<td>.235</td>
</tr>
<tr>
<td>Org</td>
<td>People change their mind often in our family</td>
<td>.742</td>
<td>.445</td>
<td>.353</td>
</tr>
<tr>
<td>Co</td>
<td>Family members really back each other up</td>
<td>.710</td>
<td>.461</td>
<td>1.00</td>
</tr>
<tr>
<td>Ex</td>
<td>Someone usually gets upset if you complain in our family</td>
<td>.613</td>
<td>.495</td>
<td>.177</td>
</tr>
</tbody>
</table>

ARO = Active Recreational Orientation, MRE = Moral-Religious Emphasis, Con = Conflict, Ctl = Control, Co = Cohesion, Ind = Independence
Org = Organization, Ex = Expressiveness

* p ≤ .05  ** p ≤ .01  *** p ≤ .001
CHAPTER 6: DISCUSSION

6.0 The Incidence of CHIP Underachievement

In seeking reasons as to why Australian gifted students might not achieve at school the Senate Select Committee (1988) noted that gifted children failed to receive sufficient stimulation to achieve their full potential. The Committee further concluded that, based on US data, underachievement would be likely to be pervasive in the Australian intellectually gifted population. This study, the first major Australian study on CHIP underachievement, confirms the Senate’s suspicions: underachievement is pervasive in CHIP populations.

Over one in three CHIP scored two stanines lower than their ability predicted in the Key Learning Areas of Mathematics and Reading Comprehension when these areas were assessed using norms pertaining to the CHIP student’s current grade level. The incidence of over one-in-three CHIP who were placed at stanine 9 not performing to a stanine 7 level in reading comprehension or mathematics must be cause for some concern. Clearly something is amiss. The presence of underachievement in any student population is counter to the State of Victoria’s educational rhetoric that asserts that all children should achieve their potential (Ministerial 6; Bright Futures, 1995; 1999).

That able students are not achieving suggests that these CHIP are either not able to benefit from the education provided to them or that the education provided fails to address the needs of these CHIP. Whatever the underlying cause, the academic potential of one-in-three of Victoria’s brightest students is not realised.
6.0.1 Difficulties of Measuring Underachievement

One of the difficulties of conducting research into CHIP underachievers has been the method of measuring their achievement levels. Australia does not utilise the Grade Point Average (GPA) system of the US nor is there one standardised final examination against which all Australian students might be measured. Thus the criteria for student achievement is not uniform across Australia. This is only one aspect of the difficulty of measuring underachievement in an intellectually gifted population. Of equal concern in measuring underachievement in gifted populations is the use of a formula that compares all children against grade level irrespective of their ability and potential to perform. It is this ‘potential to perform’ which is difficult to conceptualise and to test operationally.

The current research has utilised a performance discrepancy formula for underachievement, asserting a student is an underachiever if their score on an achievement measure falls two or more stanines below the stanine of the student’s IQ score. The norms of the achievement measure pertain to the student’s current grade. Although with precedents in a number of other studies (Colangelo et al, 1993; Gowan, 1957; Green et al, 1988; Krouse & Krouse, 1981; Supplee, 1990) this formula fails to take into account a key consideration. These students have, by definition, the potential to perform at a higher level than their grade level. Thus to compare CHIP students to their grade level is already an underestimation of these students’ potential abilities. Children of the ability levels in this study have the potential to not only perform at the top of their current grade level but also at the top of the next class or perhaps the next, and so on.

In the literature review of the types of underachievement it was noted that Sellin and Birch (1981) utilised a child’s mental age against which to measure the
student's performance, deriving what Sellin and Birch (1981) termed an Achievement Expectancy Age. It was further noted that no research could be found which utilised either mental age or an Achievement Expectancy Age against which 'gifted' underachievement was measured. When a mental-age formula such as Sellin and Birch's (1981) was applied to the achievement level of the current sample the result was that every student in the study was considered to be underachieving, many profoundly. This may explain why such measures of underachievement are not utilised as such results are confronting to notions of the value inherent in education for all students.

So, albeit that it perpetuates the intrinsic problem of measuring 'gifted' underachievement, as there are no precedents in other gifted studies for the use of an adjusted formula, the present research utilised a discrepancy formula with current grade norms. This formula yielded a figure of more than one third of CHIP underachieving in the present study of CHIP drawn from a number of Victorian schools. However, this study also acknowledges that the actual incidence of CHIP students not performing to their potential may be significantly higher.

6.0.2 Types of Underachievement Identified in the Present Study

The current research indicated that sixty-two percent of CHIP achieved. As stated, this is not a figure in which educators should take comfort or pride. Essentially, almost two thirds of a group of children with an average IQ of 146 achieved at a level to be expected of their grade-for-age. The average child of IQ 100 is also expected to achieve at this level. Indeed, the CHIP student might be considered an achiever only by virtue of the formula's failure to measure the Covert Underachievement of CHIP. Such Covert Underachievement may remain
unrecognised. Other types of underachievement discussed previously were also considered.

The qualitative data supplied by parents and children suggested that none of the underachievers had been identified as having a learning difficulty nor was any student reported to be underachieving due to physiological or psychological causes. Although one parent reported that their child was taking medication for an anxiety disorder, associated with strongly perfectionistic tendencies that child was considered an achiever in the present study. As a result of this study one underachiever has been assessed as having a learning disorder that may have contributed to a reading performance some six years below that which might have been expected by grade level. Thus, in the current study only one student’s underachievement may be considered to be Overt Underachievement, as previously defined in Section 2.2.3. For this group of CHIP the causes of underachievement could not be linked to a physiological or psychological basis.

The parent information given did not clearly specify the chronicity of their children’s underachievement. This was a methodological issue with questions on the Parent Questionnaire not assessing this data accurately. A number parents avoided answering the forced-choice questions and provided lengthy anecdotal evidence of what they believed illustrated their child’s underachievement. Unless clearly contrary to their commentary such parent responses were allocated the mean replacement score for the group, or if parents were ambiguous in their commentary their score was omitted and considered as missing data. Parents also expressed difficulty in quantifying what they considered to be a ‘feeling’ that their child was underachieving. The majority of parents reported that their children had performed reasonably well in primary school. Many noted however, a sense of disappointment that their child did
not 'star' as they had thought a child of that ability should. Parents of achievers and underachievers alike noted less than positive performances in High School. Although a pervasive sense of High School underachievement filled parent comments, as stated, the question of the chronicity of CHIP underachievement has not been able to be qualitatively explored in this study.

An initial hypothesis of 33% underachievement in the CHIP population was selected as it fell midway between the range of 15% to 50% underachievement cited in US studies (Gallagher, 1975; Green et al, 1988; National Commission on Excellence in Education, 1984; Wolfle, 1991). Thus Hypothesis One “That 33% of CHIP in the present study will underachieve in either Reading or Mathematics” is rejected, as levels of underachievement in the present study were higher than that hypothesised.

6.0.3 Variables Associated with CHIP Underachievement

In this study no significant association between gender and underachievement was found. Although a higher proportion of boys were found to be underachieving compared to girls this was not significant. This finding is unlike the results of some other underachievement studies in the gifted population where boys have outnumbered girls by two or one or three to one (Sellin & Birch, 1981; Wolfle, 1991). Indeed the current finding lent support to the idea often raised in the CHIP literature that CHIP boys and girls respond in similar ways on a variety of assessment measures (Clark, 1983, Olszewski-Kubilius & Kulieke, 1989). On the basis of this finding the current study did not analyse for gender differences between underachievers and achievers, except where previous significant studies in the literature suggested gender differences should be considered.
In the present study, underachievers and achievers were of similar age; came from similar family sizes, and were not more likely to be first-born children. Although Rimm (1986; 1991) suggested birth order and family size were important antecedents for underachievement this was not found in the present study. Underachievers did not attend particular school types nor were they more likely than achievers to be in coeducational school environments, nor did acceleration of the student impact upon their achievement levels. Therefore, based on the present study it must be concluded that CHIP underachievers are as likely to be found in any educational environment and family structure as are CHIP achievers. It appears antecedents for academic underachievement in CHIP is not found in these factors.

One area of significant difference between achievers and underachievers was their IQ score. CHIP underachievers had a significantly lower IQ than CHIP achievers however having an IQ of 136 still placed the underachieving student at the 99th percentile (stanine 9). A score at the 99th percentile implies that a student should be capable of performing at the top of their class. CHIP underachievers are still intellectually able students however they are failing to perform at grade level.

Another area of significance was grade level. A significant number of CHIP underachievers were in Year 7, the first year of secondary school in Victoria. Students in the present study were placed in Grade 4 through Year 9, with the largest grouping at the Grade 6 level. In the present study it appeared that the Year 7s were statistically more likely to underachieve, than any other year level. Possible reasons for this may be found in school structures, curriculum levels and student variables.

At Year 7, a Curriculum and Standards Framework (CSF) is introduced into almost all secondary schools. The CSF presents learning as a structured program of a number of discrete subject areas with clear student outcomes. During the primary
years in most Victorian school subjects are presented in an integrated way utilising themes (eg mythology, space, environment) which span a number of curriculum areas. This integrated approach may mean that a CHIP student learnt little structured material that was new or challenging during their earliest years of schooling. As well, during the primary years much of the learning support was concrete in nature with many hands-on activities to reinforce learning. For CHIP, who learn at a faster pace and with less need of repetition than their grade-for-age peers, the integrated curriculum may be an unnecessary repeat of material. Similarly concrete learning materials may be unnecessary for children capable of higher level thinking than their grade-for-age peers. CHIP need the challenge of higher level thinking (Bloom, 1956) not the repetitive drill which reinforces lower order thinking skills.

While a mismatched curriculum and inappropriate teaching practices may impact negatively upon their belief in the value of school, in addition there is another long-term problem. During the six years of primary school when other students were learning how to learn, the CHIP student may have been learning how not to learn. If the CHIP student failed to attend to the Norse myths explained during a Studies of Society and Environment unit then the CHIP student may have known that they would be able to hear about those myths again in Art, for example. The early secondary CHIP student may have developed no techniques to learn new or challenging material because they have not been confronted with new or challenging material. The early secondary CHIP student may not have learnt effective study habits because up to this time they have not needed to study (Senate Select Committee, 1988). The current situation for CHIP in Victoria reflects that experienced by Terman's subjects three generations ago. Terman (1925) noted that many of his intellectually gifted students failed to develop study and work habits most
directly attributable to the unchallenging curricula they were offered. Primary schooling in Victoria, which teaches most children about how to be a student and how to learn, may fail its most able pupils.

Year 7 for some CHIP may be a ‘wake-up’ call: a call that something in their philosophy of learning must change. The curriculum in Year 7 is structured in a very different way to primary school and Year 7 calls on students to employ more active learning strategies to be successful. Whether CHIP recognise this need to change and can adapt their strategy from reliance on ‘native ability’ to actively participate in their learning may mean the difference between underachievement and achievement.

6.1 CHIP Study and Learning Habits

Possessing excellent memories (Clark, 1983; Gross, 1990) and with many having advanced reading skills (Gross, 1990; Silverman, 1986; 1995) primary school CHIP may have been able to demonstrate their broad knowledge base. Thus it is likely that during their primary years CHIP have been applauded for their ability to recall facts, a lower order thinking skill (Bloom, 1956). CHIP, achievers and underachievers alike, may well have had immediate teacher approval for their high levels of factual knowledge perhaps achieved with little (or no) effort on their part. Such approval would certainly reinforce that learning and school are best served by applying a Surface Approach. This Approach has its congruent Surface Strategy (recall facts and reproduce through rote) and Surface Motive (least work possible and teacher recognition). When dealing with lower level material such an Approach may be effective. The move to Year 7, and secondary school, may see a student’s reliance on such lower-order skills impact negatively upon their achievement levels.
In their earliest years of secondary school CHIP may well be exploring the situational demands of secondary school in the light of previously successful primary school strategies. CHIP achievers, unlike their underachieving peers, may have learned – and have learned quickly - that the Surface Strategies and Surface Motives of primary school are not always appropriate or successful in their later years of schooling.

A student who predominantly utilises a Surface Approach to learning can be characterised as doing the minimum to get through work requirements. Failure is balanced against working more than is necessary and the goal is to limit learning to essential details and to retain factual information. Rote learning becomes the preferred way to tackle work (Biggs, 1987). CHIP underachievers favoured this approach more than CHIP achievers.

CHIP achievers when specifically asked to respond to whether they were ‘doing the minimum to get by’ acknowledged that they sometimes did this. CHIP underachievers admitted that they did this ‘about half the time’ in most of their subjects. Whether CHIP underachievers can be considered ‘lazy’ students is an interesting notion. They are less engaged and less motivated to actively learn or to apply their learning. A closer analysis suggests however, that in this study while CHIP underachievers have a preference for this Surface Approach they are not predominantly utilising it. As a group, both CHIP achievers and underachievers, utilised Deep and Achieving Approaches significantly more often than the general population. This suggests that CHIP were generally not focussed on their learning as doing the minimum to ‘just get by’ and that underachievers cannot necessarily be viewed as ‘lazy’.
CHIP students in the current research were desirous of obtaining meaning from their study and wanted to work on their studies. However, it seemed that CHIP underachievers, unlike their achieving peers, appeared to be unaware that their adoption of Surface Strategies and Motives was not conducive to their achievement. A comparison of CHIP results on the LPQ against the general population on Learning Approaches is revealing here. CHIP underachievers’ scores looked remarkably like those of the general population norms. That CHIP underachievers resembled the ‘general’ population is an observation which has been made elsewhere (Dowdall & Colangelo, 1982; McCall et al. 1992) again confirming how difficult it will be to identify them without knowledge of their high intellectual potential.

CHIP underachievers opted for learning facts and reproducing them through rote learning even more than the general population – perhaps because CHIP have the intellectual capacity to do so and may have previously been rewarded for doing so. Such a learning strategy may lend some support to the current conjecture that CHIP underachiever’s fail to note, or are unable to change, strategies from those they employed in primary school.

It can be suggested that where complex opportunities were provided for students, those CHIP who utilised a Deep or Deep-Achieving Approach may have experienced significantly more motivation orientation than students who preferred to use a predominantly Surface Approach. CHIP achievers would be likely to be reinforced to continue their congruent Deep Approach whilst CHIP underachievers would be likely to be left wondering why the previously successful Surface Strategies of primary school no longer worked. For CHIP underachievers a cycle of underachievement may well have begun (Baum et al. 1994; Heine, 1997).
6.1.1 CHIP Achievers – Study and Learning Habits

Gaining high marks, which is part of an Achieving Motive, appeared to be important to CHIP. CHIP achievers organised their time accordingly, studying and handing in work on time. That is, they used an Achieving Strategy. CHIP students – especially achievers - generally appeared to be aware of their learning processes and tried to control them. CHIP achievers took responsibility for their learning and appeared to have a stronger sense of internal control than the underachievers, as has been noted in other studies (Olszewski-Kubilius, Kulieke & Krasney, 1988).

The CHIP achievers in the present study, more so than underachievers, appeared to be efficient ‘meta-learners’ (Biggs, 1987). They appeared to think about themselves as learners and how they might take control of their learning. According to Biggs (1987) this intrinsic motivation to learn and the desire to become self-directed in their learning is considered to enhance a student’s effectiveness as a learner as they progress through secondary school.

6.1.2 CHIP Underachievers – Study and Learning Habits

Considered to be neither as efficient nor effective as learners, CHIP underachievers utilised Surface Strategies and Surface Motives significantly more than CHIP achievers. However, as noted, their profile can not unequivocally be labelled as a Surface Approach. Rather, it appeared that both CHIP achievers and underachievers utilised all possible Strategies and Motives, favouring one approach less clearly than might be expected. Ainley’s (1993) research had suggested that one in three CHIP displayed a low engagement with their learning and were ‘detached’ from their learning, scoring highly on a Surface Approach on the Learning Process Questionnaire (LPQ). In the current study less than one in five underachievers scored
well-above average on the Surface Approach of the LPQ, whilst almost one in two underachievers scored well-below average.

It appeared that CHIP underachievers did not so much utilise a Surface Approach as that they did not opt to consistently utilise Deep or Achieving Approaches. Failure to focus or to apply a consistent strategy to their learning may indicate that CHIP underachievers lacked an awareness of themselves as learners. Further they may have failed to fully appreciate the value of learning. As revealed in an analysis of their individual responses CHIP underachievers saw themselves continuing with study only for as long as it was necessary to get a good job, whilst CHIP achievers saw study as a more life-long involvement. CHIP underachievers appeared to view education as a means to an end and as such may not have engaged with it as actively as achievers. This lack of engagement and the lack of focus may be early indicators of declining achievement levels.

From their individual responses CHIP underachievers only sometimes tried to think how useful the material they were learning would be in real life whilst CHIP achievers frequently did. The preference of CHIP underachievers towards Surface Strategies and Motives meant that actual detail was retained at the expense of deeper meaning or of building structural relationships to other areas of knowledge. Reminiscent of the primary school, learning may have been seen as simply getting the right answer often with little involvement in the learning process. CHIP underachievers were less likely than achievers to think about why or how they learnt. They failed to integrate their knowledge across disciplines and were less likely to apply their learning.

CHIP underachievers, like average students who prefer a Surface Approach to learning, will have poor internal locus of control and look for guidance and approval
from the teacher. Thus underachievers do not always seek meaning from what they are learning, nor do they pursue research beyond the minimum required or see long term benefits to their study. The responses of CHIP underachievers suggested they were more significantly put off by a poor mark on a test and were more likely to worry about how they would do on the next test than were the CHIP achievers. It appeared that external reinforcement was important to provide CHIP underachievers with a feeling of success as a student. In failing to obtain intrinsic motivation from their study CHIP underachievers perpetuate their reliance on external feedback. They lacked the self-monitoring skills of CHIP achievers and passed responsibility for their learning success – or learning failure - to others. In failing to accept the responsibility for learning they failed to make the links between effort and outcome and continued to place blame for failure on to others.

