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**REALISING POTENTIAL:
INVESTIGATING THE LIFE
STORIES OF GIFTED NEW
ZEALAND ADULTS**

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Abstract

The aim of this study was to better understand the development of talent across the lifespan by examining the life stories of a group of gifted New Zealand adults. Twenty-eight high achievers participated in this study, representing the following seven broad domains of talent: logical-mathematical, visual-spatial, verbal-linguistic, musical, bodily-kinesthetic, interpersonal, and business-entrepreneurial.

This study involved a pre-selection process, where experts in each of the seven talent domains nominated four living New Zealanders who they considered had achieved to the highest level in their field. From these nominations, invitations to participate were extended to the four most frequently nominated individuals in each of the seven domains.

Life history inquiry was considered the most appropriate methodology to meet the aim of this research. This involved individual, face-to-face interviews, best described as ‘guided conversations’. Consistent with a life history approach, interviewees were accorded a significant degree of control over the direction and the focus of the interviews. However, the researcher had identified beforehand some broad themes he wished to pursue in all interviews, including: participants’ ascriptions of their achievements, the influence of parents, family and home, educational experiences, and participants’ social and emotional development.

One of the most significant findings from this study was that high achievers, irrespective of the domain of achievement, have developed the traits conducive to the realisation of potential. Consistent with numerous other studies, the attributes of drive, persistence, perseverance, hard work and self-discipline appear to be essential to achieving highly. While almost all the individuals who were included in this study showed early evidence of above average general intelligence, and while many displayed precocity in a particular domain, it was their high levels of motivation and

task commitment, more than any natural ability, which distinguished them from their peers.

The childhood homes of the participants varied considerably, but poverty was more common than privilege. Few could be classified as having an advantaged childhood and the experience of early adversity was relatively common. As a group, their parents, while not highly educated, valued learning and education and provided opportunities for their children to engage with ideas. The family homes of most were environments where a love of books and a love of reading was modelled and encouraged.

Few could recall anything of great significance from primary school, but their recollections of high school were much more acute. The most positive accounts of high school came from those who attended schools where high achievement, particularly in academic subjects, was encouraged and valued. Those who provided the most negative recollections of schools were the creators, some of whom said that they failed to fit in at school. In fact marginalisation, both in childhood and adulthood was the experience of many. Some of the participants believed that as children and adolescents they were more emotionally sensitive and emotionally intense than their peers, and some said that they seemed to have a greater concern about issues of social justice than most others in their age group.

While some of the conditions that support talent development seem universal, there was some evidence from this study that talent develops differently in different domains. The most notable differences appear to be between those who had made their names in the more creative domains, such as art, writing, and to a lesser extent music, and those who had achieved in the other domains.

This study links closely to other retrospective studies of gifted adults, although there are some findings unique to this study, the majority of which may be explained by socio-cultural factors. Consistent with other retrospective studies, there are numerous

areas of difference between the results of this study and the findings from longitudinal studies of gifted children.

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In 1980, almost exactly 25 years ago, I first enrolled at the University of Waikato. My highest academic qualification at that time was a two-year Trained Teachers’ Certificate. Over that 25-year period, I have completed two degrees and now a PhD thesis. My wife Linda has accompanied me on this academic journey and for a quarter of a century she has encouraged, supported and cajoled me. She has also provided inspiration and insights and her ongoing enthusiasm for this work gave me sustenance when the going got tough. This support has been crucial to the fulfillment of this dream.

Our two children, Natasha and Gareth, now adults and with children of their own, have hardly known a time when their father was not studying. They have always shown an interest in my work and this present study was no exception. I am especially grateful to Natasha for proof reading the final draft of this thesis.

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Chapter 1

Introduction

1. Background

The number of new biographies and autobiographies that are published each year is testimony to the fact that people are interested in learning about eminent individuals. This interest goes well beyond learning of these luminaries' actual accomplishments, as these are often well known and fully documented elsewhere. What seems to sell the books (and what attracts people to other sources such as television documentaries) is the 'human side' of these people. There appears to be a universal fascination with discovering the person behind the accomplishments. For many of us, part of this is also an interest in factors that might help to explain an individual's rise to prominence.

Throughout history people have had a love-hate relationship with the extraordinary amongst them (Gardner, 1997). On the one hand, we value and benefit from their contributions, while at the same time "we entertain misgivings about those who have been endowed with great gifts and those who exert a profound influence on our lives" (Gardner, 1997, p. 2). In the first instance, we are often reluctant to recognise their achievements, and then, when they have been acknowledged, we often search for signs of weakness, or flaws that may redress a perceived imbalance. "Even as we esteem our heroes, we mortals equally love to denigrate them" (Gardner, 1997, p. 3).

Some historians view history as biography and contend that the history of the world is simply a history of outstanding individuals (Simonton, 1984). In this view, history is moulded by the personalities and accomplishments of individuals in two major ways. The first are the creators, those who "make lasting contributions to human culture, whether as scientists, philosophers, writers, composers or artists" (Simonton, 1984, p. 1). The second are the leaders, "who

transform the world by their deeds, rather than their ideas or emotional expression” (Simonton, 1984, p. 1).

Many civilisations are defined by the achievements of their most able. Throughout history, there are numerous examples of talented individuals being singled out so that their abilities could be nurtured and developed. Early records show that the Greeks, Egyptians, Romans, Chinese and Japanese nurtured outstanding abilities and talents for the good of the state. In Renaissance Europe, governments encouraged and supported creative artists and the church provided sponsorships for artists, sculptors and musicians. In 18th century Europe, royalty and nobility often sponsored those with notable gifts. However, the first systematic attempt to explain the phenomenon of outstanding achievements did not occur until the 19th century and was undertaken by the English scientist Sir Francis Galton.

Galton’s (1869) study, followed in the next century by the work of Alfred Binet (e.g., Binet & Simon, 1905), Lewis Terman (e.g., Terman, 1925), and Leta Stetter Hollingworth (e.g., Hollingworth, 1926), laid the foundation for a modern interest in gifted children (Davis & Rimm, 1998). From the early part of the last century to the present day, gifted children have been studied extensively. Most of the research attention directed towards these young people has been related to their education resulting in the publication of numerous books and articles positing the type of environment most likely to translate into adult achievement.

In New Zealand, the most notable contributor to an early interest in gifted children was George Parkyn. Parkyn is widely recognised as one of this country’s leading scholars and he pursued an interest in gifted children from the beginning of his academic career. His early focus was on cognitive abilities and his first major research investigation was published in *Children of High Intelligence: A New Zealand Study* (Parkyn, 1948). Russell (1969) described this work as a milestone in educational research in New Zealand, which provided a foundation for many later developments. This work began an interest in New Zealand in gifted and talented children and their education.

My own interest in outstanding achievers can be traced back to two primary school children whom I taught in 1976 and 1977. While I had undoubtedly taught many very able students over the previous 10 years of teaching, it was not until I encountered these two that I became truly aware of some of the distinctive characteristics of gifted and talented children. These two eight-year-old children were part of a small class in a rural New Zealand primary school. One of the reasons I became alert to their differences, and also the reason why I could pay close attention to making provision for these, was that they were part of a class of 15 students, less than half the number found in most other primary school classrooms at that time. My early interest was primarily in the cognitive development of gifted and talented children and the types of differentiated learning experiences that they might benefit from.

In 1988, I was appointed to Hamilton Teachers' College (later to become the University of Waikato, School of Education) where I was able to develop an academic as well as a professional interest in giftedness and talent. Over the past 16 years gifted and talented children have constituted my primary academic focus, and I have taught, researched, published and presented on a range of issues and topics relating to this group of learners. I have also worked with hundreds of teachers over that time, mainly assisting them to develop classroom environments more conducive to gifted and talented students. My involvement in pre-service teacher training and in in-service teacher professional development made me very conversant with the research and writing on talent development in childhood and adolescence. However, as I read more about the lives of adult achievers, I identified a number of issues that did not seem to be adequately addressed within the existing literature. First, there seemed to be a degree of mismatch between what the 'experts' considered to be the conditions favourable to talent development and the experiences recounted by many outstanding adults. For example, the type of home and school environments advocated by most commentators as ideal for the emergence of special ability are often quite different to the reported early environments of many gifted adults. Second, and in a similar vein, there seemed to be some clear differences in the findings from the two main methods of studying talent development from childhood to adulthood. For example, the longitudinal studies often proposed the stereotypical 'model' home

and school environment as the most conducive to talent development. In contrast, the retrospective studies painted a much more complicated picture of the relationship between early experiences and later achievement, and in fact sometimes suggested that an environment of hardship and challenge might be a better incubator of talent. Third, some of the important findings from the studies of talent development did not seem to be adequately reflected in educational practice. The retrospective studies of high achievers, for example, continued to offer numerous examples of gifted adults who went through school with their abilities and potential almost totally unrecognised and who were never considered gifted as children. In contrast, findings from the early longitudinal studies in this field proposed that gifted children become gifted adults (in particular Terman's study) but more recently, commentators (e.g., Gardner, 1997; Simonton, 1994) have questioned whether this actually is the case, and have argued that those reporting the adult achievements of these gifted children may have considerably overestimated these. Fourth, there appeared to be a marked absence of studies that had maximised the opportunities for gifted adults to tell their life stories. Most previous investigations had used very structured approaches to information gathering, offering limited opportunities for the participants to identify aspects that they considered salient to the development of talent. Finally, no New Zealand study has been undertaken in this area of adult giftedness and little is known about how talent develops across the lifespan in this country.

2. Research Aim

This study presented an ideal opportunity to further investigate these issues. The main aim of the study was to better understand the talent development process by talking with outstanding New Zealand achievers. It was considered that the approach best suited to this purpose was life history inquiry, which is concerned with "gaining insights into the broader human condition by coming to know and understand the experiences of other humans" (Cole & Knowles, 2001, p. 11). The life history approach includes the use of semi-structured interviewing and open-ended questioning. However, the following four topics were identified as relevant to use as a framework or focus for these conversations:

1. Participants' ascriptions of their achievements.
2. The influence of parents, family and home on the development of their abilities.
3. Educational experiences.
4. Social and emotional development.