Hypothesis Two “That underachieving CHIP will display poorer study and learning habits than achieving CHIP” can be accepted as underachieving CHIP did score significantly higher than the achievers on both the Strategy and Motive of the Surface Approach to learning. The Learning Approach of underachievers may be seen in their preferring to concentrate on factual details, to learn by rote and to seek external reinforcement. The combination of these three factors has consistently been noted as having a negative relationship to school achievement (Ainley et al 1986; Ramsden et al, 1989) and as leading to ‘detachment’ from learning and school (Ainley, 1993).

6.2 CHIP and School Satisfaction

In the current study CHIP reported significantly more positive experiences of school than the general school population on most of the Quality of School Life Scale
(QSL) domains. Particularly, highly significant differences were noted in the high levels of prestige CHIP believed they were accorded in school by significant others. CHIP also expressed a greater sense of confidence in their ability to be successful in their schoolwork than did the general population. Even underachieving CHIP expressed this. This finding is consistent with other studies that have noted an emphasis by CHIP on their intellectual abilities and their high levels of positive self-reports of their academic competence (Buescher & Higham, 1989; Olszewki et al, 1987; Olszewski-Kubilius, Kulieke & Willis, 1987).

However CHIP do not seem to respond differently to the general population in their feelings about the adequacy of their interactions with the teachers and in their interpersonal relationships with other students. The adequacy of their interaction with teachers and classmates was not perceived by them to be dependent upon their ability level. However, CHIP as a group remained consistently more positive than the general school population about the prestige they believed they received at school and about their positive belief in their abilities. The prestige they believed they received and their belief in their abilities is likely to be reflected in higher levels of self-esteem in the academic arena.

In considering school with respect to teachers, schoolwork and their classrooms CHIP appeared to enjoy going to school although they occasionally saw schoolwork as boring. CHIP in the present study believed their teacher(s) respected them, and, often felt relaxed and happy when they were working in the classroom. As was noted in other gifted studies (Davis & Connell, 1985, Bodenstein, 1997; Milgram & Milgram, 1976) CHIP in the present study appeared to display lower levels of anxiety, higher scholastic competence and higher global self-esteem than same-age children drawn from the general population. The CHIP student is likely to be
perceived as a happy, reasonably contented student in the classroom. As such, the CHIP underachiever may remain undetected.

In sporting ability, social skills, appearance, physicality and creativity, achievers and underachievers did not differ in their comparison of themselves to other children their age. Unlike those subjects in Beuscher et al’s (1989) study, these CHIP viewed their physical looks and physical ability as being better than most of their non-CHIP same-age peers. Overall, it was therefore necessary to reject the third hypothesis, “That on a measure of school satisfaction CHIP will be less satisfied than the test norms for all children”.

6.2.1 CHIP Achievers and School Satisfaction

Interestingly the reported quality of school life did not differ significantly for CHIP achievers and underachievers. CHIP achievers and underachievers did not differ in their feelings about school, their teachers, relevance of schoolwork, and, their relationships with other students. This lack of difference between achievers and underachievers suggested that it may not be achievement that was the important variable in how they felt overall about school or teachers or schoolwork. Rather it was possible that it was their CHIPness that coloured their overall perceptions.

Compared to the general population it has been noted that CHIP in the present study displayed lower levels of anxiety, strong beliefs in their higher scholastic competence and higher global self-esteem. It might be surmised, therefore, that whilst they view their CHIPness positively, school and personal satisfaction should remain intact. However, where CHIPness is devalued, either through societal or gender stereotypes as an example, then significant differences in school and self-perceptions between CHIP may be noted.
Some interesting differences in responses were noted when the individual responses of CHIP achievers and underachievers were compared. Responses on particular items revealed that CHIP achievers felt significantly lower levels of depression at school than did underachievers. CHIP achievers reported that they enjoyed learning more, got along with people better, coped better with the work and enjoyed the work more than did CHIP underachievers. Thus whilst global measures did not suggest CHIP underachievers and achievers differed in their feeling about school there did appear to be some evidence of qualitatively different experiences of school which suggested a more positive experience for the achievers.

CHIP achievers reported significantly more positive responses generally to school and a significantly greater belief in the relevance of schooling than did either their underachieving peers or the general population. With their positive responses to school, and greater belief in its relevance, CHIP achievers may continue to add fuel to their intrinsic motivation to achieve success in their studies without the recourse to external reinforcement needed by CHIP underachievers.

6.2.2 CHIP Underachievers and School Satisfaction

In comparing CHIP underachievers and CHIP achievers to the general population of students in the norming sample, CHIP underachievers again resembled the general population more than their achieving CHIP counterparts. An analysis of individual questions on the QSL confirmed this pattern. When asked to respond to the negative affect item “School is a place where I feel depressed” CHIP responses were significantly lower than the responses of the general school population, suggesting CHIP felt less depressed at school than other school children. This not only confirmed that CHIP were generally happy at school but also suggested that
there was evidence to confirm the findings of Reglin (1993) and others who reported high levels of dissatisfaction and unhappiness in the general school population.

Closer examination of CHIP responses found, however, that it was CHIP achievers who were significantly less depressed than the general population; significantly more confident in their abilities, and, found learning fun. CHIP underachievers, on the other hand, recorded similar mean scores to the general population. CHIP underachievers only resembled CHIP in the high levels of prestige they believed they were accorded in school by significant others and in the sense of confidence they had in their ability to be successful in their schoolwork. Given the underachievers actual lack of achievement this last belief could be described as somewhat ironic. The erroneous belief that CHIP underachievers had in their ability to be successful in their schoolwork may have its origins in two explanations.

Firstly, in Victoria, many CHIP underachievers' lack of achievement is covert at school, is unrecognised and hence not acknowledged as underachievement by student, parent or teacher. There is no objective confirmation of the (covert) underachievement and thus to all intents and purposes it does not exist. The second explanation is that CHIP underachievers were not sufficiently aware of themselves as learners and they attributed their lack of success to lack of ability not lack of effort. Despite their average IQ of 136 when underachieving students were asked to compare themselves to other students their age underachieving CHIP perceived they were less able in their academic abilities than achieving students. CHIP underachievers believed they were bright - “just not that bright”.

So, despite ability scores indicating their high potential to achieve CHIP underachievers responded in a manner that resembled more that of a student from the general population. Again, more depressed about school, less confident in their
abilities and less likely to report learning as fun these CHIP underachievers shared only their high IQ scores with their achieving counterparts.

Perhaps, without ability and achievement testing CHIP underachievers may be able to 'blend' with the class, achieving at an average level and rarely coming to the attention of their teachers. With average achievement levels and with perceptions akin to their general population classmates, gifted underachievers may remain unidentified in the classroom.

Despite some differences in a small number of particular instances, the perceptions of CHIP achievers and underachievers on global measures of school satisfaction did not significantly differ in their responses. Hypothesis Four “That on a measure of school satisfaction underachieving CHIP will score significantly lower than achieving CHIP” was therefore rejected.

6.2.3 Gender and School Satisfaction

As the area of school satisfaction was one area that had been noted as possibly having gender differences linked to ability (Ainley, 1993; McGuigan, 1992) a gender analysis of school satisfaction was conducted.

Girls in the general population had been noted as scoring more highly on the Positive Affect domain of the QSL. Similarly girls had been noted as having a greater belief in the relevance of school (Ainley et al, 1986). In analysing gender and school satisfaction regardless of achievement levels the present study found some significant differences. However these differences were not in the direction which might have been expected, based on past research.

In the early 1990s two competing areas of research interest vied for public attention. At this time, and on one side, a number of studies reported higher
proportions of males to females who were disenchanted with school (Ainley et al., 1993; Batten, 1989; McGuigan, 1992). On the other side, a number of studies were commissioned by the Australian Government to explore classroom practices and girls’ learning (Clark, 1990; DEET, 1992; Hyde, 1992; Smit, 1992). These studies were driven, in part, by concerns expressed about sexual harassment in the classroom. The impetus for such studies was the directive of a late 1980’s National study to explore “the ways in which girls express their female identity and the extent to which these are seen to be compatible with success in schooling” (Commonwealth Schools Commission, 1987, p 57). Ultimately, Government support settled upon exploring girls’ experiences of school and studies such as Batten’s (1989) were discounted, if only temporarily.

In terms of curriculum it was noted that much of what was taught in schools excluded girls because it denied their interests, experiences and expectations of themselves. Particularly alienating subjects for girls were found to be Maths, Science and Technology. Irrelevance of the curriculum was coupled with teaching practices that encouraged boys to participate more actively in classroom activities. Further, boys, too, engaged more teacher time and attention. As reported in one national study “to survive in the classroom some girls [chose] not to seem bright, not to speak up, not to challenge boys or teachers and not to ask for what they want” (DEET, 1992, p38).

It was suggested that for the girls such ‘passivity’ of behaviour resulted in less conflict with male students and teachers. It also seemed to confirm high school teachers’ opinions that girls ‘were naturally quieter’ (DEET, 1992, p 27). Overall girls were seen as ‘good students’ and because girls’ inappropriate classroom behaviour was often in the form of passive resistance “teachers were generally less
aware of what girls were doing, or not doing, and so were less concerned about them” (DEET, 1992, p 20). The question arises that if girls were devalued, then would CHIP girls be doubly devalued: once for being a girl, and secondly for being CHIP?

However, in Australia at this time there was little interest in these studies in exploring the needs of ‘bright’ girls. Whilst often seen as ‘good’ or ‘model’ students girls were also seen as less intelligent than boys and less interesting because they were more likely to be diligent in their studies and predictable in their behaviours (Clark, 1990; Davies, 1988). Primary and secondary school girls were thought to be hard workers rather than intelligent. Teacher reports were found to describe girl’s abilities in ‘feminine’ ways. Intelligence was often de-emphasised and rather an emphasis was placed upon how hard they tried and how conscientious and helpful they were (Adams & Walkerdine, 1986; Davies, 1988). This was not to suggest that girls lacked ‘power’ in an educational context but rather that their options to display their power (being a teacher helper, being a model pupil and even being attractive) were not generally in their educational interests (Clark, 1990).

Studies such as Ainley et al’s (1993) and Batten’s (1989) were revisited and seemed to provide confirmation that girls were ‘okay’. Girls generally worked hard and were engaged – or at least not actively (or noisily) disengaged – with their studies. Girls responded positively on surveys designed to source student satisfaction. Girls rarely put forward a negative perception of their schools or their curriculum unless asked via small groups and case study analysis (Clark, 1990; Hyde, 1992). Global measures of school satisfaction and increasing participation rates of girls in non-traditional areas seemed to suggest that changes made to address the needs of girls in classrooms were working. Indeed, today in the Australia of the late 1990s, the
research focus has swung back to the dissatisfaction with, and poor outcomes of, boys’ education.

Despite a background which suggested girls’ satisfaction with their education, in the current study it was CHIP boys and not CHIP girls for whom school seemed to be a significantly more positive experience. Not only was school for CHIP boys more positive but as well CHIP boys believed more strongly in its relevance than did CHIP girls. They reported significantly more pride in being a student and their greater belief that other students treated them with respect. More than CHIP girls and more than the general school population CHIP boys also held a stronger belief that the work they undertook at school was a positive preparation for their future. Both achieving and underachieving boys responded most positively in their assertion as to the value of schoolwork than did girls. Underachieving CHIP girls disagreed that there was value in the work they did.

For the CHIP girls in the present study the schoolwork they undertook lacked relevance and was not a positive preparation for their future. Future aspirations were not explored with the current study, however, these aspirations may well have a bearing on whether CHIP girls achieve. Similarly, if CHIP girls felt they were not treated with the same respect as the CHIP boys and if they considered the curriculum irrelevant to their future it would be valuable to explore why – despite the possible presence of so many negative factors – some CHIP girls did achieve.

In summary it appeared that school was generally a positive experience for CHIP boys – most especially if they were achieving. However, even underachieving CHIP boys reported more positive school experiences and felt more positive about themselves as students than did CHIP girls. CHIP boys felt that people respected them, had high levels of pride in themselves as students and felt important at school.
However the same can not be said of CHIP girls. This is a finding of real concern for parents and educators of CHIP girls alike. Further research should explore in depth the experience of education for bright girls.

6.2.4 Teachers, School Satisfaction and Achievement Status

Whilst the current study did not source teachers directly, CHIP were asked to comment upon their teachers. CHIP, regardless of the achievement levels, perceived their teachers as being positive and generally supportive.

Van Tassel-Baska (1989) and Whitmore (1980) had noted that teacher attitude towards the student, teacher attitude towards the student’s giftedness and teacher attitude to education *per se* might play an important role in student underachievement. However, for these CHIP, teachers were seen by their students as usually reasonably happy people and only three of the 26 items on the self-report questionnaire were answered in a significantly different manner by CHIP achievers and CHIP underachievers. CHIP underachievers believed teachers expected kids to do too much work; they believed they got blamed for things they did not do and they believed that at school there was too much pressure to be perfect.

If CHIP underachievers were utilising ineffective learning approaches and were relying on rote memory and factual recall then it is possible that underachievers felt that they were overwhelmed with too much work, especially as the number of discrete subject areas increased in early secondary school. Along with subject area increases, the move from concrete learning to more abstract complexity may have meant that students needed to transform and apply the material they received in some way – not just regurgitate it.
It will be recalled that CHIP underachievers, far less frequently than CHIP achievers, tried to apply the material they were learning to real life. The accuracy demands required by rote recall no doubt also led CHIP underachievers to feel pressured especially where teacher approval was more important than an internal motivation to learn. Interestingly, CHIP underachievers reported that they “were learning more in school (this year)” than achievers. Perhaps underachievers in the present study were coming to a recognition that educational expectations around them had changed and their approach to learn was not as adaptive as it could have been.

In exploring suggestions as to why CHIP underachievers believed that at school they were blamed for things they do not do, a number of possibilities present themselves. Perhaps there is some degree of petulance in CHIP underachievers. CHIP underachievers reported that they did not like their teacher as much as achievers did, and perhaps they wished to justify this dislike by blaming teacher(s) for their own lack of involvement, participation and achievement in school. As previously discussed, CHIP underachievers were likely to be working for extrinsic rewards so it is possible that CHIP underachievers would seek external causes for their lack of success, perhaps having failed to recognise the links between personal effort and academic outcome.

Finally, underachievers did not believe that teachers made learning as interesting as achievers did, nor did they believe that their teacher listened to their ideas as much as achievers believed them to. The blame CHIP underachievers placed upon teachers may be a by-product of the CHIP student’s anger over new demands and expectations on them as a learner. Without further studies the answer can only be proposed.
6.3 Parent Opinions about their Children’s School and Children’s Academic Self-Esteem

Parent opinion about their children’s school was sourced in a questionnaire utilising a likert scale and the parent mean on most items was midway on that scale. Whilst tending therefore towards a positive perception of their children’s schools parents indicated that there was certainly room for improvement on the school’s part. Despite acknowledging room for improvement, parents of achieving and underachieving children appeared to be equally satisfied with their child’s current school believing that the school had responded some way towards meeting their children’s needs. There was no significantly different response from parents of achievers and underachievers about their belief that the school was capable of meeting their child’s specific educational needs.

However a closer analysis revealed that parents of achieving children held a significantly greater belief that the school understood their child’s needs than did parents of underachieving children. As well, these parents believed their children to be far more interested in school and be performing far better than did the parents of underachieving children. It would be interesting to explore whether parents who held a more positive belief in the ability of the school to meet the specific learning needs of their child either explicitly or implicitly publicised this belief. Sending positive messages to their child about the school or the value of education in general may have influenced achievement levels in a positive way. Conversely, parents who did not believe the school was meeting their child’s needs may have voiced these opinions and may have led their child to believe in the inadequacy or irrelevance of the school or schooling. The impact of such parental messages has not been explored in the present study.
Parents were asked to choose one word from a pair to describe their child’s behaviour on a number of variables: achievement, organisation, writing, care, reading, social, academic and happy. Parents generally perceived their child as achievement oriented and academically focussed, reasonably organised, as having poor handwriting, being careless, being an avid reader and as having a small group of friends. It was only on two characteristics that parents of achievers differed significantly from parents of underachievers. Parents of underachievers perceived their children to be more careless and more disinterested in reading than did the parents of achievers. The tendency of CHIP towards Perfectionism has been widely noted (Adderholdt-Elliot, 1987; Kerr, 1991; Rimm, 1986; Robinson & Noble, 1991; Roedell, 1984; Strang, 1951; Whitmore, 1980). That the parents of CHIP underachievers perceived their children to be careless may be significant. The drive towards perfectionism may enhance CHIP achievement levels and less drive may result in lower levels of achievement. It may be that unlike the paralysing perfectionism so often discussed with reference to CHIP there is, instead, an optimal and positive level of perfectionism that facilitates performance. Silverman (1987; 1991) has suggested a similar, positive role for perfectionism in elite athletes, artisans and scientists.

The second characteristic of difference between parents of achievers and underachievers was their child’s interest in reading. The majority of both male and female CHIP were considered to be avid readers by their parents. Almost all of the disinterested readers were underachieving. Assuming parental perception of their children’s interest in reading was accurate, then it is possible that CHIP who are disinterested in reading may also be at risk of underachieving. Not only do students read for pleasure but also they read in school for research and study purposes.
Students utilising Deep and Deep-Achieving Approaches to their learning read to satisfy their intellectual curiosity and to establish links between different knowledge disciplines. CHIP who do not read, or have little interest in reading, may therefore be less intellectually curious but may also be less able to place their learning in an interdisciplinary context. Such students may experience more difficulty in utilising Deep and Deep-Achieving Approaches and less curiosity and fewer linkages between disciplines may not enhance achievement.

In the classroom, the child of high ability who is a disinterested reader may warrant consideration with respect to their achievement level. The presence of both characteristics may be an indicator of CHIP underachievement. Although no causation or direction for the relationship between disinterest in reading and academic underachievement can be asserted, an association was found to exist between the presence of these student characteristics and academic underachievement.