3. The Changing Face of Giftedness and Talent

One of the enduring issues in this area, and one that is central to any investigation of giftedness and talent, is a conceptual one. Debates around the meaning of the term 'gifted and talented', and how this might be used to describe a particular group, are a feature of the literature in this field. This literature is replete with different definitions, with one reviewer reporting having identified 213 definitions of the concept (George, 1997). McAlpine (2004) noted that the concept is dynamic and changes over time. He reported that:

From a rather narrow concept based on intelligence and the IQ, it has become increasingly developed into a multi-category concept based on a wide range of abilities including academic aptitude, creativity, social leadership, and more recently 'wisdom', as a form of 'meta talent.' (McAlpine, 2004, p. 33)

The development of ideas about giftedness and talent very closely mirror changes in notions of intelligence. Galton (1869) argued that intelligence was related to sensory ability – the keenness of vision, smell, hearing, taste and touch. His approach to measuring intelligence involved testing visual and auditory acuity, tactile sensitivity and reaction time. These were the first scientific attempts to test intelligence, and although his thesis was soon to prove inadequate, it did pave the way for later efforts by others. As far as Galton was concerned, intelligence was a fixed trait and something that remained constant from birth to death. Although the words 'nature and nurture' were first put together in Shakespeare's *The Tempest*, Galton (1869) can be credited with introducing the terms into behavioural science and with starting the nature–nurture controversy.

Frenchman, Alfred Binet (Binet & Simon, 1905), rejected the notion that intelligence could be measured by focusing on elementary cognitive processes. He believed that to study intelligence, it was essential to focus on complex mental processes and his test of intelligence assessed 10 ‘mental functions’: memory, imagery, imagination, attention, comprehension, suggestibility, aesthetic appreciation, moral sentiments, muscular force (will power) and motor skill. Binet did not see these abilities as independent and unrelated, but as specific abilities that contributed to an underlying general ability. Lewis Terman (1925) developed an American version of the Binet and Simon intelligence test and used this to identify 1528 gifted children for his longitudinal study. To Terman, giftedness was synonymous with high general intelligence (he put the level at an IQ of 130 or more) and the most valid and reliable way of determining levels of general intelligence, or ‘g’, was the intelligence or IQ test.

Gottfredson (2003, p. 26) defined g as, “the ability to learn, think abstractly, reason, and to solve problems.” She maintained that, “a highly general intelligence factor forms the common core for all mental abilities yet studied. It is therefore likely that a favourable g level forms an essential foundation for most, if not all, highly valued forms of cultural achievement.” However, Gottfredson (2003) also pointed out that even if a high level of g is necessary for outstanding performance, it does not guarantee it, and that personal traits and opportunities can be critical factors.

Terman’s approach, which equated giftedness with high general intelligence, dominated thinking in education and psychology for most of the 20th century. However, in the early 1970s, ideas about intelligence began to change, and the concept of intelligence as an innate, unitary, fixed and measurable trait came under threat. In a similar manner, concepts of giftedness began to shift and the first formal outworking of this change appeared in the Marland Report to the Congress of the United States Commissioner of Education (1972). This definition extended the notion of giftedness from general intelligence to include specific academic aptitude, creative and productive thinking, leadership ability, visual and performing arts, and psychomotor ability. Since that time others have taken a

similar approach. A more recent development has been the idea of multiple intelligences. Sternberg (1985) proposed three intelligences: academic, creative and practical. Gardner (1983) argued for the following eight different intelligences, none of which single out ‘general’ intellectual ability: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and naturalist. Both Sternberg and Gardner have asserted that their models of intelligence can be directly applied to defining giftedness.

As the concept of giftedness expanded, the term ‘gifted and talented’, rather than ‘gifted’ became more widely used. In most instances ‘gifted and talented’ is used as a single definition, implying synonymy (e.g., Ministry of Education, 2000), although some writers do differentiate between ‘gifted’ and ‘talented’ (e.g., Gagné, 1985).

Gottfredson (2003) suggested that these broader approaches have become popular because they imply that everyone can be smart in some way. She claimed that many researchers have for many years searched for major mental abilities that are independent of *g* but are yet to discover a single one. Carroll (1993) concluded that at least four of Gardner’s ‘intelligences’ (linguistic, logical-mathematical, visual-spatial and maybe musical) consist primarily of *g* and Gottfredson (2003) argued that while there may be different kinds of giftedness, these different gifts do not represent different intelligences. “Rather, they are more like differently flavoured ice creams – wonderfully different but all depending on the same basic ingredient” (Gottfredson, 2003, p. 28).

Most definitions of intelligence have their roots in Western European culture. Terms such as ‘intelligence’ and ‘giftedness’ actually function in discourse to promote or endorse certain actions. In Western societies the common descriptors of intelligence are very closely connected to the traits that are considered important to succeed in education, including “clever, sensible, careful, methodical, inventive, prudent, acute, logical, witty, observant, critical, experimental, quick-witted, cunning, wise, judicious, and scrupulous” (Serpell, 2000, pp. 549–550). In societies without a history of formal schooling, the notion is likely to be associated with different meanings. For example, Serpell (2000)

reported that amongst rural African communities, intelligence is more related to wisdom, skill, an ability to take responsibility, obedience, understanding, attentiveness and trustworthiness. In many cultures, intelligence is only esteemed in an individual if it is deployed in a socially responsible manner. For example, the Baganda and Batoro peoples of Uganda view intelligence as socially oriented behaviour that contributes to the collective good (Wober, 1974). Bevan-Brown (2004), in a comprehensive overview of Maori notions of special ability, made a similar point, noting that, “There is an inherent expectation that a person’s gifts and talents will be used to benefit others” (Bevan-Brown, 2004, p. 179).

Every aspect of the area of giftedness and talent is connected to the definition of the concept. For example, in the literature the lists of characteristics associated with giftedness and talent mirror how it happens to be defined. In some lists, the focus is essentially cognitive. In others, it includes artistic and creative characteristics, and in others it extends to interpersonal behaviours. A more recent addition has been the inclusion of characteristics considered indicative of spiritual abilities. In schools, those who are identified as gifted and talented and therefore, who gain access to special or differentiated programmes, will be determined by how the school defines the concept. In research, any findings that are offered about the gifted and talented must be interpreted in the light of participant selection criteria, which will inevitably be an expression of how the concept is conceived.

4. Studying Talent Development

Most scientists who have researched human behaviour have been more interested in the ‘patterns’ among individuals than in the ‘differences’ that might distinguish some from others (Gardner, 1997). As Gardner (1997) pointed out, the ‘science of the extraordinary’ is an emerging science and our knowledge in this area is still very limited. He suggested that extraordinary individuals might lead lives that are so different that no generalisations can emerge from intensive studies of their individual characteristics. On the other hand, scientists may find no striking differences between “the Charles Darwins and the James Smiths” (Gardner, 1997, p. 4). However, as Gardner also stated, it would be presumptuous to draw either

conclusion without trying to discover whether there are parallels in the lives and personalities of the extraordinary amongst us.

Since the first systematic study of eminent adults conducted by Galton (1869), numerous other researchers have attempted to explain the development of talent. Their studies have employed a range of methods but these can be generally classified according to two main approaches. The retrospective approach draws mainly on autobiographies, biographies and other documented evidence, information obtained directly from the individuals themselves and from others with knowledge of them. Longitudinal studies generally involve tracking a cohort of gifted individuals over a number of years.

The retrospective studies can be further classified into two main groups. The first involves studying people of eminence who are no longer living. Here, researchers draw on autobiographies, biographies, diaries, historical records, recorded interviews and other documented sources. This 'literary' approach to the study of eminence dominated the early retrospective research in this area (e.g., Cox, 1926; Galton, 1869). The second approach involves studying 'living' luminaries and here researchers work with eminent individuals personally but may also draw on other sources, both human (e.g., parents, siblings, mentors and teachers) and documentary (e.g., biographies, autobiographies, articles and recorded interviews) (e.g., Bloom, 1985; Csikszentmihalyi, 1996; Roe, 1952).

The longitudinal approach to studying giftedness has its roots in the work of the Stanford psychologist, Lewis Terman. In the 1920s Terman selected a group of 1528 children with high IQs and traced their development from childhood to midlife and beyond (Burks, Jensen & Terman, 1930; Oden, 1968; Terman, 1925; Terman & Oden, 1947, 1959). This longitudinal method of studying high achievement has been used to test the hypothesis that gifted children become gifted adults. Accordingly, following the developmental pathways of gifted children is thought to offer reliable insights into the antecedents of high achievement. Most longitudinal studies involve repeated personal contact between researcher and participant. Although this represents the primary source of information for the researcher, many triangulate their methods by combining

participant interviews with observations, interviews with family members, biographical material, and the like.

The proponents of the longitudinal approach argue that it provides a much more complete picture of an individual, that there is the opportunity to obtain detailed contextual information, and that the complexities of an individual's life can be best captured through multiple contacts over time (Subotnik & Arnold, 1994). Researchers using the longitudinal method maintain that the researcher/participant relationship becomes much closer and the data provided much richer by virtue of the heightened rapport that develops over time. However, the time needed to obtain such detailed information can present some real challenges for the researcher and places the longitudinal method outside the scope of this present study.

In the context of exceptional individuals, the ability to generalise the findings from longitudinal investigations beyond the study group can be limited. Some researchers have attempted to use control groups but apart from being logistically difficult, the uniqueness and rarity of the study group often makes generalisation impossible. Large-scale longitudinal studies are very resource-intensive and that is arguably the main reason why few are undertaken.

The retrospective approach, as well as being practically more viable in this context, was also considered better suited to the aim of this research. Clearly, there are also some limitations associated with the retrospective method. For example, studies that draw on biographical data will be significantly affected by the quality of that material. The researcher is also limited by the scope of the material available and this may severely limit his or her ability to explain the 'process' of development. Cox (1926), for example, found that someone as eminent as Shakespeare had almost nothing of value recorded about his childhood and youth. Where information is available, it may be difficult to ascertain its reliability. Simonton (1994, p. 143) contended that:

Sometimes even when we possess rich information about a historical figure's childhood, we cannot always trust it ... After someone becomes

world-renowned, there is often no shortage of parents, siblings, teachers, friends, and neighbours who saw the critical event that propelled the soul towards glory!

Simonton (1994) also maintained that ‘hindsight bias’ is a factor that can impact on the reliability of retrospective accounts: “Judging from the evidence, the victims of hindsight bias are sincerely duping themselves, reconstructing their recollections to comply with actual events. To a large extent, hindsight bias is a memory distortion” (Simonton, 1994, p. 73). Although history might be suspicious of memory and seek to suppress and destroy it (Nora, 1989), life history researchers all begin with the assumption that it is helpful to remember (Tierney, 2000). Becker (1997) claimed that, “The linear approach to historical writing so frequently employed in the twentieth century gives the impression that human experience moves sequentially, act by act, with each experience slightly more significant than the past” (p. 344). Tierney (2000) believed that the problem with this approach is that no two people engage time in the same way. Life history, he pointed out, is not just valuable because it adds voices to what already exists but it also has the ability to refashion identities.