6.4 Family Environments of CHIP

In the present study high levels of family support were found to be operating, confirming the work of others, including Cornell and Grossberg (1987). As in the present study, Cornell and Grossberg (1987) found that gifted youth tended to be in more supportive and socially integrated families than did young people in the normative families. As well, almost half the current CHIP parents felt their families had high levels of interest in political, intellectual and cultural activities. Both parents of underachievers and achievers reported significantly higher levels of interest in these activities than did the general population. In contrast, their children did not perceive this with only one in ten children seeing the focus of their family as being oriented towards such intellectual-cultural interests. Further, CHIP parents perceived
their families as being more harmonious and supportive than their children perceived them to be, as was found in Heine’s (1997) study. Children felt less encouraged to express their feelings directly when compared to the levels of expression their parents reported in the families. However as children in the general population also perceived less harmony, less opportunity for expression and less support than their parents such a finding was not unexpected.

Moos and Moos (1994) have identified seven common family types but there was, in the present study, little agreement between parents and their children as to the type of family in which they lived. The greater majority of CHIP, one in four, perceived that their families were concerned with what might be considered ‘system maintenance’. Characteristically such families are recognised by low levels of organisation. Clearly, the majority of CHIP perceived their families as disorganised. Regardless of whether children or parents perceived their family as conflicted, disorganised or achievement-oriented there was no association between the children’s actual levels of achievement and any of the family types present in the current study.

The distinction made previously that a relative lack of emphasis on set rules and procedures may well allow the freedom to question and challenge traditional conventions may be important for CHIP. In CHIP families there may be a lack of emphasis on set rules and procedures however with a likely focus on an intellectual-cultural orientation these CHIP families appeared to allow CHIP the freedom to question. Such questioning – particularly during adolescence – may see resulting positive adjustment and intellectual growth. Certain family characteristics such as cohesion appeared to promote a greater likelihood of student achievement and these will be discussed in greater detail in Section 6.4.2.
CHIP, regardless of their achievement status, perceived their families to be more achievement-oriented than did their parents, with many activities such as school and work being seen as competitive in nature. A focus on achievement orientation has been noted in underachieving families (Wood, Chapin & Hannah, 1988). However, in the current study, families of CHIP achievers and underachievers did not report significantly different emphasis on an achievement focus in their homes. Nor did the scores of CHIP and their parents differ significantly from the normative sample. Whilst CHIP children perceived more of a focus on achievement than their parents, this may have reflected more the children’s desire to be involved in intellectual activities outside the context of competition; a characteristic that has been noted elsewhere (Chapman et al, 1990; Karnes & D’Illio, 1988; Nelson, 1984). Or, as in Green et al’s (1988) study, it was equally possible that such different perceptions between parents and their children reflected the developmental stage (adolescence) of the sample as much as it did CHIP or achievement differences. In the current study it was not explored whether the child’s poor academic performance spurred the family to focus on achievement or whether the focus on achievement negatively impacted upon performance. It was therefore not possible in the present study to establish a causal relationship.

6.4.1 Stress in CHIP Families

In looking at the level of disagreement between family members, CHIP families recorded levels of incongruence such as to indicate that there would be high levels of stress in their families. Moos and Moos (1994) defined such families as ‘distressed’ and suggested that in these families a ‘crisis’ may be present. Examples of such crises according to Moos and Moos (1994) might be that one member may be
seriously ill, receiving psychiatric care, have substance abuse issues, or, the child might be a run away or conduct disordered or an adolescent child might be being seen by a welfare agency. It may well be possible to add ‘gifted’ and ‘underachiever’ to this list.

On the basis of the findings of the current study, one in two CHIP families scored at the mean or above as a ‘distressed’ family and one in five CHIP families were significantly distressed. When looking for differences in the levels of distress, in the family of a CHIP underachiever it was noted that underachievement may be operating as a contributing factor to stress. Whilst families of CHIP achievers resembled other distressed families, families of CHIP underachievers were significantly more distressed than families of CHIP achievers. Families of CHIP underachievers, especially, expressed high levels of family incongruence, suggesting even greater levels of distress than that seen in all CHIP families. Intellectual giftedness may be operating as a ‘crisis’ in a distressed family. Intellectual giftedness and underachievement appeared to produce exceptional levels of distress in the family.

Whilst in the majority of studies of underachievement and school failure high levels of conflict have been noted between children and their parents (Cockram & Beloff, 1978; Rimm, 1986; 1991) CHIP parents in this study showed no significant difference when compared to the general population in their perception of family conflict. CHIP children perceived significantly less conflict than did the children of normative families. Although not conflict-laden, clearly, CHIP families showed significantly higher levels of distress than did Moos and Moos’ (1994) normative families.
Hypothesis Five, however, was concerned with family conflict, not distress, and was therefore rejected as CHIP family FES scores showed less familial conflict than that of the general population.

6.4.2 Family Environments of CHIP Achievers

Parents of CHIP achievers reported significantly higher levels of commitment, help and family support (Cohesion) and showed significantly more interest in intellectual and cultural pursuits than did families of underachievers. It has been noted in other studies that high levels of intellectual orientation have been associated with more time studying (Moos & Moos, 1994) and, one supposed, a likelihood of better grades. Nelson (1984) suggested that high levels of cohesion, support and organisation with less emphasis on achievement orientation was likely to promote positive levels of student academic and scholastic self-concept. This appeared to have been the case for CHIP in the current study.

It appeared that families of CHIP achievers were more accepting of different viewpoints and encouraged a more open communication among family members than families of underachievers. Such an open and expressive exchange of ideas between family members has been suggested as being important to children feeling competent in the cognitive domain (Bullock & Pennington, 1988) and should be highly correlated with personal self-esteem (Cornell & Grossberg, 1987). The present study lends support to these findings as will be explored further in Section 6.5.

Where Fimian (1988) found that gifted students who reported family support and higher levels of recreational orientation and organisation experienced less academic distress, there was a non-significant trend contrary to the importance of the recreational and social activity orientation in the present study. The current study
found that it was the family of CHIP underachievers, not achievers, who tended to report higher levels of social and recreational activities. As a non-significant trend such a tendency could, of course, be spurious. Such a trend may more accurately reflect cultural differences between activity levels of Australian and American families than between gifted families. Finally, such a trend might well indicate an actual tendency for Australian, achieving CHIP families to be less interested in active, recreational pursuits. Further research is needed to clarify this trend.

6.4.3 Family Environments of CHIP Underachievers

Parents of CHIP underachievers reported significantly more involvement of family members in recreational activities outside work and school than did parents of achievers. The families of underachievers went to the movies, participated in sports and participated in family and individual recreational interests significantly more often than did achievers and their families. Despite such activity, or perhaps because of it, underachievers reported less energy being expended in activities at home than did achievers. As well, underachieving children reported that their family had reasonably fixed ideas about what was right or wrong with parents of underachievers suggesting that family members were careful about what they said to each other.

Whilst there was no significant difference in global measures of family harmony between families of achieving and underachieving CHIP there were significant differences in openness and support at the family level. These differences appeared to impact negatively on children's achievement levels. The families of underachieving CHIP were significantly more distressed and offered less commitment, help and support for family members than families of achievers. Thus
Hypothesis Six: “That underachieving CHIP family relationships will display more familial conflicts and tension than the families of achieving CHIP” was accepted.

6.5 Self-Esteem of CHIP

The CHIP in the current study displayed higher levels of self-esteem both generally and in the school and social domains than children in the general school population as has been noted in other gifted studies (Connell et al, 1991). The current CHIP felt more positive about their experiences of school, irrespective of their achievement status. The Coopersmith Self-Esteem Inventory (SEI) contained a “Lie Scale”, a high score on which suggests defensiveness in a student’s responses. It is a measure of social desirability. If a student thought s/he understood the intention of the inventory or was attempting to answer positively to all questions the validity of the result would be questionable. As CHIP, both achievers and underachievers, scored at equally low levels on the Lie Scale their answers should reflect accurate perceptions.

Social relations of CHIP were explored. Regardless of their achievement status, CHIP believed themselves to be popular, generally happy and a lot of fun to be with. Both achievers and underachievers expressed a strong desire to play with children their age or older and both expressed a strong desire to be with other people generally. Thus the CHIP in the present study do not perceive themselves as ‘loners’ or anti-social as has been frequently noted in the literature (Clark, 1983; Delisle, 1982; Whitmore, 1980). Similarly CHIP and their parents did not report that they were alienated or withdrawn from peers as other studies have concluded (Delisle, 1982; Mandel & Marcus, 1988; Whitmore, 1980). In terms of their social relations the CHIP in the present study appeared to be happy, sociable children. They believed,
and in the main their parents confirmed this, that they were reasonably popular with peers and had supportive, although small, friendship groups. As might be anticipated, considering these reports, CHIP reported high levels of self-esteem in the Social domain.

Similarly, when asked to compare themselves to other students their age on characteristics such as their physical looks, creativity, social relations and academic abilities both underachieving and achieving CHIP rated themselves “very good” or “better than most” children their age. In only one area did both achieving and underachieving CHIP rate themselves as only “OK” compared to other children. This was the area of “having good handwriting”. The lower level of self-scoring on this item acknowledged that CHIP were aware of their poorer performance on this skill and confirmed comments by their parents who most usually rated their children as being messy and often careless writers.

Whether their poor handwriting is indicative of poor fine motor skills or whether it reflects a manual skill that is devalued by CHIP was not examined in this study. Commonly it has been noted that young CHIP struggle with the mechanical act of writing (Gross, 1990; Silverman, 1986). They become frustrated with writing, being unable to record their thoughts on paper as fast as they can think them. As a skill they may come to devalue the art of writing versus the art of speaking, one in which they usually excel. As an example, on the WISC-III (Wechsler, 1991) a subtest such as Coding is very often the lowest scoring subtest for CHIP (Fishkin et al, 1996). As this subtest requires copying of abstract data a reasonable level of fine motor skill is required for fast transcription as well as good short-term memory for accurate transcription. Anecdotally, CHIP are accurate but poor completers of the subtest,
suggesting that perhaps their fine motor skills are not comparable to those of their chronological peers.

Beyond the handwriting area for this group of CHIP there was little evidence of feelings of low self-esteem or low self-concept in any other domains. As a group they perceived themselves favourably in comparison to other children their age. This is unlike the gifted in many other studies, particularly those of gifted underachievers (Dowdall & Colangelo, 1982; Supplee, 1990; Whitmore, 1980) who have recorded poor levels of self-esteem in comparison to both the general population and gifted achievers. As has been mentioned, and will be explored more fully, the difference may be attributable to the fact that CHIP in the present study have not been labelled as underachievers and are not publicly or personally perceived as such. Hence self-esteem may have remained intact.

The only domain on which CHIP did not display significantly higher self-esteem than the general population was in the “Home-Parents” sphere. There is some evidence to suggest that self-esteem in the home-parents’ sphere, displays a U-shaped pattern from Grade 3 through to Year 9 (Coopersmith, 1981). During Years 6, 7 and 8 children enter adolescence so it is likely that children’s relationships with parents can become strained at this time. As the current sample was at an average Year 6 level these CHIP may be being assessed towards the lowest point in their self-esteem in this sphere. Whilst CHIP perceptions appeared to be not positive towards their parents, on most individual items concerning the home-parents’ sphere, CHIP scores were at the same level as that of the general population. CHIP reported that even though they were paid high levels of attention at home, they also felt that their parents did not understand them, did not usually consider their feelings and that they had little fun with their parents. Similar perceptions, it seems, to most children of their
chronological age. In the present study, self-esteem in the home-parental sphere appeared to have little to do with ability or achievement levels.

6.5.1 Self-Esteem of CHIP Achievers

In analysing the mean scores of underachieving and achieving CHIP on the self-report questionnaire CHIP achievers rated themselves significantly more highly than CHIP underachievers on a number of learning variables. They rated themselves significantly more highly on items measuring their belief that they learned faster, were better at maths and were generally better students. Similarly they believed they were innovative in creative problem solving and were more interested in new things and excited by them. Interest and excitement may describe a personal characteristic that might be considered synonymous with intellectual curiosity. Such curiosity was linked, earlier, to an interest in reading.

Further, significant differences were noted by achievers compared with underachievers on being able to read well, solve problems in new ways, being a leader, being able to concentrate, not "mucking" around and knowing what to do to get the answer to a problem. Thus whilst CHIP generally reported themselves more positively in comparison to their age-peers it was the CHIP achievers, more than CHIP underachievers, who identified a number of areas in the academic and social domain where they believe they excelled.

6.5.2 Self-Esteem of CHIP Underachievers

In the current study self-esteem scores did not clearly differentiate between CHIP achievers and CHIP underachievers, although the lower self-esteem of CHIP underachievers has been one of the most consistent findings in US studies (Colangelo
The lack of differentiation in the current study can, perhaps, be explained. As noted earlier CHIP achievers and underachievers are not clearly recognisable as such in Victorian schools. If a student did not know that they were underachieving and if the nature of the underachievement were covert so that the school did not recognise the underachievement, then no feedback would be provided to the student as to the discrepancy between their ability and performance. Neither the school nor the student has labelled the student as an underachiever, nor is there an accompanying stigma of 'failure' attached. If there were no perception of failure and no external objective confirmation of that failure then self-esteem may well remain intact.

Many of the US studies comparing achieving and underachieving gifted students have drawn their underachieving students from special classes provided to address or 'correct' underachievement or from students brought in for counselling to address their underachievement (Mandel & Marcus, 1988; Rimm, 1986; Whitmore, 1980). These studies have consisted of formally identified gifted underachievers who were aware that they were underachieving due to their low GPAs against their known high ability scores. If a student knew they were a "gifted underachiever" then perhaps a less positive level of self-esteem would be expected.

It is possible that a lack of self-awareness of their underachievement is the reason for current underachieving CHIP reporting such high levels of self-esteem when American gifted underachievers have reported low levels of self-esteem. Conversely, given so little research on CHIP it is possible that the current students are not representative of Australian CHIP. This issue, of course, would be a total study
issue and not specific to the self-esteem area. Only further research on CHIP and their achievement levels will determine why the current CHIP reported higher levels of self-esteem than their US counterparts.

Hypothesis Seven suggested that CHIP self-esteem would be poorer than the self-esteem of the general population and according to reported CHIP perceptions this was not the case.

Hypothesis Eight "That underachieving CHIP will have lower self-esteem than achieving CHIP" was similarly rejected. Global scores indicated no significant differences on the SEI. There were, however, a small number of significant differences on some items on the self-report questionnaire. These items revealed that underachievers in certain areas did report significantly lower self-esteem than achievers in their belief that they were better students who learned faster and who were innovative in their problem solving. As there were only a small number of items on which higher self-esteem was reported and as the questionnaire was not standardised on a normative population the hypothesis was rejected but further research in this area would be encouraged.

6.5.3 Self-Esteem of CHIP - Gender Differences

Whilst CHIP achievement status appeared to not be associated with gender, in some previous studies gender differences in self-esteem have been found. McCall et al (1992), as an example, noted female underachievers had fewer friends and less family support than male underachievers. A gender analysis with respect to self-esteem was conducted. This analysis of self-esteem for CHIP revealed significant differences in the way CHIP boys and CHIP girls felt about themselves in a variety of domains. Regardless of achievement levels, CHIP girls reported significantly lower
self-esteem than CHIP boys in their home environments, lower level of self-esteem in the general domain, and, on the overall score on the SEI.

For all that CHIP girls scored differently to CHIP boys their responses, however, were not significantly different to the responses for the general population. As had been noted in their perception of school satisfaction CHIP boys reported a significantly more positive experience of school; so too it appeared they experienced far higher levels of self-esteem at home and generally – regardless of their achievement levels. It was perhaps not so much that CHIP girls reported low levels of self-esteem because the level was comparable to that obtained by the general population. It appeared, rather, that CHIP boys reported significantly higher self-esteem. The 'CHIPness' of these boys appeared to be acting as a significantly positive variable.

Other studies of the general population of Australian students noted that boys rather than girls were more likely to be disenfranchised or bored with school (Ainley et al, 1986; Batten, 1989; McGuigan, 1992; Power, 1984). These studies did not, however, include self-esteem measures. The finding in the present study of significantly higher levels of satisfaction and self-esteem of CHIP boys when compared to CHIP girls was important and should be explored further.

In previous Australian studies (Ainley et al, 1986; Batten, 1989; McGuigan, 1992) students were drawn randomly from the general population and were unaware of their ability levels. Few Australian studies assessed ability levels and even McGuigan’s (1992) study which found boys of all abilities more disenfranchised with school than girls utilised an ability measure (Ravens Progressive Matrices, (Raven, 1983)) which discriminates poorly at the upper end of ability. McGuigan (1992) did not feedback information about their ability to his students and his ‘bright’ students
most likely suspected but did not have objective confirmation of their abilities. The current group of CHIP knew they were CHIP and may well have been subjected to a different school and home experience because of their being a CHIP.

The CHIP boys in this sample reported significantly higher levels of self-esteem at school, home and generally than did their female peers. Female CHIP reported similar levels of self-esteem to that experienced by the general population. Unlike male CHIP, female CHIP it appeared did not see themselves as different from, or better than, anyone else. The present study found, as did Kelly and Colangelo (1984), that gifted boys reported significantly more positive levels of self-esteem in the academic and general domains. CHIP girls in the current study were not as high on self-esteem measures as other girls or the general population. Hence it appears that the variables of ability and gender together, rather than either variable alone, may be significant. The interaction of these variables should be explored further. Whilst it is heartening that CHIP boys report such positive feelings of self-esteem it is of some concern that CHIP girls do not report similar positive feelings of self-esteem.

It has been noted in earlier studies (Groth, 1969; Kerr, 1985; 1994; Kerr, Colangelo & Gaeth, 1988) that adolescence brings with it changes in intellectually gifted girls’ attitudes and achievement. Groth’s study (1969), cited in Kerr (1985; 1994) suggested that adolescent girls showed decreases in self-confidence. At about age 14 girls’ needs related to self-esteem and achievement showed a shift away from interest in school activities and academic accomplishments to concerns with popularity and relationships. In the present study it was noted that CHIP boys felt proud to be a student and felt that they were accorded a great deal of prestige at school by their peers. CHIP girls, it appeared, were more ambivalent about ‘CHIPness’ and may not have seen as many advantages to being a CHIP as boys did.
For CHIP girls it was likely that at least two societal expectations interacted to impact upon them: those associated with being a girl and those of being CHIP. The result of that interaction did not appear to be positive, leaving CHIP girls unable to identify fully with either being a CHIP or with being a girl.