Longitudinal studies of talent development of necessity involve issues of definition. Most studies of this type have used IQ tests to select the participant group. However, in some cases this has not been the only approach. For example, Terman only tested students after teachers had identified those whom they felt were possible candidates for inclusion in the study. The limitations of intelligence testing and the consequent limitations this places on studies that employ these are discussed later. These conceptual debates about the nature of giftedness and talent are much less relevant to participant selection in retrospective studies than in longitudinal studies. Retrospective studies look for evidence of outstanding achievement and here the challenge is not about ‘potential’ but defining the level of ‘performance’ that constitutes eminence, greatness or giftedness and talent, and deciding on the domains of achievement for inclusion. This usually results in the study of achievement across a very broad range of human endeavours. For example, Galton (1869) included judges, military commanders, writers, scientists, poets, musicians, painters, clergymen, scholars, oarsmen and wrestlers. For

others, such as Goertzel and Goertzel (1962), categories were largely irrelevant and performance was the primary criterion for inclusion. As a consequence their group included greats from an extremely diverse range of activities.

In this present study, the challenge was to select an approach that used a model of giftedness and talent that could be applied to education and one that would also capture a wide range of adult endeavours. One of the main reasons for this was to attempt to maximise the articulation between adult accomplishment and educational experience, thus making the findings from this study more relevant to educators. Gardner's (1983) Multiple Intelligence (MI) theory was deemed the most appropriate to meet both these requirements. This theory represents a very inclusive approach to adult achievement (e.g., Gardner, 1983, 1993, 1995, 1997) but is also an approach that has can be used in schools and classrooms, both in general and gifted education (e.g., von Karolyi, Ramos-Ford & Gardner, 2003). The theory is also considered accommodating of a wide range of cultural interpretations of giftedness, including a Maori concept of special abilities (Bevan-Brown, 2004). The model was modified slightly for the purposes of this study (see Chapter 2).

5. Outline of Chapters

Chapter 2 summarises the major studies in the field of talent development. These are divided into two broad categories of studies: the retrospective and the longitudinal. The studies are extremely diverse in how, when and where they were undertaken. As a consequence, it was considered appropriate to review each individually and to discuss the findings as part of a separate chapter.

Chapter 3 includes a synthesis of the findings from the studies reviewed in Chapter 2, together with the results of other research in the field. This synthesis is thematically structured. In addition, a number of emergent issues and dilemmas are tabled and discussed.

Chapter 4 outlines the range of theoretical issues used to explain outstanding achievement. These explanations are categorised in a manner consistent with

Shakespeare's notion that, some are 'born' great, some 'achieve' greatness, and some have greatness 'thrust upon them'.

Chapter 5 explains the methodology and method of this study. This includes some relevant principles and practices of a life history approach and of semi-structured interviewing. This chapter describes the participant selection process and profiles the participant group.

Chapter 6 presents both the results and discussion of the study. These are organised under the four major themes of 'Drive', 'The Family', 'Education' and 'Marginalisation'. The results for each theme are presented and then discussed.

Chapter 7 presents as case studies the stories told by two of the participants. The inclusion of these two case studies is aimed at reinforcing the concept that the talent development process is holistic in nature and differs from person to person across almost every relevant dimension.

Chapter 8 summarises the finding from this study and includes both theoretical and practical implications. These implications are particularly relevant to the parents and teachers of gifted and talented children and young people, and to researchers of talent development. This section also includes some reflections on this study, and recommendations for future research.

Chapter 2

Studying Talent Development: A Review of the Literature

There are two main approaches to reviewing the studies in this area. The first is to follow particular themes, such as family life, school experiences, further education and career choices, and to synthesise these across numerous studies of extraordinary achievers. The major disadvantage of this approach is that the studies here are so methodologically diverse, synthesising findings and conclusions, without detailing the specific approaches used to arrive at these, can result in a very incomplete picture. Alternatively, to present the level of detail required to obtain a fuller understanding, within a synthesis of the studies, can interfere with the flow of ideas and ease of reading. The second approach is to present the major studies individually, and to examine in some detail how, when and why each study was undertaken, together with the findings and conclusions. However, this approach can leave the reader with a set of disparate ideas that do little to illuminate his or her understanding. In this thesis, both approaches have been included. In this chapter the major studies of talent development that articulate with this thesis are reviewed. In Chapter 3, the themes that emerge from these and other studies are discussed and dilemmas and issues identified.

The studies reviewed in this chapter are dealt with in two sections. The first section examines retrospective studies and the second section, longitudinal studies. In both sections the studies are presented chronologically, from the earliest to the most recent.

1. Retrospective Studies of Talent Development

1.1 Galton: Heredity Genius

The English scientist, Sir Francis Galton (1822-1911), is credited with the first systematic study of the nature and development of talent. Galton was impressed by the ideas expressed by his cousin Charles Darwin in his book, *The Origin of*

the Species (Darwin, 1860). While most people were shocked by the notion that the evolution of humankind could be attributed to processes that omitted providence and excluded design, Darlington (1972) suggested that for Galton it was “a shock of relief” (p. 9). To both Darwin and Galton, the key to understanding humankind was to approach the study of people in the same manner that animals had been studied. Galton believed that focusing on individuals through life and in families from generation to generation, would lead to a new understanding of people, and such knowledge could ultimately benefit society (Darlington, 1972).

The idea of investigating the subject of hereditary genius occurred to Galton while undertaking an ethnological inquiry into the ‘mental peculiarities’ of different racial groups. In the course of that investigation, he noted that characteristics appeared to cling to families. This led him to consider the dispositions and achievements of his contemporaries, and he was surprised at the extent to which descent predicted ability. Galton then undertook an examination into the lineage of 400 ‘illustrious men over all periods of history’ and the results left no doubt in his mind that genius was indeed hereditary.

This notion was to form the basis of Galton’s study into human abilities, which are reported in his book, *Hereditary Genius: An Inquiry into Its Laws and Natural Consequences* (Galton, 1869). In the introductory chapter to his book Galton stated that he proposed to show “that a man’s [sic] natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world” (p. 45). In the second sentence in his book, he provided an unambiguous insight into what he believed were the social implications of his theory, claiming,

It is easy ... to obtain by careful selection a permanent breed of dogs or horses gifted with peculiar powers of running, or of doing anything else, so it would be quite practicable to produce a highly-gifted race of men by judicious marriages during several consecutive generations. (Galton, 1869, p. 45)

Galton is frequently criticised for ignoring the contribution of education, training and social influences in the realisation of ability (e.g., Davis & Rimm, 1998; Subotnik, Kassan, Summers & Wasser, 1993). However, he did acknowledge that these were influential, although in his opinion, their significance was very much secondary to inherited dispositions. “I acknowledge freely the great power of education and social influences in developing the active powers of the mind, just as I acknowledge the effect of use in developing the muscles of a blacksmith’s arm, and no further” (Galton, 1869, p. 56). What is critical in Galton’s hypothesis is the degree to which these factors are influential. In the introduction to their controversial book, *The Bell Curve*, a book that contains some strikingly similar perspectives to those of Galton, Herrnstein and Murray (1994) pointed to *Hereditary Genius* as the starting point in the “long and deeply controversial association between intelligence and heredity that remains with us today” (p. 2).

Galton took as his measure of exceptional ability, high reputation or ‘eminence’. This clearly posed a dilemma for Galton, who sought to use quantitative methods to support his thesis, yet lacked any existing device to reliably quantify the concept of eminence. His starting point was a publication entitled *Men and Time*, which catalogued the names of 2500 men, from Britain, America and the colonies, who were ‘honoured for their ability’. This list included artists, authors, musicians, physicians, surgeons, merchants, manufacturers, ‘divines’, lawyers, judges, botanists, military officers, engineers and architects. He estimated that half the group was from America or the colonies, which left him with 1250 high achieving Englishmen. According to Galton, eminence was unlikely to be ascribed to people before they had reached 50 years of age. Using this as a criterion for selection, he discounted 400 men from his calculations. Of the 850 remaining, he further reduced his eminent group to 500, believing that this was the group who “are decidedly well known to persons familiar with literacy and scientific society” (Galton, 1869, p. 51). This eminent group was all males, so Galton had to consider the 500 as a fraction of the English male population, and he also had to apply the age limitation in calculating the ratio of the eminent to the general population. He arrived at an eminence ratio of 425 to a million, and at a ‘more select’ level of 250 to a million.

Galton obtained another estimate of the proportion of eminent men to the whole population from the obituaries in *The Times* on the first day of January 1869. Taking the number of deaths of eminent men as a fraction of the total number of male deaths in England over a year, he arrived at a very similar ratio to that arrived at using his previous method. He then examined obituary lists for many years in the past, and concluded his estimation of 250 to a million, or one in 4,000, was an accurate calculation of the incidence of eminence.

Galton identified two components of eminence: reputation and ability. Reputation he defined as the opinion of contemporaries, and not high social or official position; “The favourable result of a critical analysis of each man’s character, by many biographers” (Galton, 1869, p. 77). He defined natural ability as the intellectual and personal qualities that provided the motivation and capacity to perform acts that led to reputation. He believed that motivation or zeal, capacity, and hard work, were critical elements in achievement. Not only did he hold that the level of achievement was largely determined by heredity, he also believed motivation and drive to be ‘inherent stimuli’.

Such, ability, zeal and capacity for labour were not, Galton believed, hugely influenced by circumstances (save those associated with an individual’s physical health). To support his contention, Galton pointed to the number of those who had achieved eminence in the face of adversity, and in contrast, those who had been given every possible advantage, yet whose accomplishments remained among the ranks of the mediocre. In other words, ability, zeal and hard work would inevitably yield high achievement. “If a man is gifted with vast intellectual ability, eagerness to work, and power of working, I cannot comprehend how such a man should be repressed” (Galton, 1869, p. 79). He provided numerous examples of young men who were raised in significantly disadvantageous circumstances, but who achieved eminence in spite of their situation. He held that such men soon made up for any ‘past arrears’.

Galton maintained that if the English social system presented a barrier to the realisation of high achievement amongst certain social groups, one would expect to see a greater number of eminent men in countries where fewer hindrances

existed, such as in America. In reality, he maintained, this was not the case. He suggested that America, where the education of the middle and lower classes was far more advanced, failed to match England in the areas of literature, philosophy or art.

Equally true, in Galton's opinion, was that social advantages, ambition and hard work were insufficient to produce eminence in an individual of only moderate ability. He pointed to what he maintained was the undistinguished record of the adopted sons, nephews, and other relatives of Popes and other dignitaries of the Roman Catholic Church, a record that he said was significantly inferior to that of the blood sons of equally eminent men.

However, he acknowledged that social advantage played a role in achieving eminence in public life, such as with statesmen and military commanders. He was careful to exclude from his study those who achieved eminence by means of birthright and not through ability, zeal and hard work. Galton claimed that belonging to an eminent line did not guarantee that one would achieve eminence oneself. However, he argued that it significantly increased the odds. In fact, the qualities suitable for eminence in private life were, Galton believed, quite different to those required to lead. The former required devotion, obstinate perseverance, and geniality and frankness in social relations. On the other hand, according to Galton, the leader of people had to be open-minded on issues, might be called on to deny his or her own ideas in the face of public opinion, and be reserved in friendships and able to stand alone. He also believed a percentage of military commanders achieved eminence as a result of the particular circumstance of their time, such as war, but whose achievements would have been quite unremarkable under different conditions.

Galton maintained that those who achieved eminence were not those who achieved it by great self-denial, consistently having to resist the temptation of distractions. Rather, he believed such individuals were:

Haunted and driven by an incessant instinctive craving for intellectual work. If forcibly withdrawn from the path that leads to eminence, they will

find their way back to it ... They do not do the work for the sake of eminence, but to satisfy a natural craving for brain work, just as athletes cannot endure repose on account of their muscular irritability, which insists upon exercise. (Galton, 1869, p. 80)

He suggested that the best approach for teachers of such individuals was to leave them alone, providing only minor direction as it was needed.

Using this hypothesis, Galton undertook a comprehensive investigation into the lineage of judges, peers, commanders, literary men, men of science, poets, musicians, painters, divines, and senior classics of Cambridge. He then supplemented his work on eminence with an investigation into the physical characteristics of oarsmen and wrestlers.

In his analysis of the lineage of eminent judges, Galton reported that as a group they were so interrelated that 109 of them could be grouped into 85 families. He found that the impact of heredity lessened with each successive generation and that an eminent parent was a far better predictor of eminence than an eminent grandparent. Although he acknowledged that his data was too limited to draw a definitive conclusion, he believed that amongst his judges at least, there was some evidence to suggest that the female influence was inferior to the male influence in conveying ability. His conclusion was based on a comparison between the achievements of paternal and maternal grandchildren. According to Galton's findings, a grandson was far more likely to achieve eminence if he had an eminent paternal grandfather than if he had an eminent maternal grandfather.

In contrast, Galton reported that in his group of 65 eminent scientists, 43 came from families where the mother was the more able of the two parents. "It appears to be very important to success in science, that a man should have an abler mother" (Galton, 1869, p. 246). His explanation for this seems to run counter to his overall treatise and the weighting he ascribed to nature over nurture in the achievement of eminence. Galton believed that mothers of men of science were generally more liberal in their child rearing practices, encouraging exploration, questioning and free inquiry.

The lineage of eminent mathematicians seemed to provide little support for Galton's notion that eminence begets eminence. Galton explained this absence of a line of eminence among gifted mathematicians by suggesting that the domain was so ability-specific that a parent or grandparent may have possessed the potential for high accomplishments in this field, but lacked any opportunity to realise it.

Galton reported that his group of poets possessed some specific characteristics that set them apart from high achievers in other domains. First, their talents were usually displayed in youth, "when they are first shaken by the tempestuous passion of love" (Galton, 1869, p. 278). Second, the lineage of noted poets was much less clearly defined and consequently was less easily traceable. In spite of this, he maintained that his investigations revealed that at least 40 percent of his group of poets had eminently gifted relations.

Galton noted that the precocity of musicians was extraordinary, and that eminence in this domain was achieved at an earlier stage in life than in any other area he studied. He also experienced difficulty establishing a clear picture of lineage within this group remarking that:

The irregularity of their lives is commonly extreme; the union of painstaking disposition with the temperament requisite for a good musician is as rare as in poets, and the distractions incident to the public life of a great performer are vastly greater. Hence, although the fact of the inheritance of musical taste is notorious and undeniable, I find it exceedingly difficult to discuss its distribution among families. (Galton, 1869, p. 291)

Of the 120 musicians that constituted his group, he provided evidence of eminent kinship for 26, or approximately 20 percent.

His list of painters was small, 42 in number and limited to, “illustrious painters, especially from Italy and the Low Countries” (Galton, 1869, p. 310). About half of this group possessed eminent relatives.

Galton was convinced that religious gifts were on the whole hereditary, although he noted some interesting exceptions to this rule, where the sons of religious parents turned out badly. He provided numerous examples to illustrate that most ‘divines’, far from being favoured, enjoyed a less than healthy disposition and had a lower life expectancy than the eminent men of other groups. Galton’s lineage tables seemed to indicate a greater influence of the female line in qualifying a man to become eminent in religion. The extent of this influence was very similar to that found among the men of science, but the direction of maternal influence was almost opposite. Galton contended that the mothers of future scientists encouraged their offspring to challenge conventions; in contrast, the mothers of divines inculcated in their children an unwavering commitment to a faith, what Galton referred to as a blind conviction.

There was a prevalent belief at the time that men of genius were usually unhealthy and physically inferior to their less accomplished contemporaries. Galton’s findings presented a quite different picture. While he noted that some men of extraordinary talent did have ‘wretched constitutions’, he found that many others demonstrated physical attributes commensurate with their intellectual abilities. In fact, Galton suggested that the distribution of physical attributes among the gifted was somewhat bimodal, with a small group of physically inferior individuals and a larger group of the physically superior.

Galton then drew upon the conclusions he had drawn from his investigation to offer comment on racial differences and recommendations for improving a country’s level of performance. Using Darwin’s law of natural selection, he asserted that every race had developed fitness for the conditions under which it lived. He saw the world as becoming more ‘civilised’ and accordingly, many previously valued aptitudes of less importance, with intellectual ability the primary requirement for progress. Galton asserted that some races possessed higher levels of intelligence than others. According to his view, the African negro

race was generally inferior intellectually to the Caucasian, and Australian aborigines fell below the African negroes. Even within England, he believed different regions could be ranked according to the levels of intelligence of the inhabitants. Galton had no doubt that the ablest race in history was the ancient Greeks. He argued that in the future, “the needs of centralisation, communication, and culture, call for more brains and mental stamina than the average of our race possess” (Galton, 1869, p. 400). He expressed concern that those he saw as possessing lower levels of natural ability were marrying younger and were consequently more prolific. “If their children and grandchildren follow the same pattern, the races, best fitted to play their part on the stage of life, should be crowded out by the incompetent, the ailing, and the desponding” (Galton, 1869, p. 410). His proposal for the improvement of the race involved identifying the most able and providing them with a first class education. Marriage, according to Galton, should be held in ‘high honour’ and pride in the race should be encouraged. The ‘weak’, he maintained, could find, “a welcome and a refuge in celibate monasteries or sisterhoods” (Galton, 1869, p.415). His plan for improving the intelligence base of the race also involved immigration by invitation, where only the ‘better sort’ of emigrants and refugees were accepted.

1.1.1 Conclusion

Galton’s conclusions are best summed up by two of his statements: “No man can achieve a very high reputation without being gifted with very high abilities”; and “Few who possess these very high qualities can fail in achieving eminence” (Galton, 1869, p. 4). It was not long after the publication of *Hereditary Genius* that others began to see that Galton’s evidence, especially for the second of his claims, was inadequate (e.g., Ward, 1906). However, as Cox (1926) noted, Galton’s findings were of “great and lasting significance” (p. 12). He made the first substantive quantitative comparison of high achievers and his conclusions provided the impetus for a number of subsequent studies. According to Cox (1926, p. 13-14), “The significance of Galton’s enthusiastic extension of his main thesis beyond its legitimate territory lies in the stimulation which it offered other scientists to refutation and attack, with the inevitable invitation to counter-attack and to still more extended research.”

1.2 Cox: Genetic Studies of Genius: The Early Mental Traits of Three Hundred Geniuses

This study, undertaken by Catherine Cox and commenced in 1922, was first published in 1926 and constitutes Volume II in Terman's series of five volumes, published under the generic title, *Genetic Studies of Genius*. Terman supervised the study and also edited *Genetic Studies of Genius: The Early Mental Traits of Three Hundred Geniuses*. Terman was primarily interested in "whether, or to what extent and how, genius is evidenced in childhood" and "whether the characteristics thus discoverable in [intellectually and precocious] children are ordinarily paralleled in the childhood traits of individuals who have later achieved eminence by virtue of their intellectual or moral or artistic performances" (Cox, 1926, p. vi).

Cox (1926) identified 301 of "the most eminent men and women in history" (p. 4) who had lived between 1450 and 1850. This group became her subjects and she set about developing a comprehensive profile of every individual, in the first instance, to ascertain how each would have performed on an intelligence test. She was then interested in finding out the extent to which levels of intelligence could predict later achievement, and if childhood intelligence did not sufficiently account for eminence in adulthood, what other traits might explain it. Her final quest was to find explanations for why individuals with similarly assessed levels of childhood intelligence, found expression for their abilities in such a diverse range of pursuits. In other words, what led one to become a poet, another a musician and another a scientist?

Earlier studies of eminent individuals (frequently referred to as studies of 'great men', as almost always these studies excluded women) tended to offer two theoretical explanations as to why only a few individuals achieved greatness. The first of these focused on the unique character of the great man, an individual distinctly different from the masses and someone with innate dispositions that provided the potential to change history (e.g., Davenport, 1919; Galton, 1869; Woods, 1906). The second focused much more on the achiever as the product of

external forces, where the social environment provided the impetus for high achievement (e.g., Allen, 1881; Fiske, 1881; Ward, 1906). Other writers, such as Cattell (1903), acknowledged that both were influential but their view was less about the potential of enriched environmental factors to enhance performance, and more about the ability of negative experiences to limit achievement.

One of methodological issues faced by all those researching the area of human potential is one of defining outstanding performance and selecting outstanding performers. Many prior studies had equated eminence with greatness (e.g., Galton, 1869). To Cox, this approach was problematic. She noted that there were many instances where eminence was probably the result of recognition, rather than genius. She was interested in a more 'objective' measure of greatness, where the eminence standard could be discarded and where selection criteria could include individuals whose greatness had not received widespread recognition. Cox's approach was to apply mental test standards to behaviour and performance in childhood. She drew on information from historical documents, original sources and biographical accounts to establish the 'brightness' of the 301 children who later achieved eminence in adulthood. She acknowledged that this historiometric technique had limitations, but she considered it sufficiently rigorous to inform the development of childhood ability to adulthood achievement.