6.5.3.1 Gender Differences, Achievement Levels and Self-Esteem

When achievement levels as well as gender were considered further evidence was found to confirm that CHIP males appeared to have significantly higher levels of self-esteem than CHIP females. Particularly, when the CHIP male was an achiever. In every aspect – home, school, social and generally – male CHIP achievers reported significantly higher self-esteem than female CHIP achievers. Being male seemed to afford higher levels of self-esteem. The high levels of self-esteem were sufficiently high that just being male outweighed the esteem that achievement might have brought for females. Male underachievers expressed higher scores on all self-esteem measures than did female achievers. Male underachievers and females regardless of achievement level resembled the general population in their reported self-esteem.

Whilst McCall et al (1992) noted that female underachievers had fewer friends and lower social self-esteem scores than female achievers, in the present study female achievers and underachievers did not significantly differ in their perceptions of their social self-esteem or their reports of the friendship patterns. This would suggest that gender, not achievement, might be the important variable in CHIP girls’ self-perceptions. In the area of social self-esteem both male underachievers and achievers felt significantly better about themselves than did CHIP girls, whether the girls were achieving or not.
Perhaps the present study captured CHIP girls at a time when they were ambivalent about the value of their giftedness, their 'CHIPness'. Adolescence for all children is a time of questioning (Erikson, 1968). For CHIP girls this questioning may well include the challenges of being intelligent, female and popular. Perhaps the young adolescent CHIP girls in the current study were conflicted: caught between acknowledging the value of their intellectual giftedness and their perception of the consequences of being gifted and being female. Researchers have variously identified this phenomenon and its continuing impact on the lives of gifted women as the "Horner Effect" or the Fear of Success syndrome, (Horner, 1972), "Cinderella Complex" (Dowling, 1981) or the "Imposter Phenomenon" (Clance & Imes, 1978).

In the Horner Effect (Horner, 1972) women consistently performed below their abilities when competing against men. Kerr (1994) suggests that the Horner Effect may continue to be present today in girls' "tendencies to negotiate and avoid conflict or competition when friendship or intimacy is at stake" (Kerr, 1994, p 161). However, in the present study the measure of Learning Motives and Strategies did not suggest any significant differences in responses between CHIP boys and CHIP girls. This lack of difference suggests that regardless of gender, the CHIP in the present study approached learning situations in a similar manner.

In the Cinderella Complex, Dowling (1981) put forward a theory that women were suppressed by personal and psychological dependency, waiting for an external event or person to transform their lives. The Cinderella Complex may still exist where independence and achievement are discouraged in the family and when parents are not supportive of a girl's career (Kerr, 1994). In the present study, however, no significant differences were noted on FES domains such as support, cohesion or
independence between the families of CHIP boys and CHIP girls that might suggest that the Cinderella Complex was operating.

Utilising case studies the Imposter Phenomenon (Clance & Imes, 1978) was described as a phenomenon where gifted and successful women held a strong belief that they were not intelligent; that they were impostors. Clance and Imes (1978) described these women as attributing their successes to luck and to external factors that explained away their accomplishments. Byrne (1993) found that over a three year period bright girls showed a significant decline in their career aspirations and consistently underestimated their abilities against objective assessment of those abilities. Kerr’s (1985; 1994) studies showed American gifted women as holding negative views of their academic abilities and underestimating their abilities. This phenomenon was not fully explored in the present study being outside the original parameters however the Imposter Phenomenon (1978) may well be operating in the present study. It should be noted that CHIP boys and CHIP girls expressed comparable beliefs in their academic abilities on the self-report questionnaire. The questionnaire did not, however, provide an opportunity for students to indicate the factors to which they attributed their academic success.

In the current study there appeared to be some evidence that early adolescence for CHIP girls brought with it negative feelings about the value of being intellectually gifted and of being an academic achiever. This possible ‘existential’ CHIP conflict may explain why CHIP girls of about 12 years of age who were entering secondary school, experienced less than positive feelings about who and what they were. It was not unequivocally positive to be a CHIP girl, even if achieving. CHIP boys found high levels of positive feeling and high levels of self-esteem in being a CHIP boy even when that boy was not achieving academically. Further studies should seek to
determine what it is about being a CHIP girl that may make it not as positive an experience as that enjoyed by being a CHIP boy.

6.5.4 Parent Perceptions of their Children's Academic Self-Esteem

Parents were asked to comment upon their child’s behavioural and academic self-esteem as revealed in their academic performance, utilising the Behavioural and Academic Self-Esteem Scale (BASE). They were asked to evaluate their responses on perceptions gained by observation of their child as a student and from comments made by teachers at the last parent-teacher interview. Parents rated several factors: student initiative, social attention, success/failure, social attraction and self-confidence and placed their children in the ‘moderate’ self-esteem range for all factors. This moderate rating was not significantly different from the children’s self-scored higher ratings obtained on other instruments. However, the discrepancy suggests that parents perceived that their children displayed lower levels of self-esteem than the children reported. To determine which perception is the more accurate it would be necessary to compare both parent and child reports with teacher reports. An interesting area warranting future research.

The BASE contains several factors that contribute to academic self-esteem. Of the factors on the BASE, Student Initiative measured how often students participated in classroom activities and parents of achievers and underachievers did not answer significantly differently in this area. However, when the responses to individual items were considered parents of underachievers reported that their child adapted significantly less well to changes in procedures than did the parents of achievers. Parents of underachievers perceived that their children did not adapt well to changes in school routines and this may indicate some degree of fixed thinking.
CHIP underachievers may be less flexible in their thinking, less likely to take risks, hesitant to change and less able to tolerate ambiguity. Whether this lack of adaptability is a concomitant to underachievement would need to be explored considering personality variables and learning-style preferences.

The Social Attention factor which measured how well a student “fitted into” the classroom environment was the only factor which showed significant differences in the responses between parents of achievers and underachievers. Parents of CHIP underachievers scored significantly lower on Social Attention items, indicating that their underachieving children exhibited behaviours that did not facilitate classroom learning. Such behaviours included being noisy and talkative, calling attention to themselves and not cooperating when working in groups. Parents of underachievers noted that their children were less likely to be quiet or speak appropriately and that their child did not speak appropriately about their school accomplishments. CHIP underachievers were perceived as being uncooperative in group-work, noisy and as calling attention to themselves. It is possible therefore that such behaviours result in the CHIP being less likely to attend to what is being taught and to them being less likely to apply that knowledge in classroom exercises designed to reinforce learning. As a result of their attention-seeking behaviours CHIP underachievers may have experienced classroom learning differently and alienated themselves from the reinforcement of the learning that classroom activities might otherwise have brought.

The Success/Failure factor assessed how successfully students coped with criticism and other responses about their work that could be regarded as negative. Parent responses, regardless of CHIP achievement levels, indicated neither a high nor low rating suggesting that CHIP were neither defensive or vulnerable about criticisms or admonitions of their work. If CHIP were neither vulnerable nor defensive about
negative feedback of their work this may not be a positive attribute. Rather than suggesting that CHIP have strong intrinsic motivation and self-monitoring it may well be that it is more difficult for CHIP to modify the quality or quantity of their work output to bring it in line with teacher or parent expectations. In part, the CHIP underachiever may be underachieving because they do not recognise and are not able to adapt their level of work to meet the objective standards set. CHIP, especially underachieving CHIP, may need clear directions as to standards expected and clear consequences of failure.

The Social Attraction factor measured social compatibility and attractiveness to peers and despite their children's significantly higher rating of social self-esteem when compared to the general population, parents of CHIP generally reported that their child displayed only moderate self-esteem in this area. The discrepancy between the parent and child estimation of social attractiveness/social self-esteem may reflect a real difference – CHIP may perceive themselves as more socially attractive than they are. Equally likely, perhaps, was that parents and CHIP based their perceptions on different criteria and parents did not rate their children as highly on social self-esteem because parents utilise adult criteria against which the social relationship of their children are judged.

The Self-Confidence factor measured the child's verbal expressions about their school accomplishments including voiced expectations of present and future performance. Overall, parents did not perceive that their achieving or underachieving children differed in this respect, although parents of underachievers reported that their children spoke significantly less appreciatively about their schoolwork than did parents of achievers. This one item may be linked to the Success/Failure factor in that CHIP underachievers may not be able to objectively assess the quality of their work
and may not have fully made the link between effort and outcome (Rimm, 1986; 1991).

The BASE Manual (Coopersmith & Gilberts, 1981) cited a study of gifted children in third through sixth grade although no details of IQ or achievement levels were provided. Utilising these ‘gifted’ norms, Australian parents of CHIP reported significantly lower self-esteem in the areas of Success/Failure, Social Attraction and as a total score than did parents of the normative US gifted children. However, without details of the normative sample it was also possible that the US children were in a school for the gifted and as such parents might be expected to report more positive self-esteem in their children. Similarly, self-esteem can vary with age and as the normative sample were at younger grade levels such a poor result for current CHIP may represent a ‘developmental low’ associating with adolescence rather than a fixed condition of lower self-esteem. It is also possible however, that Australian parents were more reserved than American parents in their estimations of the children’s self-esteem, recalling that they rated their children as ‘moderate’ in all factors on the BASE. Finally, it is also possible such findings represented actual lower levels of academic self-esteem between Australian and US ‘gifted’ students. It would be interesting to consider whether public recognition, differentiated education, cultural factors or some complex interplay of all these factors contributed to the lower levels of academic self-esteem reported by parents in this CHIP study.

6.5.4.1 Gender Considerations in Parent Perceptions of their Children’s Academic Self-Esteem

In the BASE Manual it was noted that female students were generally rated more highly on academic self-esteem than males (Coopersmith & Gilberts, 1981).
However, as previously discussed, the current study found that girls did not experience school as favourably as boys, therefore a gender analysis of the BASE scores was conducted according to whether the student was an achiever or underachiever. The analysis of each factor, and the scale overall, revealed no significant differences between males and females, nor between male and female underachievers and achievers.

In this sample, parents of CHIP males and females reported similar levels of academic self-esteem in their children, regardless of their achievement status. Parent perceptions may reflect actual differences between the US and Australian samples and the present CHIP sample may well be different to their US counterparts with Australian CHIP girls less likely to score highly on parent perceptions of academic self-esteem.

Overall, Australian CHIP – irrespective of gender – scored lower than US gifted students on self-esteem measures of Success/Failure, Social Attraction and as a total score on the BASE. This finding suggests the reason for different parent reports may have their roots in cultural differences, although further Australian studies would be needed to confirm this supposition.

6.6 Accelerants

Almost half the subjects in the current study had been accelerated. Of the students who had been accelerated almost half of these had experienced early entry into primary school. The next largest group (one in three accelerants) had been accelerated through a grade level. Whilst multiple grade skipping was not reported, a small number of parents reported that their child had experienced both early entry and had skipped a grade during their schooling. Students who had been accelerated had a
significantly higher IQ than students who had not been accelerated and students who experienced grade acceleration recorded higher IQ scores than those who experienced early entry.

The current study did not explore whether the formal assessment as CHIP was the stimulus for the grade acceleration or whether anecdotal parent information and subsequent school assessment was the basis for acceleration. Although some information on the process of acceleration was provided by parent supplied data. Anecdotally, from parent comments, it appeared that a number of students who had experienced grade acceleration were accelerated at a new school. Parents reported two reasons for the change of school. Firstly, most parents believed that the acceleration at a new school would minimise any negative response by other students to their child being accelerated. Secondly, a few parents reported that they had unsuccessfully requested acceleration at their child’s current school – based upon their child’s assessment report – and were offered acceleration at the new school. Despite these school changes connected with acceleration there was no association with type of school and acceleration. Such a lack of association may have arisen if parents changed schools within the same school system. Anecdotally, parental comments suggested there was some evidence for this assumption, although the parent questionnaire did not source this data directly.

Gender did not appear to be a variable in the decision to accelerate, or conversely, to not accelerate. This lack of association is perhaps of some surprise. Given the acknowledgment of a number of researchers in the field (Kerr, 1985; Start, 1989; 1990; 1992; Gross, 1990; 1993) that CHIP girls, more than CHIP boys, enter school with enhanced reading abilities girls, more than boys, may come to the attention of educators. If these girls come to the attention of educators in Victorian
schools, and there is some doubt that they do (DEET, 1992), it appears from the current study, that that attention does not result in their acceleration into a higher class.

6.6.1 Accelerants: Achievement and Learning

Parents' responses showed only a minor difference in their perceptions of their accelerated and non-accelerated children. Parents of accelerants reported their children as being more interested than non-accelerants in their least liked subjects. Perhaps CHIP who had been accelerated were likely to be more challenged by aspects of the curriculum in which they were interested. With challenge in these aspects of the curriculum they may have been more tolerant and accepting of subjects they did not like, as compared to non-accelerants who may not have been as willing to accept or tolerate lesser liked subjects.

It was in the children's approaches to learning that highly significant differences between accelerants and non-accelerants were noted. Accelerants sought more meaning from their learning and desired to achieve at a higher level than non-accelerants. Accelerants reported that they placed this desire to be highly successful in school ahead of the short-term gain of popularity. They expressed a stronger belief than non-accelerants in the feeling that one day they might be able to change things in the world that they now saw to be wrong. Accelerants expressed a desire to study for higher meaning and a belief that they may better the world around them. Such 'noble' desires indicated on the part of accelerants a goal of learning which not only required higher-order thinking (Bloom, 1956) but was also altruistic in its long-term aims. CHIP accelerants might well be considered to be better global citizens than those for whom study was a means only to a career.
To achieve their goals accelerants displayed higher levels of congruence than non-accelerants when selecting a Learning Strategy and Motive. Accelerants opted for Deep, Achieving and Deep-Achieving Approaches and enjoyed learning for learning's sake and pursued it with a drive to understand the material that surpassed their non-accelerated peers.

6.6.2 Achieving Accelerants

Whilst students who had been accelerated were not more likely to underachieve than those who had not been accelerated, they opted to select Deep, Achieving and Deep-Achieving Approaches significantly more often than non-accelerants. This suggested that achieving accelerants were most likely to be considered the type of student who placed a high value upon learning, sought to understand their role in the learning process and enjoyed learning for the inherent joy it brought rather than the teacher's approval. Whilst concerned with grades, these achieving accelerants appeared concerned with the efficiency of their learning strategies to achieve those grades and with extracting meaning and making connections between learned material and other aspects of life and the world around them.

These achieving accelerants may be described as the epitome of the 'meta-learner'; learning from their mistakes but also willing to put in additional time to find out more about areas of interest to them. Acceleration appeared to be the critical variable in the selection of both efficient and intrinsically rewarding Learning Approaches for accelerants. That acceleration enhanced and promoted these CHIP students to become 'meta-learners' lends strong support to the appropriateness of this
educational option as meeting the life-long love of learning that the education system would hope to instil in all children, and especially in its brightest.

6.6.3 Accelerants and School Satisfaction

One of the arguments against acceleration which is put forward by educators in a number of Victorian schools is that there will be some social harm to the accelerant (Braggett, 1992). Social harm might be considered to imply an inability to relate to one 'peers', although as has been shown the concept of 'peers' is problematic for CHIP. Coupled with the complexities of identifying peer groups for CHIP, accelerants, themselves, reported that they desired to be highly successful in school even if that success meant less popularity among fellow students. The CHIP in this study, clearly, were prepared to sacrifice some peer group relationships to achieve success.

This 'sacrifice for success' was most evident in two aspects of their school life. In the first aspect, success, as Feather (1991) noted, does not always bring popularity. Sometimes the opposite may be true with successful individuals targeted to be cut down as a "Tall Poppy" or becoming the object of derision (Feather, 1991). Academically successful students, particularly ones who were younger than grade-for-age, may have had more areas of vulnerability than other students, sometimes having been physically and chronologically out-of-step with their classmates. Celebrating a different (younger) birthdate; not being tall enough to be able to sit on stools in science laboratories, and, not being able to legally enter classified movies at the same time as others in class were likely not to be positive experiences for the accelerants in the current study. No doubt, factors such as these may have contributed to these
CHIP accelerants being less positive about their fellow students’ friendliness than non-accelerants, believing their fellow students to be friendly only some of the time.

This finding appeared to be contrary to that of Kulik and Kulik’s study (1992) in which students who had been accelerated reported better relationships with their new classmates than they did with their grade-for-age peers. However, as the present study assessed peer relationships at only one point of time there was no way of assessing whether relationships were better for accelerants than they were prior to their acceleration. In the absence of longitudinal data about the present group of accelerants it can only be noted that the present accelerants did not feel students were as friendly as non-accelerants felt them to be.

Whilst Victorian schools continue to operate in a grade-level progression governed by age, accelerants may well continue to stand out as different, in a negative way, and it is likely that the accelerant will feel that less camaraderie exists between them and fellow students. It should be recalled, however, that the accelerant in the present study was also equally likely to forego such student popularity in their desire to be academically successful. Caution must be taken as to whether this can be generalised to all CHIP.

A second aspect where accelerants may have felt something of the ‘sacrifice for success’ is an important area in a nation renowned for its sporting prowess (Going for Gold, Standing Committee on Finance and Public Administration, 1989). This was the perception of the student as a successful sportsperson. Non-accelerants rated themselves as being significantly better at sports, in their physical skill and overall as being significantly better athletes. Whilst both accelerants and non-accelerants rated themselves as superior to most children their age on the self-report questionnaires across all the dimensions assessed, the non-accelerants were more likely to rate
themselves as very good against other students their age in physicality and sporting prowess. Accelerants rated themselves far less highly. Perhaps whilst accelerants desired recognition and success in their studies, non-accelerants – even the achievers – looked for other avenues in which to excel and be recognised. They may have found both on the Australian sporting field.

6.6.4 Accelerants and Family Environments

When compared to non-accelerants, CHIP accelerants perceived their families as placing more emphasis on activities of a more intellectual or cultural nature and less emphasis on active-recreational activities. Accelerants described their home as being a place where they were free to say what they wanted to say and where family members expressed their feelings – even negative feelings – freely. Parents of accelerants supported the adage “work before play” in their families and this achievement-orientation was significantly stronger than in the homes of the non-accelerants. Both parents of accelerants and accelerants themselves, expressed a common belief that there were clear rules in their family and that family members could not simply do as they pleased. This response was significantly different to that of non-accelerants who saw less familial control over individual family members’ behaviour.

Why this may be the case is not apparent from the present study. It is not clear whether the acceleration of a CHIP focused the family on intellectual, rather than recreational, interests or whether those interests were there previously. It is possible that the CHIP and their family were already predisposed towards intellectual-cultural interests and that the acceleration of the CHIP maintained or perhaps enhanced that interest.
Family environments of accelerants were significantly different from family environments of non-accelerants. Accelerants perceived more support in their family and experienced what they reported to be a richer, more intellectually-oriented environment. On the other hand, non-accelerants and their family were often focussed on activities of a recreational nature and felt less support coming from their families and less freedom to express their opinions and feelings. A longitudinal study of CHIP families, pre- and post- acceleration, would clarify family structures that may enhance or inhibit acceleration success for CHIP students.

6.6.5 Accelerants and Self-Esteem

Accelerants reported lower levels of self-esteem than non-accelerants. In addition non-accelerants reported being significantly more contented with themselves and being less perturbed by most things in their life. Comparing CHIP accelerants and non-accelerants with the general population, CHIP accelerants reported levels of self-esteem in all domains comparable to the levels reported by the general population. Therefore, it appears CHIP accelerants did not fare worse than the general population in respect of self-esteem; rather non-accelerated CHIP fared better. For this small group of CHIP non-accelerants felt substantially better about themselves than the general population and their accelerated peers.

CHIP who had not been accelerated reported significantly higher levels of self-esteem in every domain, with the exception of the Home domain. As has been noted earlier, the CHIP in the present study had scored more highly on self-esteem measures than the general population. However, it appeared that being accelerated for a CHIP negated the higher levels of self-esteem that CHIP generally reported, leaving CHIP accelerants resembling the general population in terms of self-esteem.
As was discussed earlier there were acknowledged sacrifices that CHIP accelerants in the present study appeared to be prepared to make for academic success. The perceived lower level of popularity resulted in reported lower levels of self-esteem in the social domain between accelerants and non-accelerants. Again CHIP accelerants and the general (non-CHIP) population reported comparable levels of self-esteem in the social domain. CHIP non-accelerants felt significantly better about themselves in their relationships to others than did CHIP accelerants.

The responses of parents of accelerants and non-accelerants showed no significant differences indicating that parents did not perceive their children as displaying significantly different levels of student initiative, social attraction, response to success and failure or self-confidence. It appears, as has been the case of other parent perceptions reported in this study, that parents do not differ in their perceptions based upon whether their CHIP was an achiever or underachiever, accelerant or non-accelerant. As was also noted by Alsop (1994), the parents in the current study considered their 'gifted' children to be children first and then to have special needs by virtue of their being CHIP.

Hypothesis Nine stated “That CHIP who had been accelerated will perform better on measures of achievement, student satisfaction and self-esteem than CHIP who have not been accelerated”. Accelerants did not perform better on achievement or self-esteem measures. They did however show significant levels of student satisfaction and demonstrated more congruent learning strategies. These mixed results for accelerants, therefore, led to only a partial acceptance of this hypothesis.

Specifically, for this group of CHIP, acceleration was not related to their achievement levels. Thus this study could not link underachievement to an absence of acceleration or conversely, achievement with acceleration. However, caution should
be taken in generalising this finding to all CHIP given the small sample size concerned.

However, there were demonstrated benefits shown for acceleration in the areas of student satisfaction with accelerants functioning as congruent, Deep-Achieving students who applied appropriate and efficient Learning Strategies and Motives. School satisfaction for accelerants was positive when considered in terms of their academic subjects and their belief in themselves as students but it was less than positive in the social arena for accelerants when compared to their non-accelerated peers. Accelerants did not believe fellow students were as friendly towards them as did their non-accelerated peers, a factor may have impacted negatively upon their self-esteem.

Finally, the families of accelerants actively operated within an intellectual-cultural focus that was different from the focus of non-accelerants families who showed a preference for an active-recreational focus. Each focus provided positive experiences for its respective CHIP. Accelerants in families with an intellectual focus expressed high levels of expressiveness and support for each family member. Non-accelerants operating in an active-recreational orientation felt very positive about their physicality and sporting prowess and enjoyed non-school related and work-related outings together. Neither family focus was better than the other, but they were different.

Further research is required to explore CHIP and their families and the impact of acceleration on both the individual and the family unit. A larger sample of CHIP accelerants and non-accelerants is needed to replicate the present finding that students who had not been accelerated were not more likely to underachieve than those who had been accelerated. Similarly it would be interesting to confirm that the active-
recreational focus and the intellectual-cultural focus do not influence achievement levels, as the present study seemed to suggest. The evidence from other US studies suggests conflicting results in whether the family’s orientation plays a role in underachievement, Australian studies may inform the area.

CHIP accelerants do experience school, family and learning differences when compared to their non-accelerated peers, but they do not perform better on all measures, thus leading to the partial acceptance of this hypothesis.

6.6.5.1 Accelerants, Self-Esteem and Levels of IQ

The literature often reports intellectually gifted children of higher IQ scores (ie 145+) as having lower social self-esteem than children of lower IQs (Hollingworth, 1942; Janos, Fung & Robinson, 1985; Roedell, 1984). Therefore further analysis was undertaken to determine whether IQ was a significant factor in self-esteem scores of accelerants and non-accelerants.

When CHIP were allocated into a higher and lower IQ group it was observed that in the higher 145+ IQ group accelerants and non-accelerants did not report significantly different levels of self-esteem either when compared to each other or to the general population. This was unlike the finding of Gross (1993) whose exceptionally gifted students reported higher levels of social self-esteem after acceleration than they had reported prior to their acceleration. However, Gross’ students had experienced double grade-skips, that is they had either skipped multiple grades on a single occasion or had skipped a single grade on more than one occasion. It was noted, as well, that Gross’ students who were all 160+ IQ students, had previously been very unhappy in their grade-for-age classrooms. For such students a placement with one’s closer intellectual peers would be likely to result in more
positive experiences and increase low self-esteem levels. It will be recalled that students in the present study were, in the main, not unhappy in their classrooms and that especially for males their current classroom and social experiences were positive.

In the current study, it was non-accelerants in the lower IQ range (IQ 125 – 144) who reported significantly higher levels of general self-esteem than the accelerants. However, both accelerants and non-accelerants scored significantly higher than the general population on self-esteem in their social relations. It may be that the group of IQ 125 – 144 CHIP were sufficiently able so as to be recognised as ‘bright’ by their peers but without being perceived as so ‘bright’ as to negatively impact upon their social relationships. Just as Hollingworth (1942) noticed in her profoundly gifted studies it may be that there is a level of ‘optimum’ IQ above which it is increasingly difficult to blend in and be considered as just a ‘normal’ student by one’s fellow students.

6.7 Levels of CHIP

Over one in three CHIP in the present study had IQ scores of 145 or more on the Stanford-Binet (L-M) (Terman & Merrill, 1973) with one in three of these students possessing IQs of 160 or above. The approximate prevalence (ratio) in the population of children scoring at IQ 145 is 1:1000; the ratio at IQ 160 is 1:10,000 (Gross, 1993). With eighteen students of IQ 145+ in the present study the possibility of considering differences between moderate CHIP (IQ 125 – 144) and high CHIP (IQ 145+) was provided.

As might be expected, the difference in IQ scores between the moderate CHIP and high CHIP groups was highly significant. There was no association between gender, grade or age and being either a moderate- or high CHIP; or between number
and type of schools attended or the reason for changing schools and being either a moderate- or high-CHIP. Although locating eighteen CHIP with an average IQ score three standard deviations from the mean is a significant representation of a ‘rare’ group, numerically it is still a small sample and the lack of association is perhaps not surprising.

There was no association between achievement and IQ grouping as moderate- or high-CHIP. With fourteen of the eighteen high-CHIP students achieving there was, however, a non-significant trend towards an association between IQ grouping and achievement. It would be enlightening to conduct further studies on a larger sample of high-CHIP students in order to determine whether achievement levels and exceptional intellectual potential are positively associated.

The work of Hollingworth (1942) and Gross (1993) would also suggest that significant differences might have been present between moderate and high-CHIP groups if there were a wider gap between the average IQ scores in each group. The spread of abilities in the current research may not have allowed for two distinctly different groups of students to be identified.

6.7.1 Levels of CHIP and Student Satisfaction

Student satisfaction did not differ between the moderate-CHIP and high-CHIP group. Despite their significantly higher IQ score the high-CHIP group did not report a greater sense of confidence in their ability to be successful in their schoolwork, nor did they report a greater belief in the relevance of schooling than the moderate-CHIP group. Whilst CHIP, overall, reported significantly more confidence in their abilities and espoused greater belief in the relevance of schooling when compared to the general population, internal comparisons of CHIP based on IQ level revealed no
significant distinction between moderate- and high-CCHIP. As to whether the small sample size of the high-CCHIP group made such an analysis spurious or whether there is no relationship between increased student satisfaction and high IQ grouping must be examined further.

A non-significant trend was noted in the more positive responses of moderate-CCHIP suggesting that they may have experienced a greater sense of learning about, and getting along with, other students than did the high-CCHIP. Supporting this trend, moderate-CCHIP reported significantly greater ease in getting to know other students than high-CCHIP. In another non-significant trend moderate-CCHIP reported their belief that other students listened to them more and that they felt more relaxed and happy than did the high-CCHIP when working in their classrooms. Although non-significant, this trend lent some support to the notion that high-CCHIP may experience some social discomfort with classmates (Gross, 1993; Kulik & Kulik, 1992). It would also follow, that such discomfort may have led high-CCHIP to express less positive feelings of relaxation and pleasure when working in their mixed-ability classrooms, as appeared to be the case in the present study.

High-CCHIP felt that hard work did not necessarily pay off at their school and unlike their moderate-CCHIP peers, did not feel that their fellow students listened to them. Whilst, overall, CCHIP regardless of IQ grouping reported significantly more satisfaction with their schooling than the general population, in some aspects of their schooling moderate-CCHIP expressed more satisfaction than their high-CCHIP peers. Lending some further support to Hollingworth's (1942) 'optimal' IQ theory that moderate-CCHIP are not so different that they cannot coexist comfortably with children of lower abilities. Hollingworth (1926; 1942) suggested that at the very highest levels of IQ, adjustment, particularly social adjustment, would become increasingly difficult.
6.7.2 Levels of CHIP and Learning Strategies and Motives

Moderate-CHIP and high-CHIP groups did not utilise significantly different Learning Approaches. Considering Learning Strategies and Motives, however, the high-CHIP group utilised an Achieving Motive significantly more often than the moderate-CHIP group. This preference to utilise an Achieving Motive could be identified in the high-CHIP – and most especially the high-CHIP achievers’ – desire to see results of tests posted publicly so that they could see how much better they were than other students. Biggs (1987) suggests that the Achieving Motive enhances self-esteem through competition and that students preferring an Achieving Motive would be driven to achieve the highest grades whether or not the material was interesting to them.

The high-CHIP group appeared to feel less at ease in the classroom and felt that the other students did not listen to them as much as their moderate-CHIP peers felt that they belonged and were heard. The desire for public acknowledgment of achievement might be considered a desire for recognition, belonging and acknowledgment. The rewards of such may lead to enhanced self-esteem. Perhaps the public recognition of their achievements in the form of high scores being publicised was one of the few avenues for feeling positive about their classroom experience that high-CHIP believed was available to them.

6.7.3 Levels of CHIP and Self-Esteem

As might be anticipated of students who felt less at ease in the classroom and felt that the other students did not listen to them, the high-CHIP group reported significantly lower self-esteem in a social context, than did their moderate-CHIP counterparts. Reflective of their feelings of a lack of belonging within a classroom
these high-CHIP students felt that they were difficult to like compared to other people and that as a result most people were better liked than they were. Gross (1993) noted in her study that exceptionally gifted students' awareness of their difference to their classmates is acute. Perhaps it was the acute awareness of CHIP which caused them to accurately note that people did perceive them differently and that they could be difficult to like. Less self-aware children may inaccurately have believed everyone liked them.

No other significant differences were noted between the moderate-CHIP and high-CHIP students' perception of their self-esteem in any other domains as measured by the SEI. CHIP perception of their self-esteem in the home-parental domain was comparable between the moderate and high-CHIP groups. As well, parents of moderate-CHIP and high-CHIP reported no significant differences in their perception of their children's academic self-esteem in initiative, success/failure, social attraction or self-confidence. Again, as in the other areas of this study, parents appeared to consider their child as a child, without reference to their level of intellectual ability.

6.7.4 Levels of CHIP and Family Environments

High-CHIP families did not experience higher levels of distress in their families than moderate-CHIP families. Even underachieving high-CHIP families who might be thought to experience the challenges (and stresses) of both an exceptionally able and an underachieving child in fact did not score significantly differently from achieving high-CHIP families on measures of familial distress. As was noted earlier, families of CHIP underachievers showed higher levels of distress than the norms for 'distressed' families (Moos & Moos, 1994) and higher levels of distress were noted particularly in the families of underachieving moderate-CHIP. Although not
statistically significant from their high-CHIP peers, moderate-CHIP families – especially those of underachievers - reported levels of distress comparable to the mean for the normative families cited by Moos and Moos (1994).

The lack of significantly different family incongruence scores when moderate-CHIP and high-CHIP families were compared suggested that increasing levels of IQ did not produce increasing levels of stress in CHIP families. Whilst this may appear to be a counter-intuitive finding both Silverman and Kearney (1988) and Gross (1993) have noted that the families of exceptionally able students encouraged their children to pursue intellectual inquiry and questioning. A family environment that encouraged communication was likely to diffuse stress by promoting an environment where opinions may be challenged and discussion flourish between family members. This may be the case in the current families. The family environments of CHIP should be explored further to determine if the findings of the current study can be replicated.

Both moderate-CHIP and their parents reported significantly more involvement in active-recreational activities than did high-CHIP families. Family members of moderate-CHIP commented upon their active social lives, entertaining within the home and, as a family, going out for sporting activities and social entertainment. Attending religious services regularly also provided strong social and community links. Parents of moderate-CHIP reported a significantly stronger moral-religious focus in their family expressing strong opinions about right and wrong. They also expressed commitment to ideas with little freedom or desire to change one’s mind and firmly held beliefs in heaven and hell.

Terman (1925) commented upon the low levels of religious sentiment in the families of his highly gifted subjects. CHIP families in the present study showed lower levels of religious sentiment than the normative families. Even the moderate-
CHIP families who reported significantly higher levels of religious interest than the high-CHIP families were significantly less religious than Moos & Moos' (1994) normative families. It was noted that families of high-CHIP experienced a higher level of intellectual questioning and therefore, it might follow, would be less likely to adhere to the status quo. Such families may be less committed to religious observances and perhaps more open to the child's questioning of dogma and faith.

The same high-CHIP families expressed their freedom to have time alone and to experience a higher level of privacy than moderate-CHIP families. Coupled with this stronger sense of independence in their families all family members were however aware that they would support each other totally. Similarly, the family would not get upset when someone complained or expressed a contrary view. This tolerance for contrary or even opposing views again suggested that the open communication of high-CHIP families might have operated as a mechanism to reduce stress levels in the family. In keeping with other studies of exceptionally gifted children (Gross, 1993; Silverman, in press) these high-CHIP families seemed to thrive in an intellectual-cultural orientation. They passed on to their CHIP a strong belief in the value of education, a love of spiritual inquiry and a questioning of the status quo.

Despite some differences high-CHIP and moderate-CHIP resembled each other more than they differed on all the assessment indicators. Minor differences existed in the areas of lower social self-esteem of high-CHIP and in their utilising achievement strategies more than moderate-CHIP. Families of moderate-CHIP were more likely to report high levels of interest in an active-recreational orientation than their high-CHIP counterparts. The families of high-CHIP were not more distressed due to the challenge presented of parenting a child of such high intellectual potential. In the present study high-CHIP did not perform significantly differently from their
moderate-CHIP peers. Hypothesis Ten that CHIP whose score is 145+ will perform significantly differently from those whose score lies within the range 125 – 144 on all assessment indicators was, therefore, rejected.

6.7.5 The Study of High-CHIP

Children of exceptional intellectual potential continue to be fascinating to researchers in the field of CHIP. However the rarity of the IQ160+ in the population proves problematic in locating such students to compare against moderately ‘gifted’ students. CHIP in studies such as Gross’ (1993) were of an IQ160 plus and whilst the current high-CHIP group had a mean score close to this figure it should be noted that almost half the current high-CHIP group were in the IQ range of 145-160. Direct comparison of the present group to students such as Gross’ (1993) was perhaps inaccurate given the presence of these moderate IQ students, whose experience has been suggested to be different to that of the profoundly gifted.

The presence in the current study of seven children over 160 IQ has given insight into how their experiences may differ from their moderate-CHIP peers. The presence of a single student of 200 IQ has brought with it an appreciation of quite a different experience. Whilst researchers might be drawn to study children of such exceptionality it would be a pity if that research were at the expense of the probable 35,000 Victorian students who might be considered to be CHIP.

6.8 Limitations of the Present Study and Suggestions for Further Research

In the present study some methodological issues have become apparent. As well, the need for further research in some areas has been identified.
6.8.1 Was this Group of CHIP Representative of Victorian CHIP?

The sample size of 50 students was small in comparison to that which could be studied within the general student population. However, to locate 50 CHIP students with an average IQ of 142 in Victorian schools would have necessitated testing hundreds of thousands of students in a State that does not have an identified pool of students in schools for the “Gifted”.

The current 50 students were previously assessed and all knew they were CHIP. They were in, what this study has suggested to be, the 15% to 20% of CHIP that educators know about in Victorian Schools. The current group were, therefore, a minority (identified and assessed CHIP within the total CHIP population) within a minority (CHIP in the general school population).

It was likely, however, that the remainder of the CHIP population (which were unknown to educators being unassessed and unidentified) were not performing better than this small subset. As the larger group of CHIP was unrecognised, their underachievement was more likely to be both covert and chronic or else it would have come to the attention of their parents and educators prior to this. If it had been noted, the attention should have resulted in, hopefully, the identification of their high potential and their level of underachievement.