In selecting her subjects, Cox applied three criteria: they were to have reached a standard of unquestioned eminence; the eminence must have resulted from unusual achievement (rather than as a consequence of chance or birth) and; there needed to be adequate records available from which ratings of early mental ability could be made. Cox's first criteria were met in Cattell's (1903) list of 1000 men of unquestioned eminence, and from this group she selected 282 subjects who met her second and third criteria. These 282 she referred to as Group A and this group consisted of: 52 writers (poets, novelists and dramatists), 43 writers (essayists, critics, scholars and historians), 43 statesmen and politicians, 39 scientists, 27 soldiers, 23 religious leaders, 22 philosophers, 13 artists, 11 musicians, and nine revolutionary statesmen. This group was selected from those ranked 510th or above on Cattell's list. She then added a further 19 (Group B), who were selected

from individuals listed beyond the 510th place, and this group was used in a preliminary study. Group C included a sub-group of 100 cases, which was selected for more in-depth study.

Cox reported that 80 percent of her 301 eminent individuals belonged to the two upper classes of society. However, she maintained that the opportunities associated with belonging to the higher social classes alone could not account for eminence. If it did, she argued, other members of the families of these high achieving individuals should have achieved similar eminence, and rarely was that the case.

Cox reported that the average assessed IQ for the entire group was between 135 and 145, although she claimed the true level was between 155 and 165 (the highest IQ was ascribed to John Mill, with an estimated score of 190). Cox then sought to explore differences in IQ levels across the fields of eminence. Her analysis placed philosophers as a group at the highest level, followed by scientists, then writers (essayists, critics, scholars and historians), writers (poets, novelists and dramatists), revolutionary statesmen, statesmen, religious leaders, musicians, and soldiers.

While the intelligence ratings of the individuals in this study were certainly high, Cox felt that this factor alone could not account for the eminence achieved by this group:

If the childhood IQ of a Faraday was possibly no higher than 150, and of an Alexander Hamilton no higher than 140, why are not more such scientific or political-financial geniuses produced from the considerable number of cases now rating as high or higher? Are some of the factors other than intelligence that make for high achievement failing of utilisation, either through lack of industry or application on the part of individuals themselves or through lack of education and opportunity because of the neglect of others? (Cox, 1926, p. 87)

Cox also focused on the early environment of 100 of her subjects in an attempt to quantify the contribution of home, community and education, on later achievement. The influence of home, home training, home interest, community, current events, education, travel and reading were each rated on a four-point scale. From this Cox concluded that the influence of current events and travel was slight; the influence of home, home training and discipline, breadth of home interests, community and education was considerable; and the amount of education and of reading, whether literary or scientific, was also considerable.

Cox examined the early interests of the sub-group of 100 and rated the level of their intellectual interests, social interests and activity interests, and the breadth and intensity of each of these. No individual scored lower than an 'average' score on intellectual interests. The level and breadth of intellectual interests correlated positively with intelligence, whereas social and activity interest levels showed a slightly negative correlation with intelligence. Cox believed that this could indicate that factors other than the intellectual contributed to eminence, and that higher levels of social and activity interest may compensate for a lesser interest in intellectual pursuits.

In a further attempt to answer the question, "Is there a typical youthful genius?" (Cox, 1926, p. 177), Cox rated her 100 subjects on 67 character traits. She reported that in childhood and youth this group of eminent individuals achieved above the average in all 67 traits; slightly above average in favourable emotional states; noticeably above average in balance and sociability, and; distinctly above average in self qualities, intellectuality, in activity (including intellectual activity and persistence), and in strength or force of character. Her group scored highly on all traits containing persistence of motive and intellective factors and she concluded that these, along with strength or force of character, appeared to be 'peculiarly characteristic' of 'young geniuses'. The highest rating single trait among this group was a desire to excel.

Of the 67 traits Cox assessed her group against, the following are those she claimed provided the best predictors of adult achievement:

1. Persistence
2. Tendency not to be changeable; tenacity of purpose
3. Perseverance in the face of obstacles
4. Intellective energy
5. Mental work bestowed on special interests
6. Originality of ideas
7. The desire to excel

In analysing her trait rankings against degrees of eminence, Cox drew the conclusion, “That high but not the highest intelligence, combined with the greatest degree of persistence, will achieve greater eminence than the highest degree of intelligence with somewhat less persistence” (Cox, 1926, p. 187).

In the conclusion to her study, Cox (1926) claimed that youths who achieved eminence:

1. “Have in general, (a) a heredity above the average and (b) superior advantages in early environment” (p. 215).
2. “Are distinguished in childhood by behaviour, which indicates an unusually high IQ” (p. 216).
3. “Are characterised not only by high intellectual traits, but also by persistence of motive and effort, confidence in their abilities, and a great strength or force of character” (p. 218).

In her closing sentence, Cox revisits the nature/nurture issue and states that her study confirms that:

Heredity sets limits, but within these limits the adequate training of the most gifted – and so also of their less distinguished fellows – may raise

them to the designed stature of men unmarred by the defects of insufficient experience, and thus realise in each one the complete development of inborn worth. (Cox, 1926, p. 219)

1.2.1 Conclusion

Both Terman and Cox regarded genius as a quantitative rather than qualitative attribute (Simonton, 2003) and both sought to show that eminence was related to high IQ. Although Cox concluded from her study that such a correlation did exist, this correlation has been shown to be largely artifactual (Simonton, 1976). However, while this aspect of her findings may not have stood the test of time, many other of her ideas have. Some of the most significant of these are the motivational aspects she identified as typical of high achievers, particularly the critical importance of persistence and perseverance to the achievement of success.

1.3 Goertzel and Goertzel: Cradles of Eminence

Victor and Mildred Goertzel published the findings from their first study in 1962, in their book, *Cradles of Eminence* (Goertzel & Goertzel, 1962). In 1978 their son joined the husband and wife team and together they published a sequel to their earlier work, entitled *Three Hundred Eminent Personalities* (Goertzel, Goertzel & Goertzel, 1978). Their original study was not dissimilar to that of Catherine Cox. The study was an attempt to understand the “emotional and intellectual climate in which eminent people of the twentieth century were reared” (Goertzel & Goertzel, 1962, p. vii). They interpreted eminence as “standing high in comparison to others” (p. vii) and in applying this definition felt it valid to include the “eminently wicked” and not only those who had been “productive of good”.

Their selection process was much less rigorous than Cox’s approach. The Goertzels drew up a list of potential subjects following consultation with “countless other persons: all people who read, write and buy books; the critics, authors, editors, and publishers” (Goertzel & Goertzel, 1962, p.viii). For inclusion in their final group of 400, an individual had to have at least two books about him or her in the biography section of the Public Library in Montclair, New Jersey, if

he or she was born in the United States, and at least one book about them if born outside the United States. This library was chosen “because it was the nearest adequate library and has a fine collection of thousands of biographies on open shelves” (p. ix).

The Goertzels were interested in the home environments of these young ‘celebrities’. They claimed that almost every individual in their study had at least one parent who had a strong drive towards intellectual and creative achievement. As a group the parents of these children were “experimental, restless and seeking ... physically driving, intellectually striving, they respect learning, love truth and sometimes beauty” (Goertzel & Goertzel, 1962, p. 3). However, while a respect for learning was evident in the childhood households of the majority of their group, the attitudes towards schooling was often less positive. A small group never attended school and many parents withdrew their offspring from schools and undertook their education themselves. Those from the group of 400 who were taught by a parent were, without exception, grateful for the experience. Many of these children had negative reactions to formal schooling but the problems adjusting to school were more common to boys than to girls. Allowing their children to be different was not always easy for parents and these researchers reported that this choice often caused parents to be ‘guilt-ridden and anxious’ and at times attracted criticism from other family members, friends and neighbours. They concluded that children who become eminent are not usually all-rounders, competent or conforming students.

In some cases there existed ‘a dreadful urgency’ in the drives of these parents and this was something their children sometimes found difficult to endure. They cited as an example the violinist Karl Flesch, who said of his father:

Work was his credo. In no circumstances did he tolerate idleness. His stereotyped question used to be, “What are you doing now?” I owed it to his systematic education that, in later years, I felt an insatiable need for activity, which almost mounted to a vice: “pleasure trips” were not only repulsive to me, but actually resulted in attacks of neurasthenia. (Flesch, cited in Goertzel & Goertzel, 1962, p. 11)

The mother of the American dancer Agnes de Mille maintained a similar regime: “‘Don’t just sit there, dearie,’ she would say coming into a room. ‘Do something!’ To this hour I find it impossible to read a book before sundown unless it has some immediate connection with my work” (Flesch, cited in Goertzel & Goertzel, 1962, p. 11).

The children who demonstrated musical talent were reported as particularly vulnerable to parental pressure, especially if their destiny was perceived to be that of a performing artist. The musically talented children tended to evidence their ability early. This seemed to present a dilemma for some parents. On the one hand, these parents knew that the realisation of this talent required devotion to hours of practice at a young age. On the other hand, such a commitment invariably meant sacrificing many of the fundamentals of a ‘normal’ childhood.

The Goertzels reported that these parents generally tried to make the most of the children they knew to be capable. Mothers tended to ‘nurture’ this ability and were overall more successful than fathers in understanding and communicating with their children. Fathers, they reported, often became overenthusiastic about their children’s abilities and sometimes ‘experimented’ with them. In homes that ‘cradled eminence’ there was a tendency to develop further personal strengths, talents and goals, rather than to focus on the acquisition of general knowledge. These homes were more about engaging with ideas than with the passive learning of facts. Within these families there was often one member who could be described as nonconformist, who was “likely to take off wholeheartedly on a course of investigation or action which sets him aside from his contemporaries” (Goertzel & Goertzel, 1962, p. 6).

As researchers, they were interested in the brothers and sisters of their eminent individuals. If ‘driving and striving’ parents were so influential in the achievement of one child, what was the impact on their siblings? They suggested that, while this environment produced one child of extraordinary ability it produced other children who were ‘capable and intelligent’. From this study, it

could be concluded that the homes that produce eminence produce highly capable and competent individuals as well.