Identified CHIP in the current study, received support in cohesive and expressive families. Families of these identified CHIP also displayed generally higher levels of interest in intellectual-cultural activities than did other families. There was no evidence to suggest the levels of support from families or levels of intellectual interest that unidentified CHIP might have experienced would have been more or less than these identified CHIP.
Overall, there was little evidence to suggest that the present 50 CHIP had their educational and personal needs less adequately met than the entire subset of CHIP within Victorian schools, and some evidence to suggest to the contrary. It can perhaps be suggested, therefore, that the current cohort of CHIP and their families have portrayed a set of experiences that may be considered more positive than that experienced by other CHIP. They were representative, perhaps, not of all CHIP, but rather reflected the more positive aspects of that population.

6.8.2 The Inclusion of an Interview with Parents

There were a number of limitations in the data collection of the present study that would have been reduced or negated if parents had been interviewed by the researcher. An example of this limitation involved the chronicity of children’s underachievement. Information sought in the parent questionnaire was inadequately expressed and allowed parents to avoid the question and indirectly answer with examples they believed detailed their child’s underachievement. A face-to-face interview would have ensured the collection of this data with a higher degree of accuracy.

As well, in an interview, parents could have been asked questions as to what their children knew about parental views of the current or past school(s). In this way it could have been ascertained whether parental messages were explicitly or implicitly operating in the home and might have impacted upon the children’s perception of school and education generally.

Whether children would have revealed information in a more honest or fuller manner face-to-face with an unknown adult, as opposed to the questionnaire formats, is unknown.
6.8.3 The Inclusion of Teacher Data

The current study did not source teachers of CHIP directly. The researcher had assumed that parents and children would be more willing to disclose information because the child's school was neither identified by name nor involved. However the lack of teacher data with which to compare child and parent data was a weakness in the present study.

The use of the Behavioural Academic Self-Esteem (BASE) (Coopersmith & Gilberts, 1981) whilst interesting, did not replace direct teacher perceptions of the CHIP students which could have been used to confirm or refute parent and child comments. Parents, who were asked to evaluate BASE responses, on the perceptions of the student at the last Parent-Teacher Interview, may have failed to take this perspective. Neither can parents be expected to have the objectivity which teachers may have had in completing the BASE.

In another example, CHIP underachievers appeared to seek teacher approval significantly more than CHIP achievers. This finding could have been confirmed by speaking directly with the teachers concerned.

6.8.4 The Inclusion of Additional Test Instruments

It was a limitation of the current study that it did not include sufficient information about the personality variables of CHIP. Whilst aspects of CHIP personality variables were sourced from various instruments the inclusion of a personality measure for children would have provided valuable information which could have been examined in the light of achievement levels.
Similarly, a Classroom Environment Scale, if teacher information were being sought, would have allowed exploration of both the teacher and the classroom as variables that may impact upon achievement levels.

Another measure of self-esteem may have provided more informative data. The Coopersmith Self-Esteem Inventory (1981) is dated and perhaps not the instrument of choice. Its selection in the current study is justified in that it is an accepted instrument in Australia (ACER, 1999) and that it allows direct comparison to Gross' (1993) study which utilised this measure.

6.8.5 Future Research: Gender Issues

Overall the present study found no significant association between underachievement and gender. However, an analysis of individual items on the instruments measuring school satisfaction, learning preferences and self-esteem revealed that there were aspects of schooling for CHIP girls which were significantly less positive than for CHIP boys.

Further research should be considered to explore CHIP girls' attitudes to school, in comparison to CHIP boys' attitudes, in terms of relevance of the schoolwork, learning approaches and the female perception of less prestige and value in being a CHIP.

6.8.6 Future Research: Cross-Cultural Studies

Further cross-cultural studies of instruments such as the Family Environment Scale (FES) (Moos & Moos, 1994) are needed to highlight possible differences in the responses of Australian families to the US families on which the instrument has been normed. Without Australian norms it was not possible to clearly determine whether
CHIP families were different because they were CHIP or because they were Australian. This was also true of other instruments in the present study such as the Behavioural Academic Self-Esteem (BASE) (Coopersmith & Gilberts, 1981) and the Self-Esteem Inventory (SEI) (Coopersmith, 1981).

6.8.7 Future Research: Acceleration Study

Findings in the current study suggested that a longitudinal study of pre- and post-acceleration should be undertaken to determine the personal and academic benefits of acceleration. Such a study should include an analysis of family structures and an analysis of the classroom environment to determine factors in both environments which may enhance or inhibit acceleration success for CHIP.

6.8.8 Future Research: Achievement Levels and Exceptional IQ Scores

A non-significant trend was identified in the present study that showed that fourteen of the eighteen high-CHIP students were achieving. This trend could be confirmed by further research. It needs to be determined whether achievement levels and exceptional intellectual potential (IQ scores of approximately 160+) are positively associated.

6.8.9 Future Research: Disinterest in Reading and Achievement Levels

Almost all the disinterested readers in the current study were underachieving. A relationship between CHIP disinterest in reading and underachievement has been established by the current study however the direction and causation of that relationship could not be established. Research into reading and achievement levels would be valuable in determining whether such a relationship existed in the general
population. Regardless of such a study occurring, a study of CHIP interest in reading and their achievement levels should be undertaken to try to establish the nature of the relationship between the two variables.

6.8.10 Future Research: Sibling Study

In the current study data was collected from only a small number of siblings. It would be valuable to explore in a larger study whether siblings display similar or different levels of achievement and underachievement. In such a study the importance of the family structure as a precursor to underachievement could be more fully explored.
CHAPTER 7: CONCLUSION

7.0 The Nature of CHIP Underachievement

The present study found that underachievement was pervasive in a sample of the CHIP population, with almost four in ten CHIP students not performing at their current grade level in the Key Learning Areas of Reading Comprehension or Mathematics, or both. Given that CHIP, by definition, possess an enhanced intellectual potential, it is of concern that so many fail to harness that enhanced potential to achieve an above average, if not superior, performance. For CHIP to underachieve in the numbers reported in this study something must be amiss either with the education offered to these CHIP, their wider support structures such as their families and peers, or, themselves. The aim of this study was to establish the incidence of underachievement in the CHIP population and to ascertain whether there were variables that could be seen to discriminate between CHIP achievers and underachievers.

The parent data collected suggested that their children's underachievement was more likely to be covert in nature rather than either overt or situational. The difficulties of dealing with covert underachievement was that it was often masked in the classroom because covertly underachieving CHIP 'blended' with their non-CHIP classmates and were perceived to be performing at an acceptable level. Without a curriculum designed to challenge CHIP and spur them towards more commensurate levels of achievement it is likely, as Whitmore (1980) believed, that CHIP will continue to underachieve unnoticed.

Parents reported that their children's underachievement seemed to be have become most apparent when their child commenced secondary school. However, almost

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all parents expressed some surprise that their child did not ‘star’ in primary school as they had thought that a child of their potential would. Therefore it is likely that for many of the CHIP in this study underachievement has been chronic and achievement levels may well have declined further upon entry into secondary school. The lack of significant associations between family demographics such as birth order, personal demographics such as age or gender, or, school demographics such as type of school, have suggested that the underlying causes of underachievement were likely to be found in the complex interplay of school, family and child variables.

7.1 CHIP Underachievers and Learning

In the present study it appeared that the Year 7s were statistically more likely to underachieve than any other year level. Year 7 is the first year of secondary school in Victoria and it was hypothesised that the move to a curriculum that was less integrated and more subject specific may have seen some CHIP unable to adapt their primary school approaches to learning. Past early learning strategies were likely to have been based on factual learning and rote recall and thus had not always engaged CHIP actively with their learning. During their primary years when many students were learning how to learn many CHIP may have failed to make the necessary connection between effort and outcome.

Young CHIP might rarely have had to expend effort to achieve an outcome considered to be acceptable to their teachers. They might have become reliant on the positive feedback they received for, perhaps, little or no effort. This reliance on external feedback may have meant that they now lacked the self-monitoring skills of CHIP
achievers and passed responsibility for their learning – and their failure - to others. As was found in the present study, underachievers not only failed to apply successful strategies in learning situations, but they also experienced less intrinsic motivation and were more reliant on the acknowledgment of their teachers than were CHIP achievers. CHIP underachievers appeared to lack an awareness of themselves as learners and did not consistently opt for one learning approach. Lack of engagement with learning, lack of focus and reliance on external reinforcement to learn may well be indicators of declining achievement levels in CHIP.

Parent perceptions of their children highlighted that CHIP underachievers were less careful and less interested in reading. It was suggested that perhaps the drive towards perfectionism was not as strong in underachievers, thus resulting in less drive to achieve success. The relationship between disinterest in reading and underachievement may also be linked to lower levels of intellectual curiosity and the lower levels of the desire for knowledge and learning for its own sake, on the part of underachievers. Certainly CHIP underachievers had less interest than achievers in the pursuit of knowledge and love of learning, the medium of which is often reading.

7.2 CHIP Underachievers and School Satisfaction

Although CHIP overall reported a significantly more positive experience of school than the general school population an analysis of individual responses suggested that the responses of CHIP underachievers resembled more the responses of the general population than those of their achieving counterparts. CHIP underachievers reported similar levels of negative affect (depression, unhappiness) at school as children in the
general population. Conversely, CHIP achievers were significantly happier, more confident in their abilities and found learning fun. With average achievement levels and with perceptions akin to their ‘average’ classmates CHIP underachievers may well remain unidentified in the classroom.

Gender differences in school satisfaction were the cause for some concern. School for CHIP boys seemed to be a far more positive experience than it was for CHIP girls. CHIP girls did not perceive schoolwork had value, neither was it relevant or a good preparation for their future. Girls more than boys expressed less pride in being a student and felt less respected. Overall, underachieving CHIP boys and ‘average’ girls reported more positive experiences of school and higher levels of self-esteem in the academic arena than did the CHIP girls but why this should be the case can only be conjectured.

Given the age of many of the CHIP girls in the present study it may be likely that during their adolescence these girls experienced conflicting emotions over the value of being both a CHIP and a female. This conflict and declining career aspirations have been noted in other studies in intellectually gifted girls at adolescence. These conflicting emotions may have led the girls to the erroneous belief that they were not as intelligent as they were. This ‘imposter syndrome’ as it is called, may have led the current CHIP girls to attribute their academic successes to luck and to external factors. CHIP girls may have believed that there was little likelihood of being intelligent, female and popular and thus devalued and underestimated their abilities in their desire to be ‘normal’, that is, not CHIP. The unhappiness, lower self-esteem and the lack of personal and school satisfaction they expressed may be the result of the conflict they were experiencing at this time.
7.3 CHIP Underachievers and Family Environments

Families of CHIP achievers and underachievers did not report a significantly different emphasis on an achievement focus in their family. As has been noted in other studies CHIP in the present study tended to be in more supportive, expressive and cohesive family environments than were young people generally.

Underachievers, significantly more than achievers, reported their families had higher levels of interest in active, recreational activities and expressed the busy-ness of their family life. The negative side to this, however, was the lower levels of energy they reported as being expended within the home and family. Coupled with less energy to support the family dynamic, underachievers believed that their families had quite fixed ideas of right and wrong. Such rigid thinking may have discouraged the more open communication and spirit of intellectual debate between family members that achievers believed existed in their families.

The view of the underachieving children that their family members were careful about what they said to each other, together with some rigidity of thinking about what was right and wrong, almost certainly, would have resulted in the less open and expressive exchange of ideas. The free exchange of ideas has been thought to contribute towards children feeling competent in the cognitive domain. As well, the energy expended in intellectual discussions in the homes of achievers may have encouraged and supported their achieving child’s desire to achieve. A lack of energy may have depressed such a desire in the home of the underachievers.

In this study, unlike others, there was not more conflict in the homes of underachievers than achievers. The CHIP themselves perceived significantly less
conflict than did the children in the normative population. Distress, however, was apparent in all CHIP families, with intellectual giftedness appearing to act as a 'crisis'. Families of CHIP underachievers, especially, displayed even greater levels of distress than that seen in all CHIP families. Intellectual giftedness and underachievement appeared to produce exceptional levels of distress in the family. Yet despite this distress, or perhaps because of it, high levels of cohesion, support and expressiveness supported all the CHIP families. This supportive family environment appeared to allow individual family members to cope with the stress of being 'gifted'.

7.4 CHIP Underachievers and Self-Esteem

CHIP in the present study, regardless of their achievement level, appeared to be happy, sociable children who were reasonably popular with peers and had supportive, albeit small friendship groups. Despite many findings to the contrary, CHIP underachievers in the present study did not report significantly lower self-esteem than achievers. One likely reason may be that many US studies selected underachievers who had been placed in gifted programs and who had failed to achieve. Many, if not most, of the underachievers in current study would not have been formally identified as underachieving and subsequently their self-esteem may have remained high.

It might be suggested, therefore, that it is better not to identify underachievers because the underachiever's self-esteem will be affected once identification takes place. It could be countered that with the majority of the underachievers being in Year 7 they face years of lack of success at a level commensurate with their abilities. This must surely lead to discontent, perhaps even depression, in these CHIP. The identification of
CHIP underachievement as early as possible is vital. Identification and establishing the extent of underachievement are the first steps to reversing a pattern that may have been in place since primary school and if unchecked may last all through secondary school.

Finally, self-esteem was another area where gender differences were present. CHIP girls were not as high on self-esteem measures as other girls, CHIP boys or the general population. Even achieving CHIP girls reported lower self-esteem generally and in the school and social arenas than underachieving CHIP boys. Just being male seemed to outweigh the esteem achievement might have brought for females. It appeared that the variables of high ability and gender together interacted to lower feelings of self-esteem in girls. It was hypothesised that CHIP girls may be ambivalent about their 'CHIPness' and were unable to fully identify with being a CHIP and being a girl. Further research has been recommended to explore this phenomenon.

7.5 Acceleration

Almost half the students in the present study had been accelerated with almost half of those accelerants being admitted to school early. There were no significant gender differences. Students who had been accelerated had a significantly higher IQ than those who had not, with grade accelerants having the highest mean IQ of all the accelerants. It seemed that where the IQ of students was acknowledged as superior, and this point in the present study appeared to be IQ150, schools were prepared to consider acceleration via grade skipping as a means of meeting the need to provide a CHIP-challenging curriculum. Despite acceleration being acknowledged to be an effective option for CHIP, not one CHIP in the present study had been grade skipped again. This,
perhaps, reflected the belief of educators that one grade skip was sufficient to meet advanced learning needs. Such a mistaken belief does not account for continued advanced learning abilities in CHIP.

Students who had been accelerated were not more likely to achieve than those who had not been accelerated, with only one in two accelerants achieving. However, accelerants selected Deep and Deep-Achieving Learning Approaches significantly more often than non-accelerants suggesting that they were students who placed a high value on learning and sought to understand their role in the learning process. This was most true for achieving accelerants who might be considered as ‘meta-learners’. They utilised efficient learning strategies, extracted meaning and made connections between the material to be learned and the world around them.

Accelerants desired to be successful even if that success meant less popularity among fellow students, and it seemed to. Non-accelerants in the present study expressed the belief they had more positive relations with their fellow students whilst accelerants, regardless of the type of acceleration they had experienced, commented upon the belief that there was less camaraderie existing between them and their fellow classmates.

Accelerants were out-of-step with their chronological age peers. Being younger in a classroom seemed to bring with it a perhaps uniquely Australian negative: these CHIP would possibly be physically smaller and perhaps less able than their classmates on the sporting field. In a nation that applauds sporting prowess these children may well be at a disadvantage. Indeed, non-accelerants rated themselves as significantly better athletes of significantly better physical skills than did accelerants. It is likely that factors such as this contributed to accelerants reporting lower self-esteem than non-accelerants.
In terms of self-esteem it is not so much that CHIP accelerants scored lower than the general population, for they did not. Rather it is that non-accelerants felt significantly better about themselves than the general population and their accelerated colleagues.

As well, the family environments of accelerants were significantly different from those of non-accelerants. Accelerants perceived their families as highly supportive and reported a richer more intellectually stimulating environment. Further, they described their homes as places where they were free to say what they wanted but a place, too, which had clear rules and expectations. On the other hand, non-accelerants and their families appeared to be focused on activities of a recreational nature and non-accelerants reported their belief that there was less support coming from their families and less freedom to express their opinions and feelings.

Each focus appeared to provide positive experiences for the CHIP concerned. However, non-accelerants would be more likely - in a sporting-focused nation such as Australia - to receive wider, public support and reinforcement for their more active, recreational focus. Children in these families felt very positive about their physical abilities, sporting prowess and enjoyed non-school related outings together. As well, the non-accelerants were in grade-for-age classrooms, where they were not subject to the difficulties or disadvantages of being a year younger. These families with their external, outward-focused interest may be likely to be welcomed more readily into the community than the intellectually oriented, internally focused families of the accelerants.

It may well be that not only did accelerants feel less accepted by the classmates but that their families, too, experienced some asynchrony with the interests of other families. In placing emphasis on the intellectual and cultural, this family may have little
in common with many families with whom they would come into contact. Accelerants and their families may be able to provide each other with high levels of support and cohesion to allow each of them – family and individual alike – to operate in a wider society that may value quite different things to them.

7.6 Levels of CHIP

Over one in three CHIP in the present study had IQ scores of 145 or more, with one in three of these CHIP having IQ scores of 160 or above. As might have been expected, a CHIP having an IQ of over 145 was not significantly associated with gender, grade or age. Nor did the higher IQ group perform at the higher achievement levels, although a non-significant trend to this effect might be able to be confirmed by a larger study.

The satisfaction a student experienced at school did not seem to be dependent upon whether they possessed a higher IQ, nor did a higher IQ seem to instil a greater sense of confidence in the belief the CHIP had of their being successful. The relevance of the work undertaken at school was comparable between both moderate- and high-CHIP groups. It should be noted however that high-CHIP, significantly more than the moderate-CHIP, approached their schoolwork with an Achieving Approach and were desirous of seeing their results publicly posted. In an academic environment that high-CHIP perceived to be less than friendly, the kudos received through public acclaim may be one positive outlet available to them. Perhaps, even the negative reinforcement of the groans of other students when results were announced may be preferable to being ignored by one's classmates.
The belief reported by high-CHIP that they operated in a potentially more strained relationship with classmates, was confirmed when moderate-CHIP reported that they felt their fellow students listened more to them and appeared to feel more at ease in their classrooms. This was reflected in the moderate-CHIP group reporting higher levels of self-esteem in their social relations than the high-CHIP.