The ‘driving and striving’ and the commitment to learning, said by the Goertzel and Goertzel to be a common characteristic of parents of gifted children, appeared from their study to be a way of life, rather than the fulfilment of short term goals. They provided evidence to indicate that many of these parents maintained extremely high levels of drive and a thirst for knowledge, well into old age, and well beyond what these researchers thought to be typical of the population generally. They claimed that the love of learning persisted, even in the face of adversity or frustrations, and beyond the point where their efforts had yielded reasonable and fulfilling levels of success.

The Goertzels maintained that the ‘family value system’ had the strongest impact on a child with ability. At the core of this value system were parents who respected the ability of their able child and who had strong intellectual and physical drives. These, they believed, were the critical elements to the fulfilment of eminence.

Over half the parents in this study were described as ‘opinionative’, that is, holding strong views or concerns:

Two hundred and twenty seven families among them espoused strong political attitudes, held sectarian views about religion, or were religious liberals with equally strong feelings, or were atheists or agnostics, or espoused unpopular causes, or worked in reform movements, or expressed controversial views in print or on the public platform.
(Goertzel & Goertzel, 1962, p. 30)

It was politics first and then religion on which these opinionative parents held strong views. As a group, the Goertzels described them as politically liberal. Few were sectarian and in general they tended to espouse religious views at odds with those held by the wider community. The children of these opinionative parents were less likely to rebel against their family’s values and were more likely to

emulate their parents (in fact overall, the Goertzels found evidence of only 24 cases of rebellion against parents, and these usually appeared to be short-lived). The bright offspring of opinionative parents were much more likely to be expelled from school than to run away from home. In the biographies of their eminent group, the teacher, not the parent or parents, was the subject of their hostilities. Many used the ideas espoused and the activities pursued by their parents as a springboard to their own fame.

There was a reported difference between the sons of opinionative fathers and the sons of opinionative mothers. A quarter of their total group, all of whom were classified as belonging to father-centred homes, extended on a father's vocation or ideology. The Goertzels offered little information on the outcome of being raised in a mother-centred home, save to say that, "Fathers' boys are more likely to be social rebels or revolutionaries or philosophers. Mothers' boys more often turn to the arts" (Goertzel & Goertzel, 1962, p. 40).

Half of the fathers in this study were labelled by the researchers as 'failure-prone' in the routine of everyday life. They acknowledged that without comparative data from the population generally that they were unable to claim that this incidence was atypical. However, what they do legitimately conclude was that bankruptcy, professional and personal failures on the part of the father, did not preclude later success on the part of his children. They categorised these failure-prone fathers as either "given to daydreaming and to scholarly retreat from the mainstream of life" or "impractical, grandiose – who leap before they look" (Goertzel & Goertzel, 1962, p. 55). Many of these fathers were said to be "prone to flights of fancy, ... restless and experimental" (p. 56). While these fathers may not have been successful themselves, they were adventurous and risk-takers. The Goertzels suggested that such fathers might have created a climate conducive to creative achievement. They described many of these fathers as self-actualisers, sometimes displaying a child-like naiveté, disorganised and disorderly, vague and uncertain, careless and carefree. These individuals showed little need to please others and little regard for what others might think of them. Many families suffered from the father's failed ventures and the Goertzels provided numerous examples of eminent adults growing up in impoverished circumstances. Frequently, this lack was

followed by periods of plenty, only to be followed again by a period of poverty. Such a way of life must carry with it high levels of stress and anxiety. These researchers offered this as a reason why some of these fathers became alcoholics. It seems that children raised in such circumstances may use humour to cope with the associated stresses. The Goertzels noted that 21 alcoholic fathers produced children who became actors, singers, or writers with an exceptional sense of humour. George Bernard Shaw, the son of an alcoholic father explained it this way, "If you cannot get rid of the family skeleton, make it dance" (Shaw, cited in Goertzel & Goertzel, 1962, p. 66).

They suggested that the children of failure-prone fathers may feel a greater freedom to take risks, to experiment and to be innovative. Possibly removed from their childhood is the pressure to adhere to a rigidly imposed set of rules, or to conform to clearly-defined norms modelled by a father. This may allow the child much greater freedom to explore and be creative. The Goertzels offered another explanation as to why children raised in homes where failure rather than success is the norm should themselves grow up to be highly successful. They speculated that the repeated failures on the part of the father may see the mother turning more to a child for comfort. The child, fully cognisant of his or her mother's pain, is likely to try and compensate for the father's failures by striving to succeed.

From this study, it would appear that mothers play a significant role in children rising to the highest levels of success. The Goertzels contended that many of the mothers of their 400 eminent individuals would have been the career women of a later era. However, because this was very unusual during the period that these women were raising their families, they believed that the energy that subsequent generations of women may have devoted to a career these women directed towards nurturing the abilities of their offspring. According to the findings of this study, the eminent person is more likely to have a 'dominating' (the term used by the Goertzels) mother, than a dominating father. Of the 400 hundred families in their study, they categorised 109 as having dominating mothers but only 25 fathers who could be considered dominating. They claimed that dominating mothers become even more dominating when presented with a child who has a

special talent:

Mothers of the four hundred often found the best outlet for their own drives and abilities was through capable sons ... If the dominating mothers keep within reasonable bounds their tendencies for decision-making and planning ahead, they may ultimately be acknowledged by famous sons and receive credit for their sons' successes ... If she has a husband who is failure-prone, as ninety percent of the dominating mothers do, the son often resolves to make her so proud of him she will forget her disappointment in her husband. (Goertzel & Goertzel, 1962, pp. 80-81)

The Goertzels asserted that a dominating father retards, rather than encourages a son's ambitions, and this they believed, was the reason why very few of their eminent group had fathers like this. Such fathers, they argued, are less concerned about their son's or daughter's talents and are often more preoccupied with their own pursuits. While he may want his son to be like him, this father may struggle with the notion of his son being better than him. Dominating mothers tended to have a positive effect on the achievement of male offspring but this was less likely to be the case with female offspring. The Goertzels could only find two eminent women, Maude Adams and Maria Montessori, who were the daughters of dominant mothers.

This phenomenon of dominating mothers was reported as independent of racial, national or cultural divisions, and consistent in both incidence and intensity across different socio-economic groups. The Goertzels differentiated between the dominating mother and the 'smothering' mother. The smothering mother:

Draws a circle about herself and lets no one inside except her son. He is the centre of her universe, and both the mother and son act on the premise that the world revolves about the boy. The mother and son see the whole of society as a force to be manipulated to give happiness and honour to the son. (Goertzel & Goertzel, 1962, p. 102)

Such a boy, they contended, is often frail and sickly and seems to experience poor relationships with peers, often preferring the company of pets, younger children and older women. They found that being raised in such an environment did not necessarily preclude a child from becoming a creative or capable adult. However, among this group it did seem to impede the realisation of personal happiness. The husbands of the smothering mothers in this study were generally passive or were unable to intervene in the mother/son relationship. In the households where the mothers were widows, one third were reported as smothering. This smothering by widows seemed more of a phenomenon in more affluent families.

There was a fairly widespread belief at the time that a critical component of talent development was the provision of a supportive, accepting and untroubled home environment. The Goertzels certainly challenged this belief, claiming that only 58 of the 400 households represented in their study could be described in this way. For many of the children life was not always enjoyable and the Goertzels said that the heightened levels of sensitivity and awareness of gifted children resulted in intense suffering at times. These turbulent and contentious households were reported as quite different in character, and the way young people responded to these environments differed also. These differences seemed to be played out in different pursuits. For example, those children who went on to make a contribution as actors or writers reported the highest levels of intrapsychic tension. The homes of reformers were more likely to be “explosive with ideas and argument” (Goertzel & Goertzel, 1962, p. 132). The homes of those who later achieved eminence in the arts and literature were characterised by particularly intricate social and interpersonal relationships and the incidence of divorce and separation was reported as much greater in these families. The Goertzels concluded that while gifted children, like all children, dislike family conflict, parental separation and are made miserable by deprivation, their capacity for achievement does not appear to be destroyed by it. In fact, they go further and claim that in some instances it acts as a catalyst and motivation.

The stereotype associated with gifted children differs over time and between different groups. For example, in the United States in the early part of the last century common lore held that these children “were physically weak and socially

incompetent” (Holahan & Sears, 1995, p. 2). Terman’s study presented a severe challenge to this image of the gifted child and replaced it with one that some believe is equally erroneous. “One of the most frequently cited findings of the Terman studies was the fact that these students were not only better scholars, they were better adjusted psychologically and socially, and even were healthier than the average person.” (Davis & Rimm, 1998, p. 28). The Goertzels’ study provided many examples of achievers who did not fit the Terman-type. The 400 individuals who comprised their study were not free from personal challenges. While it is impossible to ascertain the extent to which the incidence of blindness and visual impairment, physical disability, poor health and other disabilities was greater across this group than what might be expected in the population generally, there is clear evidence from this study that the presence of even a severe disability does not necessarily negate achievement. In fact, the Goertzels reported that many of the individuals whose lives they studied cited the need to compensate for a disability as the reason for their need to achieve. “In many biographies, and especially in the autobiographies, there is a frequent and strong reference to the spur to achievement that adverse circumstances in childhood gives to these individuals who achieve distinction” (Goertzel & Goertzel, 1962, p. 174). They claimed that:

There is almost no adverse experience of the kind commonly thought to induce mental illness, delinquency or neurosis which some of the Four Hundred does not experience during childhood ... but there are few of the Four Hundred or their siblings or their parents who withdraw from reality and are hospitalised as mentally ill. (Goertzel & Goertzel, 1962, p. 208)

Faced with situations such as the death of a sibling, being orphaned, neglected or rejected, many of the children developed ‘neurotic’ symptoms. In spite of some children having to deal with some quite traumatic circumstances, such as being orphaned at an early age, their commitment to developing their talents and skills remained intact.

Forty-nine of the 400 were profoundly affected during childhood by the death of one or more siblings. The Goertzels offered a number of ways that this experience

might enhance achievement. First, where a dead child is idealised by parents, where they are spoken of as ‘perfect’, the living sibling may feel rejected and strive hard to excel to surpass the perceived achievements of his or her brother or sister. Second, a child may seek to ‘compensate’ for the loss of a brother or sister and in a sense ‘lives for two’ to ease the grief of his or her parents. Third, coping with the loss of a close family member at an early age may cause a child to mature very early, and it could be that some of the pursuits that interfere with other children’s achievements have little appeal to those who have been forced to develop a more serious outlook on life. Fourth, the ‘distraction’ from the pain of such an experience, and sometimes from the resultant family upheaval, may be to immerse oneself in an area of special ability or interest.