Interestingly, high-CHIP families did not experience higher levels of distress than moderate-CHIP families. This might suggest that the pursuit of intellectual inquiry and the questioning attitude engendered in high-CHIP families promoted within that family an environment which these children believed supported and nurtured them, whilst it offered them time alone and a strong sense of independence. This family openness, and its tolerance of contrary or opposing views, appeared to operate as a mechanism to reduce stress, even when the child might be underachieving.

As was seen in the case of accelerants compared to non-accelerants, high-CHIP families, compared to moderate CHIP families, did not report a high level of interest in active, recreational pursuits, preferring to operate within an intellectual-cultural orientation. High-CHIP families, more than those of moderate-CHIP, passed onto their children a belief in the value of education, a love of inquiry and a questioning approach to the status quo.

7.7 The Profile of the CHIP Underachiever

The following profile, and the conclusions it draws, must be seen as tentative given the small sample size of fifty CHIP students. The inherent limitation in a research design of small sample size is, as has been discussed previously, the possibility of Type 1
error. Hence any conclusions or ‘profile’ of CHIP underachievers must be treated with due caution.

The CHIP underachiever in Victoria was likely to be found in any family structure or school environment. They were most likely to come to the attention of their parents as underachievers when they were in Year 7 although parents may have felt that the child had not ‘really’ achieved for much of their primary schooling. The CHIP underachiever’s parents may have noted that their child was always a little less careful and seemed to be disinterested in reading.

Perhaps, most perplexing to parents, was their child’s apparent inability to perceive that effort and outcome were linked. Nor, they would have noted, did their child appear to be able to work autonomously but rather sought out teacher feedback and approval far too often. The child, who in primary school delighted in the teacher approval they received when they remembered all the facts, now appeared to lack an engagement with their learning and displayed a lack of focus. They may have spoken unflatteringly about their work and even about their teacher. This child no longer appeared to pursue knowledge eagerly nor did they seem to like or enjoy learning. In fact, the child did not seem to be happy in school and lacked the early confidence they showed in their abilities.

If the CHIP underachiever were a girl, the time of adolescence will have been difficult as they tried to reconcile being both a CHIP and a girl. The desire for popularity and acceptance may have meant that their daughter had devalued her abilities and had attributed her successes to external factors such as luck. If the underachiever were male, then he might have felt better about himself. However, parents may have noted their
son's achievement levels still declined, and perhaps he blamed the teachers for his lack of success.

In the classroom, teachers may have suggested that their child was achieving at an average level. As they were achieving, in a fashion, both teacher and underachiever appeared not to be actively concerned to explore why high potential had not resulted in superior performance. The covert nature of the CHIP underachievement had masked the actual depth of underachievement. Hence the underachievement did not receive the attention it should. A short-term positive, however, was that the underachiever's self-esteem had remained relatively intact. Presumably, though, these self-esteem levels will have declined if the CHIP continued to experience low levels of success.

The lack of stimulating and CHIP-appropriate curriculum and the lack of knowledge and understanding of CHIP must be acknowledged as contributing to this underachievement. Underachievement was not merely a result of student and teacher relations, other factors must be considered.

Things may have appeared to be fine in the underachiever's family. The family was active in the community, enjoyed many outings and had a high level of interest in various recreational activities. However it appeared that thinking in the family was quite rigid with very clear ideas of right and wrong and in the family unit not a great deal of intellectual discussion occurred. All of the family's external activities did not seem to leave a lot of energy and perhaps the family had even expressed that they did not support each other as much as they could have.

Whilst the underachiever's family could not be called conflict-laden it was distressed. Parenting a CHIP brought with it many challenges in dealing with the nature
and nurture of their children but CHIP families appeared to cope and support each other, even if their child were underachieving. Being a CHIP and an underachiever clearly operated as a crisis within the family. Unlike other crises that might have weakened family bonds, CHIP families appeared to sustain themselves through the crisis with high levels of support and expression and low levels of conflict in their family.

In summary, CHIP underachievement appeared to be the result of the complex interplay of inappropriate educational structures and curricula that allowed some CHIP to not make the necessary connections between effort and outcome and to rely on external feedback. When coupled with less emphasis on intellectual pursuits in some underachievers' families the family's focus had been taken away from the intellectual into other domains. The prevailing societal views that denied that there was a value inherent in intellectual pursuits added support to the family's outward looking active and recreational focus. The underachiever, and perhaps their family, looked for success and identity in other pursuits.

Therefore the CHIP underachiever has come to hold a fallacious belief in the adequacy of their performance, supported by their school's failure to recognise the presence of covert underachievement. The CHIP student's reliance on external reinforcement and lack of skills in monitoring their own learning contributed to their lack of achievement by blocking them from making the connection between effort and outcome. Finally, the family's interest in non-intellectual pursuits tacitly devalued intellectual achievement by elevating non-intellectual pursuits. Thus, perhaps, compounding the school's ignorance.
Certain elements in the school, family and child themselves, appeared to have interacted with the result that many CHIP underachieved. The CHIP, their families and their schools may have failed to recognise this underachievement, or, if recognised they may not have possessed the skills and knowledge to reverse it. A cycle of chronic CHIP underachievement may have begun.
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APPENDIX A

Your Name: ____________________________ Child’s Name: ____________________________

About your child’s school in 1997 (please tick as many as applicable):

Home schooled [ ] Ministry [ ] Private [ ] Religious [ ] Single Sex [ ]
Co-Ed [ ] Primary only [ ] Secondary Only [ ] K/P/R to Year 12 [ ]

Length of time your child has been at the current school: ________________________________

Did your child commence school early or has he/she ever been accelerated or retained in a class/year level.
No [ ] Yes [ ] If yes, please give details.

______________________________________________________________

______________________________________________________________

______________________________________________________________

Is the current school in receipt of your child’s assessment? Yes [ ] No [ ]

Please answer the following questions by circling a number between 1 and 10.

(a) I am satisfied with my child’s current school:
totally dissatisfied [ ] 1 2 3 4 5 6 7 8 9 totally satisfied [ ] 10
(b) This school has responded fully to my child’s special educational needs
totally disagree [ ] 1 2 3 4 5 6 7 8 9 totally agree [ ] 10
(c) Overall, I find all my child’s teachers are understanding of his/her special needs.
totally disagree [ ] 1 2 3 4 5 6 7 8 9 totally agree [ ] 10
(d) I believe my child’s current school is capable of ‘handling’ my child’s special needs.
totally disagree [ ] 1 2 3 4 5 6 7 8 9 totally agree [ ] 10
(e) My child’s current school understands my child’s needs.
totally disagree [ ] 1 2 3 4 5 6 7 8 9 totally agree [ ] 10

Please feel free to make further comments about your child’s school. Please note the school’s name need never be given. (use blank side if necessary)
About your child's school performance in 1997:

When I read my child's last school report I....

Please answer the following questions by circling a number between 1 and 10.

(a) Overall, I feel my child's interest in school is...

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(b) In the subject(s) he/she likes best I feel his/her interest level is...

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(d) Overall, I feel my child's performance in school is...

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(e) In the subject(s) he/she likes best I feel his/her performance level is...

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(f) In the subject(s) he/she likes least I feel his/her performance level is...

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Which word(s) in the following pairs do you believe described your child (or his/her behaviour) most of the time in 1997. Please circle the MOST SUITABLE word(s).

(a) underachiever achiever (c) avid reader disinterested reader
(b) disorganised organised (d) very social only a few friends
(e) poor handwriting neat handwriting (g) ‘academic’ disinterested in academic pursuits
(d) careless careful (h) generally happy generally unhappy
APPENDIX B

Thinking about my school

Name: ___________________________ Age: _______ Grade _____

Directions:  *Put a ✓ in the space under the words which describe how you feel about your school*

<table>
<thead>
<tr>
<th>1. My school is a friendly place</th>
<th>Not at all</th>
<th>Once in a while</th>
<th>Often</th>
<th>Most times</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. I look forward to going to school</td>
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<tr>
<td>3. My teacher likes me</td>
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<tr>
<td>4. Kids are happy most of the time at our school</td>
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<td>5. Teachers are happy at school</td>
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<td>6. Hard work pays off at school</td>
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<tr>
<td>7. Teachers make learning more exciting</td>
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<td>8. Kids listen if you say what you think</td>
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<td>9. Teachers expect kids to do too much work</td>
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<tr>
<td>10. I would rather go to my school than most other schools</td>
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<td>11. I would like to see many things change in my school...</td>
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<tr>
<td>12. School work is boring</td>
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<tr>
<td>13. The feelings and ideas of kids are important at our school</td>
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<td>14. I have many friends at school</td>
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<tr>
<td>15. I like my teacher</td>
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<tr>
<td>16. I am learning a lot in school this year</td>
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<tr>
<td>17. Most of what we learn is interesting</td>
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<tr>
<td>18. My teacher listens carefully to my ideas</td>
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<td>19. My teacher is sad if I’m not at school</td>
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<tr>
<td>20. I feel good because I do my best work</td>
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<tr>
<td>21. At school I get blamed for things I didn’t do</td>
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<tr>
<td>22. At school there is too much pressure to be perfect</td>
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<tr>
<td>23. I get all the help I need with my work</td>
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<tr>
<td>24. If I have an idea for the answer to my teacher’s question, I tell the teacher</td>
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<tr>
<td>25. I feel relaxed and happy when I am working in my classroom</td>
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<tr>
<td>26. My teacher respects me as a person</td>
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</tbody>
</table>
Some girls and boys have thought about the things they do and have decided that the items on these pages were helpful in thinking about themselves. This is a chance for you to look at yourself and decide what your strong points are and what your weak points are.

This is not a test; we expect everyone to have different answers so be sure your answers show how you think about yourself. Your answers are private and will be kept in confidence.

Read each item and answer the question:

*Compared with other boys and girls my age how do I rate now?*

Find the line under whatever heading indicates your answer. (The words at the top show what lines in each column stand for). Mark a ✓ on that line. Work through each statement.

Work as fast as you like
<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Better than most</th>
<th>OK</th>
<th>Not so good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Being good at sports</td>
<td></td>
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<tr>
<td>2.</td>
<td>Learning things rapidly</td>
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<td>3.</td>
<td>Having new, original ideas</td>
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<td>4.</td>
<td>Getting my school work done and not getting behind</td>
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<td>5.</td>
<td>Being able to read well</td>
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<td>6.</td>
<td>Being a good size and build for my age</td>
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<td>7.</td>
<td>Remembering what I've learned</td>
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<td>8.</td>
<td>Being willing for others to have their way sometimes</td>
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<td>9.</td>
<td>Solving problems in ways others haven't tried</td>
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<td>10.</td>
<td>Being confident, not shy or timid</td>
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<td>11.</td>
<td>Knowing how to do maths</td>
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<td>12.</td>
<td>Being good at things requiring physical skill</td>
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<td>13.</td>
<td>Being a good student</td>
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<td>14.</td>
<td>Being a leader - one to get things started with my own sex</td>
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<tr>
<td>15.</td>
<td>Thinking up answers to problems; answers no one has thought of</td>
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<td>16.</td>
<td>Being able to concentrate</td>
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<td>17.</td>
<td>Being interested in science; learning about things that scientists do</td>
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<td>18.</td>
<td>Being attractive, good looking</td>
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<td>19.</td>
<td>Having the brains for University</td>
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<td>20.</td>
<td>Making other people feel at ease</td>
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<td>21.</td>
<td>Learning about new things even when other people aren't interested - studying about things on my own</td>
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<td>22.</td>
<td>Getting a lot of fun out of life</td>
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<tr>
<td>23.</td>
<td>Writing creative stories and poems</td>
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<td>24.</td>
<td>Being a good athlete</td>
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<td></td>
<td></td>
<td>Excellent</td>
<td>Very good</td>
<td>Better than most</td>
<td>OK</td>
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<tr>
<td>25. Being able to apply what I've learned.</td>
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<tr>
<td>27. Seeing new ways about things and putting ideas together.</td>
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<tr>
<td>28. Spending most of my time on my work, not 'mucking around'.</td>
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<tr>
<td>29. Having good handwriting even when I'm hurried.</td>
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<td>30. Being not too skinny, not too fat</td>
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<td>31. Having brains.</td>
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<td>32. Being sensitive to what others are feeling.</td>
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<tr>
<td>33. Being able to see things in my mind when I want to.</td>
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<tr>
<td>34. Being able to change things when they don't suit me.</td>
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<tr>
<td>35. Being able to spell correctly.</td>
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<td>36. Enjoying games and sports.</td>
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<td>37. Being smart.</td>
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<tr>
<td>38. Being active in social affairs with my own sex.</td>
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<tr>
<td>39. Being interested in new things, being excited about all there is to learn.</td>
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<tr>
<td>40. Well organised - having materials ready when needed.</td>
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<tr>
<td>41. Learning about people around the world and being interested in them.</td>
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<tr>
<td>42. Having nice features (nose, eyes etc)</td>
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<tr>
<td>43. Knowing what to do to get the right answer to a problem.</td>
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<td>44. Being easy to get along with.</td>
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<tr>
<td>45. Letting my imagination go when I want to.</td>
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<td>46. Enjoying myself in school.</td>
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<tr>
<td>47. Doing well in art work, painting and drawing.</td>
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</table>
19 August 1996

Chairman of the Board
CHIP Foundation Ltd
464 William Street
West Melbourne  Vic 3003

Dear Sir,

I am writing to request permission, for research purposes, to be allowed to access the CHIP Foundation database for my present Postgraduate research into Underachievement among Children of High Intellectual Potential. Such research will be carried out after Ethics Committee approval and under the supervision of staff at Swinburne University.

I am more than happy to work through the CHIP Research Institute and meet their requirements and to abide to the highest standards of confidentiality. My usage of the data and its collection will be statistical in nature and will not seek to identify any individual child.

In this and any further research or publication arising from this research I will, of course, acknowledge the assistance of the CHIP Research Institute and the CHIP Foundation Ltd in the provision of this specific data.

I would hope that you will consider my request and respond favourably, at your earliest convenience. I would be happy to supply any further information you require and am available during business hours on (03) 9903 8994 and after hours on (03) 9596 5278.

Regards,

Gail R Byrne
BA(Hons) DipEd, MEd (CHIP), Grad Dip Counselling. AMAPS
(Current: Masters in Counselling Psychology)

c.c.  Director CHIP Research Institute
     Swinburne University Psychology Dept
Dear Sir,

Thank you for granting permission to me, for research purposes, to be allowed to access the CHIP Foundation database for my present Postgraduate research into Underachievement among Children of High Intellectual Potential, entitled: “To achieve or not to achieve: Academic underachievement in Children of High Intellectual Potential (IQ 130+). My supervisors for the research will be Prof Brian Start and Dr Simone Buzwell of Swinburne University of Technology.

In more recent discussions with Brian it has been suggested that I write to seek further permission to contact the parents of some of the children assessed through the Foundation to request their participation in my study. Both Brian and Kevin McGuigan have been exceptionally helpful and I am informed that some 60 - 70 school age children ‘fit’ the criteria Brian and I have decided as most appropriate.

As per my earlier correspondence, I am again more than happy to work through the CHIP Research Institute and meet their requirements and to abide by the highest standards of confidentiality. Again, I reiterate that full credit will be given to the CHIP Foundation for their assistance. My usage of the data and its collection will be statistical in nature and whilst I will undertake a small number of qualitative Case Studies these will only be done with parental permission and will contain fictitious elements to protect the identity of any individual child.

In this and any further research or publication arising from this research I will, of course, acknowledge the assistance of the CHIP Research Institute and the CHIP Foundation Ltd in the provision of this specific data. As well, the term CHIP will be used in the text of any publication arising from the research, with an explanation that this is the equivalent of the USA’s terms “gifted” or “intellectually gifted”.

I would hope that you will consider my request and respond favourably, at your earliest convenience. I would be happy to supply any further information you require and am available during business hours on (03) 9903 8994 and after hours on (03) 9596 5278.

Regards,

Gail R Byrne
BA(Hons) DipEd, MEd (CHIP), Grad Dip Counselling, AMAPS
(Current: Masters in Counselling Psychology, upgrade Doctor in Psychology)
Dear Mr Phillips,

Thank you for your call regarding my recent request to The Foundation. I have included an early draft of a parent letter sent to a small number of CHIP parents who have already expressed an interest in participating. I produced this letter to give them some indication of the scope of my study, its significance and something of my background.

Since this time Brian Start and I have met on a number of occasions and Brian has suggested, and I agree, that perhaps rather than meet each family on an individual basis a number of ‘group’ information sessions about Underachievement could be held at the Centre(s) and children complete the questionnaires during these parent information sessions. This would also allow me the opportunity to seek information of the parents by requesting they also complete a short questionnaire.

Might I call your attention to the significance of this study. Little research, if any, has been undertaken with CHIP underachievers. We know nothing of the interplay of factors such as their ability, their beliefs about school, their learning styles and parent perceptions of their child’s underachievement. I believe any study which addresses the needs of CHIP in their school lives is vital.

You will note that the attached letter does not utilise the acronym “CHIP”. As it was initially prepared for Swinburne University (as well as the small group of parents) the term ‘intellectually gifted’ was used. It would be my intention to utilise the acronym ‘CHIP’ in the final study as I believe it most accurately describes these special needs children.

I ask you to consider my request for the release of names of parents who could be contacted as to their willingness to participate in this study. As previously stated, the highest ethical standards and anonymity will be maintained.

I look forward to your earliest advice.

Gail R Byrne
BA (Hons), DipEd, MEd, Grad Dip Counselling, AMAPsS
"To achieve or not to achieve": The Intellectually Gifted in our schools.