The link between genius and madness is persistent with numerous studies purporting to confirm this connection, especially in the creative domains (Simonton, 1999a). The Goertzels clearly expected to discover a relatively high incidence of mental illness amongst the 400 and their families, and reported the rarity of this as an unexpected finding. They suggested by way of an explanation, that it may simply be that the pursuit of excellence leaves little time to be mentally ill. Such is the intensity of the drive towards a goal that there may be little time left to dwell on anxieties and the like. What these researchers did find, was that the incidence of suicide was greater than the incidence of psychosis, which was the reverse of the pattern found in the population generally at that time.

This study posed a serious challenge to those who believed school was generally a rewarding experience for gifted individuals. The Goertzels reported that three out of every five of the 400 they studied disliked school and the same proportion experienced serious school problems. They listed these as: “dissatisfaction with the curriculum; with dull, irrational or cruel teachers; with other students who bullied or ignored them; and with school failure” (Goertzel & Goertzel, 1962, p. 241). However, the school situation in totality was usually the concern, and very rarely was the problem related to a single, clear-cut issue. This occurred, in spite of the fact that four out of five showed evidence of being very intelligent or unusually talented. The source of stimulation and learning was less likely to come from the classroom and more likely to be found in the debating club, the school

newspaper, the library, the theatre, books and the family dinner table. There was evidence that the very traits and abilities that were central to achieving eminence caused problems at school.

There were those who were not recognised by their schools as more able, those the Goertzels described as, “children who were thought dull – or failed” (p. 246). Some were so focused on a particular subject that they neglected other areas. A group withdrew because their ‘difference’ was ridiculed and caused them embarrassment. Others failed because of a lack of neatness or a failure to be punctual. There were those who were so different, either in manner and/or appearance, that they were erroneously classified as ‘dull’. In a few cases a student moved from failing to achieving as the result of a school change. On the other hand, there was a group who did not achieve particularly well at school, primarily because of a lack of ability, who did achieve eminence as adults. These researchers proposed that a drive for power and attention could sometimes substitute for ability. “Special skills in oratory, a dogged persistence, a high tolerance for frustration and social adaptation are the most frequently observed characteristics of the slow and average students who succeed in making themselves well known” (Goertzel & Goertzel, 1962, p. 248).

Those who did not complain about school tended to be children whose abilities were recognised and nurtured by teachers and whose learning was accelerated. The Goertzels prime example of an individual experiencing such support was the New Zealander, Ernest Rutherford. According to their account, Rutherford encountered a primary school teacher who had more than the usual interest in his ability. This teacher held classes for bright students for an hour each morning before school began. At Nelson College at that time, science was optional and on many occasions Rutherford was the only boy in the class. He found a mentor in one of his teachers and the relationship that developed was clearly more one of equals than of teacher and student.

The accounts of the school experiences provided by this group give a clear indication of their preferred approaches to learning. As children, these adult achievers appreciated teachers who let them learn at their own rate and allowed

them to pursue unimpeded, areas of special interest. They appreciated those who challenged their thinking, introduced them to stimulating books and provided them with access to resources to aid their work. They particularly liked ‘time-out’ from routine to give them time for reflection and self-evaluation. It was important to them that their special abilities were appreciated and their interests valued, and they responded positively to those who listened to them and who had faith in them.

1.3.1 Conclusion

The findings from this study presented one of the most significant challenges to Terman’s notion that the primary conditions of the early environment most supportive of the development of adult achievement were those of security, stability and parental interest and support. In fact, these researchers reported that when they first presented their findings to community groups, they encountered some members of their audiences who erroneously believed that they were advocating the mistreatment of children as a way of stimulating creativity. They also showed that the educational experience of many able youngsters is anything but positive. In contrast to a number of earlier studies, this group of subjects demonstrated that the development of talent is a complex process, that it varies from individual to individual, and that the ways the different aspects of people’s lives play out appear to have a direct bearing on the specific domains that they achieve in. However, they found two consistent family characteristics across all talent areas studied. First, the parents of their luminaries were energetic and goal oriented. Second, most of the families were intrinsically motivated and exhibited an intense love of learning.

1.4 Roe: The Making of a Scientist

Anne Roe’s background was as a clinical psychologist and this study of research scientists (Roe, 1952) was derived from an earlier study of artists. In her study of artists, she was interested in the relationship between creativity and the consumption of alcohol. Roe, who was married to a scientist, acknowledged always being fascinated by science and scientists. Her study was one of the first

retrospective studies of talent development, where the participants themselves were the primary source of information. It was the first study of this type to focus on the development of ability in the sciences, and has become recognised for the contribution it has made, not only to the understanding of how scientific ability develops, but how talent develops generally.

Roe began by studying biologists, then 12 months later she extended this to physical scientists, and in the third year she added to these two a group of social scientists. Roe was interested in obtaining the participation of only the most eminent scientists and in each of the three fields she had a panel of eminent scientists judge the quality of the work of their peers. In most cases, these panelists were members of Roe's study group. Thus, she chose the first three or four members of each group, and these individuals determined the selection of the remainder.

Roe decided to limit her study to male scientists. She believed that because there were so few women working at a high level in the biological and physical sciences at the time, to include a very small number of women, as an additional variable, would add an avoidable complication. At the time of the study all were married, but the average age of marriage was older than was customary for men at that time. Roe reported that this was partly due to economic factors and not being able to afford to get married while they were training, and educational factors, where they were too intent on their work to develop or commit to a primary relationship. The divorce rate amongst the social scientists was disproportionately high compared to the biological and physical scientists – 41 percent, 15 percent and five percent respectively. Roe suggested that it was the social scientists' interest and involvement with people that contributed to the higher incidence of relationship break-up. Social scientists, she contended, were much more focused on people and on relationships, and probably demanded far more of their partners than the other groups. In addition, social scientists were more likely to become involved with other people, which probably put an added strain on marriages.

When asked how they spent their leisure time, some of them responded, "What leisure time?" Many of these people worked long hours but for the most part this

was a choice. In some cases their work was so interesting and stimulating to them that it became their leisure. As a group they read a great deal and overall, reading was their favourite recreational activity. For some, this was limited to professional literature but many read much more widely. Their preferences in sports were largely for those pursuits that could be described as individualistic, such as fishing, hunting, climbing and sailing, with very little involvement in team sports. As might be expected, the social scientists were much more socially inclined than the scientists from the other two groups. In contrast, while a small group of the physical scientists were very socially inclined, most of this group, and almost all the biologists, disliked social occasions, and avoided them where possible.

None of the 64 individuals in this study mentioned church activities as important to them, which could be considered quite surprising in the United States in the early 1950s. Roe reported that five of her group came from Jewish homes, and all but one of the remainder had Protestant backgrounds. She noted the absence of Catholics as being consistent with that reported in similar studies that found that those of this denomination were unlikely to become research scientists. The reason offered for this was that such a pathway required a disposition towards a 'freedom of inquiry', something that she believed was unlikely to be compatible with an adherence to the beliefs of the Catholic Church. Amongst the majority of those raised in Protestant homes, only three of these 59 men were active in any church.

Most of the scientists grew up in homes that Roe described as upper middle class. A little over half had fathers who were 'professionals', whereas the census data at the time put only three percent of those employed in this category. Roe reported that the common factor in the homes of these future men of science was that learning was valued for its own sake. She speculated that many of her group probably showed an atypical interest or ability at an early age, and for this to develop there had to exist a family environment of acceptance and encouragement.

Thirty-nine of her 64 were either first-born or only children. For quite a number who were not eldest or only children, a significant gap existed between them and

the next eldest sibling. In a sense, these later-born children enjoyed a similar environment to an eldest child. To Roe, this higher incidence of eldest and only children in her study was related to independence. In her opinion, this family position accorded greater opportunities for the development of independence, critical to the advancement of investigative, explorative and personal interests.

Most of group reported that they liked school. The biological and physical scientists were particularly interested in mathematical and scientific subjects, with few showing an interest in literature. The social scientists were more interested in literature and the classics. The decision to pursue their respective careers happened at varying ages but this generally occurred during their time at school. What appeared to be a critical factor in making this decision was having first hand experience with research. "Once any of these men had actually carried through some research, even if of no great moment, there has never been any turning back" (Roe, 1952, p. 81).

Roe was surprised how many of these men experienced the death of a parent during their childhood. Fifteen percent of the group had lost a parent by the time they were 10 years of age. She speculated that it could be that in such households children have to become more independent, a trait essential to becoming a scientist.

Roe reported a 'significant incidence' of early physical problems among a sub-group of theoretical physicists. These boys were in the most part avid readers, something they were able to indulge because of the period of social isolation that many were forced to endure. She believed that it was not inconsequential that these youngsters became theoretical, rather than experimental physicists.

Many of these future scientists experienced social isolation as children. They reported feeling different, or apart from others. Among the social scientists were reports of the families being 'self-ostracised'. Sometimes, Roe claimed, this was part of a confidence in their intellectual superiority; sometimes it was simply because the families chose a different lifestyle from those around them. Roe

reported that the social scientists came from families who were close-knit and the 'apartness' was often associated with a general attitude of superiority.

As they grew up, the social scientists seemed to be much more conscious of issues and problems with personal relationships. Roe found that, "in about three-quarters of this group, social status was of conscious importance during the childhood of the subject" (Roe, 1952, p. 90). She believed that this might have explained the focus of these children on relationships.

When social status is important, high value is naturally placed on interpersonal relationships ... People then become invested with unique importance, and if the interpersonal relations are difficult for some reason the problem then becomes one of crucial importance, and attracts much of the available emotional energy. (Roe, 1952, p. 90)

The men from the other groups appeared less concerned about relationships, and they experienced fewer conflicts with their parents and achieved independence from them, and with relative ease. The social scientists had many more serious conflicts with their parents, and at the time Roe spoke with them, some were still angry about it. She concluded that this group had still not achieved complete independence from their parents. Some of the social scientists came from homes where the mother was a dominant figure and the father was ineffectual or suffered from feelings of inadequacy. While most of the biologists and physicists regarded their fathers with genuine respect, relatively few of the social scientists did.

However, the relative uninterest in people shown by men from the physical and biological sciences had other effects. This group was much slower to engage in relationships with the opposite sex and while this may have resulted from social shyness, Roe believed many of them were simply just not interested. The more intense interests that were typical of this group meant they were much more attracted, from a very young age, to play and interact with like-minded peers. In contrast, the social scientists became interested in girls at a much earlier stage.