Where a student is of average or above average ability and there is a discrepancy between that student’s ‘output’ (that is, school achievement) and their potential ability, as assessed either formally (by an ability measure) or informally (by teachers or parents), then that student may be identified as an “underachiever”.

Within this group of underachieving students, there are students whose ability assessment would place them in the intellectually gifted range of the population, that is the top 3% or 130+ IQ as measured on the Stanford-Binet Intelligence Test (L-M).

Reasons why discrepancies between ‘ability’ and ‘achievement’ exist have been less than clear with often conflicting evidence in citing specific causes and concomitants. Suggestions of a complex interplay of factors - the child, the peers, the parents, the school and the society - have proved elusive to quantify and when quantified often have yielded ambiguous results.

Significance of the Study: Intellectually gifted children are a valuable resource. Little quantitative or qualitative attention has been paid to these students either in terms of their achievement, their approaches to learning or their perceptions of school. Indeed research on the intellectually gifted in Australia is sorely lacking with studies such as Miraca Gross’s Exceptionally Gifted Children (1993), a qualitative study of sixteen highly gifted children (180+ IQ), being a notable and unique exception. To gain knowledge of intellectually gifted students’ approaches to learning and their perceptions about school may lead to increased satisfaction (both student and school) and to levels of academic achievement commensurate with their ability.

Research Aims: Taking a multi-methodological approach, the research will investigate what factors distinguish achievement and underachievement in intellectually gifted children. Specific factors of interest will be the intellectually gifted students’ approach to learning, their engagement to formal education and, as well, their perceptions, beliefs and attitudes towards themselves and their schooling. A number of achieving and underachieving intellectually gifted students who exemplify different learning approaches and perceptions of school life will be interviewed to obtain a deeper understanding of their approaches and attitudes as they impact upon their achievement.

There are some gifted underachievers whom, I believe, could be described as being “disaffected with formal education”. For this intellectually gifted group underachievement may well be considered a preferred strategy; a strategy deliberately chosen to deal with their formal education. Such students display what might be considered a “detached” or low level involvement with formal learning; a situation which parents and teachers may describe as “doing the minimum required to get by”. That such ‘disaffection’ is with formal education and not with learning, per se, can often be seen by the student’s engagement, and sometimes obsessive engagement, on tasks they find intellectually stimulating or intrinsically rewarding.

What children are required?
- Children who are undertaking Year 7 to 10 in Secondary schools in Victoria.
- Children who have been identified as ‘gifted’, ‘highly able’ or ‘high ability’ - either formally or informally by an assessment conducted by a psychologist or the school
- Children who are thought to be underachieving - ie not performing at a level indicated by their ability

What’s involved if my child participates?
Essentially children will be asked to complete a number of assessments. No writing is involved.

If a child has not previously been formally assessed on the Stanford-Binet (L-M) Intelligence Scale then this assessment will be undertaken. If children have been assessed on another ability measure (such as the WISC or Ravens) then the researcher would appreciate access to such a report but would still need to test on the Stanford-Binet (L-M) which is considered far more appropriate and reliable at the higher levels of ability.
The length of the Stanford Binet testing varies on the abilities of the child and if testing were to take more than 1.5 hours it would be advisable for the other questionnaires to be completed on a second occasion. At the levels of ability with which the research is concerned - this is likely to be the case.

The other measures include an achievement indicator and questionnaires exploring quality of school life and learning styles - all together such other measures will be likely to take approximately 1.5 hours. In the main they involve ‘ticking’ appropriate boxes.

If a ‘disturbance and distraction’ free room is available in the children’s home testing could occur there. Should other siblings or conditions not allow this, testing can occur within the researcher’s home in Elsternwick.

About the Researcher
Gail Byrne developed an interest in intellectually gifted children when her eldest daughter was assessed by the CHIP Foundation (Prof Brian Start) in 1988. Since that time her second daughter has also been assessed as intellectually gifted. As a result of the first assessment and her concern over the lack of provisions for intellectually gifted children in Victorian schools, Gail obtained a DipEd and then a Masters in Education (Children of High Intellectual Potential). She has also completed her undergraduate and postgraduate Psychology qualifications, and is currently working towards a Masters in Counselling Psychology/DPsych at Swinburne University. She is an Associate Member of the Australian Psychological Society. She has conducted research previously into the aspirations of almost 600 VCE students looking at their ability levels and hopes for the future; has surveyed parents about the educational provisions offered for their intellectually gifted children, and as well, has undertaken research on the counselling practices of Career Educators in Victorian schools, with a special interest in high ability students.

As a parent she understands the joy when things are going well at school, and the heartbreak when it all seems to fall apart.

Thank you for your interest in this research. I hope you will allow your child to participate. If you would like to discuss the research further with me, including with your child, please contact me on my home number at (03) 9596 5278 (A.H.) or on my work email gail.byrne@ola.edu.au.

Thank you
APPENDIX G

<Name>
<Address>

Dear <Name>

In <month, year> you had your child <name> assessed through the CHIP Foundation.

We would like to invite you to participate in an important study to look at the achievement levels of Children of High Intellectual Potential who are students in Years 6, 7 and 8. The study will look at the children’s learning styles, achievement levels and the quality of their school life. Research of the scope and depth of the proposed endeavour has previously not been undertaken, and particularly not with children who have special, enhanced learning requirements.

The study would involve parents indicating their opinions in a questionnaire. Your child would complete a questionnaire (mostly just ticking boxes) and also undertake an achievement measure. It is anticipated that a morning or afternoon would be needed for your child’s achievement measure and questionnaire completion. The parent questionnaire should take no more than 20 minutes.

It is envisaged that the morning or afternoon would be held at various times (evening and weekend) at the CHIP Centre (Melbourne) and a seminar would be offered on achievement and underachievement in Children of High Intellectual Potential for those parents who wish to remain whilst their child completes the achievement measure. Similarly children who complete their part of the study whilst their parent(s) are in the seminar would be supervised and offered a range of activities.

Individual confidentiality is assured. The study will look at groups of children and no individual child or parent will be identifiable in any report emanating from this study. For your personal information, an individual statement of your child’s achievement level and comments on the other standardised measures will be reported to you.

Participation is voluntary and the highest standards of testing and care will be employed. We invite you and your child to participate in this important study by returning the attached form in the reply paid envelope (no stamp required).

Regards,

Prof K Brian Start  
Professor Emeritus  
University of Melbourne

Ms Gail Byrne  
PostGraduate Researcher and CHIP Parent  
Swinburne University of Technology

252
To:  Professor K Brian Start and Gail Byrne

I ____________________________, as the parent/legal guardian of ________________, would be pleased to involve both my child and myself in your study of achievement in Children of High Intellectual Potential (CHIP).

I would like to receive more information and I would find the following time to participate most convenient:

Please tick the preferred options:

General Timing: (please tick)

- October 1997
- November 1997
- December School Holidays
- January 1998
- Other (please specify) __________________________________________

Day and Time: (please tick)

- Mon - Thurs Evenings 5pm - 8pm 6pm - 9pm
- Saturday morning 9am - 12.00 noon 10am - 1pm
- Sunday afternoon 9am - 12.00 noon 10am - 1pm
- Other (please specify) __________________________________________

Signed: ____________________________ Date: ________________________

Please return in the enclosed Reply Paid Envelope - NO STAMP REQUIRED

Thank you - we will be in touch shortly once a number of dates have been finalised
Dear

Thank you for agreeing to participate in our study of achievement in Children of High Intellectual Potential. We are delighted with the response.

I have included a single page rationale for the study so that you might come to understand something of the lack of research and the shortage of knowledge which exists in this area today.

Participation in the study involves the parent(s) completing a questionnaire which gives some background details and asks for some personal opinions. If both parents would like to complete this questionnaire (perhaps each desiring to express their own opinion) then please feel free to photocopy it and include both in the return envelope. There will also be another questionnaire issued at the assessment time to capture the most up to date information about the child’s performance, current attitude etc.

The child will complete an achievement assessment in reading comprehension and mathematics and some ‘tick the box’ questionnaires to do with their perceptions of school, interests etc. Whilst parent questionnaires should take no more than 20 minutes, I have allowed about three hours for your child’s assessment so that they might take a break during the assessment.

A number of parents have requested alternative ways to participate in the study so I have included a sheet which outlines some alternatives. I am also happy to be telephoned to make individual arrangements. Please return this sheet in the reply paid envelope as soon as possible (along with the parent questionnaire, see below).

I am including the parent questionnaire with this letter so that you might complete it in your own time and return it by mail using the reply paid (ie no charge to you) envelope enclosed.

I indicated that I would run a seminar for parents on achievement/underachievement at the same time that your child was being assessed. A number of parents have suggested that they would prefer to receive a short article talking about underachievement and offering some ways to combat it rather than attend a seminar. I am happy to make either available.

A number of people requested assessments at their home and for those who are unable to attend any of the sessions below I would be pleased to accommodate this request in February / March next year - at a time and day which is mutually convenient.

Regards,

Gail R Byrne
Initially you requested an assessment session for your child on

The following sessions have been scheduled based on the times most requested by parents. It is intended that the sessions will be held at the CHIP Foundation at 150 Palmerston Street, Carlton or at The University of Melbourne. Can you nominate which session your child will be able to attend or specify an alternative which might suit you better. Could you please provide a contact number so that I can confirm the location of the session.

NB: Only a small number of parents requested assessment during November so I would be happy to arrange an assessment at your home or another alternative perhaps during December through to March 1998 - should any of the times below be unacceptable.

☐ Sunday, December 14 at 10.00 am - 1.00 pm tel:______________________________

☐ Saturday, January 17 at 10.00 am - 1.00 pm tel:______________________________

☐ Sunday, January 18 at 10.00 am - 1.00 pm tel:______________________________

☐ I would prefer the assessment conducted at my home. Please call me on

______________________________ (AH/ BH) to arrange a date.

(In choosing this option please be aware that you will need to be able to provide a desk and quiet, uninterrupted space for the duration of the assessment - approx 2.5 - 3 hours)

☐ I would like to make another arrangement. Please call me on

______________________________ (AH/ BH) to arrange.

---------------------------------------------------------------------------------------------------------------

☐ I would like to attend a seminar at the time of my child’s assessment

OR

☐ I would like to receive an article on underachievement and ways to combat it.
RATIONALE FOR THE STUDY

Intellectually gifted children can be defined as possessing an exceptional potential for academic success. Whether that potential is realised appears to depend upon a complex interplay of factors - the child themselves, their peers, the home environment, their formal education (school) and the societal attitudes towards individual differences.

Historically, giftedness has been equated with having a high IQ, or more specifically, a high IQ score as obtained on an ability measure such as the Stanford-Binet or Wechsler scales. This study is concerned with students whose score on the Stanford-Binet (L-M) would see them placed in the intellectually gifted range and, as such, possessing an "exceptional potential for academic success".

This study considers the nature of intellectual giftedness, underachievement and "exceptional potential for academic success". It will also assess the intellectually gifted students' engagement to learning and attitudes to their formal education in instances where such potential is, and is not, realised.

In Australia, a model of giftedness which has been highly influential since the late ‘70s (Braggett, 1984, 1988; Senate Select Committee, 1988) is based on the premise that there are three traits which characterise successful, outstanding individuals:

• above average though not necessarily superior general ability;
• high level of task commitment or intrinsic motivation; and
• creativity

Renzulli, 1978, pp 180 - 184

Whilst the model sought to identify those "successful and outstanding individuals" it has popularly been used to define and identify 'the gifted'. The use of such a definition, of course, denies inclusion to those individuals who may not display task commitment or intrinsic motivation such as underachievers, or those children who may be superior on tasks requiring convergent thinking (many academic tasks) whilst being low on creative tasks by virtue of being poor divergent thinkers. In short, Renzulli’s definition which has pervaded Australian educational policy for almost twenty years, precludes those children whose potential for learning is inhibited for any number of reasons.

Concurrent with the popular acceptance of Renzulli’s model into Australian Educational rhetoric, definitions of giftedness have been expanded to include a number of gifts and talents beyond that of the intellectual. In keeping with moves away from what are considered restrictive definitions of giftedness, most Australian States today, ascribe to a non-specific definition, for example:

It is difficult to isolate a single definition of giftedness that encompasses the broad spectrum of human abilities and accounts for culture, class, gender and domain

Victorian Department of Education, 1996

These definitions reflect a growing trend in Australia as in other parts of the world to construct a definition of giftedness which will gain more widespread acceptance by defusing criticism that the selection of gifted children is elitist, even though it is generally accepted that such definitions are problematic in that they refer to imprecise concepts, for example, what is creativity and how is it reliably measured.

It appears, that for any number of reasons (including potentially our failure to afford them an education commensurate with their abilities), intellectually gifted students may become either hostile or negative towards school; they may develop poor study habits; they may become disaffected by formal education; they may display relatively low levels of achievement, and, they may develop personal problems. There are so many "mays" and so little knowledge - hence this study.

The more that we can learn about these special children and how they perceive their educational experiences, ultimately, the more we will benefit as a nation. They are a most valuable resource.
Parent Information Sheet

Information about: _____________________________ Age _____ Grade in '97: ______

About your child

Position in Family (please be specific, eldest of two girls etc) ________________________________

Gender of siblings (if applicable) __________________________________________________________

How would you describe sibling relationships?

____________________________________________________________________________________

Schooling

How would you describe your child’s attitude...

to school ____________________________________________________________________________

____________________________________________________________________________________

to teachers __________________________________________________________________________

____________________________________________________________________________________

to classmates __________________________________________________________________________

____________________________________________________________________________________

How many school’s has your child attended?

Briefly, why would you say you changed schools? ______________________________________________________________________________________

____________________________________________________________________________________

Briefly describe your child’s schooling experiences...

this year ____________________________________________________________________________

____________________________________________________________________________________

last year __________________________________________________________________________

____________________________________________________________________________________
How would you describe your child’s attitude to school at the present time?

Is your child receiving, or have they received, any special educational provisions because of their special needs.  
Yes ☐ No ☐

What do you believe should be being done to meet your child’s needs?

What does your child do in his/her spare time?

What are his/her special interests?

What words do you believe your child would use to describe himself/herself?
APPENDIX I

Report on “Jane Doe”

Date of testing: 13 December 1997

Tests Administered: Progressive Achievement Test - Mathematics (Revised)
(PAT - Maths R)
Progressive Achievement Test - Reading Comprehension
(PAT - Read)

Report:
As a participant in a doctoral study of academic achievement and underachievement in students who
have been (previously) formally assessed as possessing an ability score in excess of 125 IQ, “Jane Doe”
was assessed on the above Progressive Achievement measures. At the time “Jane” had just completed
Year 4. The purpose of this report is to provide feedback to parents as to their child’s achievement
levels.

The PAT Maths - R (Test 2A) is designed to measure performance in Mathematics for students in
Years 5, 6, 7 and 8. This test covers National Profile Strands 3,4, and 5 with emphasis placed on strands
3 and 4. It was normed in October 1997.

As a student who was about to enter Year 5 “Jane’s” performance on the PAT Maths-R when compared
to students completing Year 5 places her at the 59th percentile (High Average); when compared to
students completing Year 6 at the 49th percentile (Average); and, when compared to students in Year 7
at the 36th percentile (Low Average).

A percentile rank is a way of comparing a student’s score on a particular occasion of testing to those of
a comparison group. Thus a score at, for example, the 43rd percentile of Year 7 would mean that on the
occasion of testing the performance is equal to or better than that obtained by forty three percent of Year
7 peers (conversely, the score obtained would be bettered by 53% of them).

Reading Comprehension: Students in the present study were permitted to progress through to higher
than grade levels of the PAT - Read should time permit. This ‘off level’ achievement testing allows
students to display their ability to perform at higher levels.

As a student who was about to enter Year 5, “Jane” performed at the 53rd percentile of Year 6 (Average)
and when compared to students in Year 7 at the 37th percentile (Low Average). “Jane’s” results indicate
advanced abilities with her performing as we might expect of an average Year 6 student in reading
comprehension.

Summary:
“Jane’s” performances in both Mathematics and Reading Comprehension indicate abilities well in
advance of what might be expected of her recently completed 4th year level. To best meet “Jane’s”
needs these results should be taken into account and a modified curriculum offered to her to work with
her strengths; to find and then teach to the ‘gaps’ in her mathematical knowledge; and most importantly
to ensure an appropriate level of challenge is offered to her.
A Report detailing “Jane’s” specific performance on each of the National Profiles Strand (Number (N); Space (S); Measurement (M); Chance & Data (CD) and Algebra (A)) is attached to aid curriculum design to meet “Jane’s” specific needs.

**Other:**
As a further part of the study “Jane” completed a number of questionnaires designed to ascertain her preferred learning styles, attitudes to school, peers, etc.

Whilst children’s learning styles and preferences do change as a child matures the following summary does indicate at the present time how “Jane” prefers to learn and her preferred working environment.

“Jane’s” responses would seem to indicate that she is a linear learner who has a strong need for structure. She appears to prefer to learn through direct, “hands-on” experience and she seems to indicate that she likes to know ‘why’ before doing something. She prefers well defined goals and likes clear expectations. In terms of learning materials audiovisuals and practical tests where she can demonstrate how something works, for example, should suit her. She likes (harmonious) group projects and seems to like opportunities for talking whilst she works so seminar groups could be an effective way to learn. Although she enjoys variety “Jane” seems to adapt well to routine and enjoys making decisions, although she may sometimes be a little too hasty.

Areas where “Jane” needs guidance and direction may be in learning that not everything is “black” or “white” and that there may be a middle position; in learning to accept that sometimes there is a value to be gained from negative feedback or criticism and that such feedback need not be personal; and, in learning to be patient when analysing complex issues, so that despite her strong opinions, she does not rush into making decisions.

The above, as stated earlier, is what “Jane” is indicating at the current time. During her years at school she may try new styles of learning and try to work in different ways and in different environments. “Jane”, as all students might, may explore new ways to study and learn in an attempt to find the styles which are most effective for her. Ideally, teachers should use a range of teaching styles, materials and assessment tasks to allow the student to discover what is most effective for them.

Gail R Byrne  
BA(Hons) DipEd, MEd, Grad Dip Counselling, Associate Member of the Australian Psychological Society  
Student in Doctor of Psychology, Swinburne University of Technology