1.4.1 Conclusion

Roe offered a view of scientists as people, not “rational automatons”. Roe identified some clear patterns in the life histories of luminaries in science relating to birth order, family background, health, early loss, IQ, interests, and feelings of difference. She concluded from her investigation that, more than a person’s ability in a particular field, how well an individual did was “a function of how hard you work at it” (p. 55) and contended there was little that could be said about the scientists that could not be said of some achievers in other areas.

1.5 Bloom: Developing Talent in Young People

This study (Bloom, 1985) of concert pianists, sculptors, research mathematicians, research neurologists, Olympic swimmers, and tennis champions, provided some significant contrasts to the findings of earlier research in the field of extraordinary achievement. To obtain their study group, Bloom and his associates consulted with experts, teachers and scholars and examined ranking tables, to identify the top 25 persons in the United States, in each of the six areas under investigation. One hundred and twenty individuals were selected for this study and most were less than 35 years of age. This retrospective study used interviews in an attempt “to understand the developmental and educational processes that were important in enabling them to reach these high levels of competence in their field” (Bloom, 1985, p. 12). The achieving individuals were interviewed face-to-face, and their parents interviewed by telephone.

This study is reported on in the book *Developing Talent in Young People* (Bloom, 1985). In the introduction to the study Bloom stated that:

After forty years of intensive research on school learning in the United States as well as abroad, my major conclusion is: What any person in the world can learn, *almost* all persons can learn *if* provided with prior and current conditions of learning. This generalisation does not apply to the 2% or 3% of individuals who have severe emotional and physical difficulties that impair their learning. At the other extreme there are about

1% to 2% of individuals who appear to learn in such unusually capable ways that they *may* be exceptions to the theory. (Bloom, 1985, p. 4)

Bloom then suggested that, “It is likely that some combinations of the home, the teachers, the schools, and the society may in large part determine what portions of this pool of talent become developed” (p. 5).

In contrast to earlier research, this study provided evidence of abilities being nurtured over a much longer period of time. In music, art and sport, identification of the ability occurred at a very early stage and nurturing that ability usually took place over many years and in a most deliberate way. The concert pianists, for example, invested an average of 17 years studying, practicing and performing to reach the level of achievement that saw them ranked them in the top 25 in the United States in their field.

This study reported a striking similarity across the home environments of the participants in their study. Although the parents of these talented individuals varied in their educational attainments, occupations, economic status, and interests, they were all committed to doing the best for their children through all stages of their offspring’s development. Bloom described these parents as ‘child-oriented’ and prepared to make sacrifices if they considered it would help their children’s development. These parents emphasised achievement and success, and the importance of doing one’s best. They also modelled a ‘work ethic’ and stressed the setting of goals. These values were taught to all the children in the family. Where a child sought to pursue a particular talent area, the same values applied: “To *excel*, to *do one’s best*, to *work hard*, and to *spend one’s time constructively* were emphasised over and over again” (Bloom, 1985, p. 510). In these homes, the parents actively encouraged questioning and inquiry. Reading was a highly valued ‘family’ activity and the children were regularly read to before they could read themselves.

The children tended to commit to pursuits that reflected the interests and values of their parents. For example, the parents of the athletes were interested in sports and these parents not only believed participation in sports held significant benefits for

young people, they were usually knowledgeable about sports. Parents of the concert pianists and sculptors enjoyed music and/or the arts and expected their children to develop a similar interest. The children from these families became involved in music or art from a young age and as a very natural part of family life. The parents of the mathematicians and neurologists were interested in intellectual activities, both vocationally and avocationally. This interest permeated family life and many family conversations were of an intellectual nature. These parents held high educational and vocational expectations of their children.

While the introduction to, and early encouragement in a field was provided by parents, Bloom and his associates reported that to develop the talent further required more formal instruction or coaching from someone outside the family. This occurred at varying stages, depending on the particular domain. For example, regular lessons for the pianists began at an average age of six, the swimmers received systematic coaching by an average age of eight, and the mathematicians were introduced to specialist areas of mathematics in junior or senior high school. The initial teachers were generally not highly qualified or experienced but their strength was in making this early learning pleasant and rewarding. They used much positive reinforcement and encouragement but still set standards and expected their charges to make progress. These first teachers regarded most of these young people as fast learners. They were seen as ‘special’ learners and this became a significant source of motivation for these children. Sometimes their development involved participation in public events, such as piano recitals, competitions and mathematics’ contests. For many of these young people, winning, or doing very well, was a major source of reward.

During the early years of talent development, Bloom believed that motivation and effort counted for more than did the particular gifts or special qualities of the child. At this stage, the critical factors in sustaining this motivation and effort were found to be the support and encouragement from home and teachers. By the end of this stage, these children identified more with their area of talent and less with other interests or aspects of school and social life. “They began to become ‘pianists’ and ‘swimmers’ before the age of eleven or twelve, and ‘mathematicians’ before the age of sixteen or seventeen” (Bloom, 1985, p. 518).

The middle stage of talent development was marked by the move to a second, more highly regarded teacher and a lessening of direct input from parents. These second teachers tended to only teach outstanding young people and their expectations were set very high. They were perfectionists, who demanded a commitment to a great deal of practice. Where the expectations in the early years may have come from parents, the new teacher now set these. The parents' role at this point became much more supportive and their involvement was primarily managing, planning, transporting and funding. As the young people became more and more committed to their talent field, they required less and less emotional support from their parents. They tended at this stage to develop friendships with peers involved in the talent field. The young person was expected now to place the development of their talent above all competing activities and interests. During this middle stage of talent development, the typical student was practicing or preparing for approximately 25 hours per week.

At some point during the middle stage of talent development there was recognition by the talented individual, his or her parents, the teacher and other experts, that to develop the talent to the highest level required a master teacher. Master teachers are rare, and these researchers reported that in each field studied that there were only eight to 10 in the United States. These master teachers were very selective but if accepted, a young person knew that he or she had the potential to go far in the field. During these later years, these talented individuals became increasingly responsible for their own motivation.

In most cases, the brothers and sisters of these achievers had been exposed to the same talent area during childhood but very few came close to reaching the level of accomplishment attained by the individual selected for this study. Interestingly, the child who achieved was not always the one who the parents considered the most talented:

Many parents described another one of their children as having more 'natural ability'. The characteristics that distinguished the high achiever in the field from his or her siblings, most parents said, was a willingness to

work and a desire to excel. *Persistence, competitiveness, and eagerness* were the other often-used terms. (Sloane, 1985, p. 473)

Further, this child readily committed to daily practice and seemed to enjoy this, rather than regard it drudgery. According to Bloom and his associates, this child's enthusiasm and willingness to work hard made him or her a pleasure to work with. It was not that this child was necessarily considered more gifted than the other siblings in the family, but he or she was seen as more likely to achieve excellence in the field. However, this child was seen as the one with the greatest potential for success and was given a special status and a special place in the family. The conferring of this position was a gradual and subtle process and included concessions such as exemption from chores. There was, on occasions, an acceptance by the parents that it was impossible to excel at everything and a mediocre standard in other areas was sometimes considered a necessary trade-off. While the parents in this study reported that they tried to distribute their time and attention between their children as equally as possible, this became increasingly difficult.

Bloom and his colleagues presented a fairly well defined template for the development of talent. The process seemed to be deliberate and to large extent planned for, with parents arguably being the most critical factor outside the interests, abilities and personality traits of their children themselves. Bloom stated that without the purposeful step-by-step talent development process, it was unlikely that these individuals would have reached the high levels of talent development reported in their study. However, in some cases chance elements played a part. While parents encouraged the general talent area, the specific talent field chosen was often determined by chance.

Of the 126 included in this study, only a few were regarded by their parents, teachers or experts as child prodigies. Bloom and his colleagues estimated that by the age of 11 or 12 years, no more than 10 percent of the group had developed their talent area to the level that anyone could predict with confidence that they might make the top 25 in a field in their 20's. The main reason that these researchers gave for the difficulty predicting later achievement was because each

phase of learning was so different. Performing well in one phase of the talent development process did necessarily predict doing well at a later phase. Additionally, the motivation required to succeed in an early phase was often quite different to what was needed to sustain commitment to the task when the demands became more complex and difficult.

1.5.1 Conclusion

There were some features of this study that made it unique. First, most participants in this study were relatively young when the research was undertaken. Second, these researchers interviewed the participants' parents, something that would have been difficult if their achievers had been much older. Third, their findings presented talent development as a much more ordered, systematic and predictable process than that reported in many previous studies (e.g., Cox, 1926; Goertzel & Goertzel, 1962). This outcome could be related to the fact that most of those who participated in this study had achieved success in what could be seen as more 'mainstream' disciplines or activities. In addition, although this study was undertaken almost 20 years ago, the participants represented a more recent generation than those included in the previously reviewed studies. It would seem reasonable to suggest that talent development had become much more of a planned and systematic process than it might have been earlier – at least in the fields included in this study. Their findings place more of an emphasis on the environmental factors than they do on personal attributes and abilities, which could also reflect the thinking of the time. However, they also concluded that there was only a small degree of overlap in the conditions required for success in the different fields of endeavour.

1.6 Ludwig: The Price of Greatness

Ludwig's interest in studying eminence was to investigate the link between mental illness and exceptional creative achievement. Over a 10-year period he gathered extensive biographical information on over 1,000 extraordinary individuals who had lived and achieved in the 20th century. The areas of achievement included the arts, the sciences, public office, the military,

exploration, sport, philanthropy, business, and social activism. While Ludwig's primary goal was to look at the 'creativity and madness controversy', as he pointed out in the preface:

It is not possible to look at the connection between creativity and "madness" without delving into many of humanity's greatest achievements, the special attributes of the people responsible for these achievements, the unique circumstances of their lives, and the families that produced them. (Ludwig, 1995, pp, v-vi)

Ludwig began his selection process by examining individuals who were included in the *New York Times*' review of biographies between 1960 and 1990, and narrowed his selection to individuals who had belonged to a Western culture and lived during the 20th century. Using this process, he selected 1004 eminent people, three-quarters male and one-quarter female. His group contained representatives from 25 countries, the large majority of whom were English-speaking.

Ludwig found that the majority of his group came from homes where the fathers were professionals or businessmen. This, he believed, gave them access to financial and cultural resources, which provided them with an advantage, but in addition, they were exposed to a success-oriented value system. He also reported a link between the parents' social status and the career choices of their offspring:

Social figures, famous companions, or public officials, for instance, mostly came from sophisticated, cultured families, which afford them the necessary resources and experiences for fulfilling these roles. Those individuals who enter the professions that require extensive formal training, such as scientists and academicians, come from upper middle-class, professional families. Athletes and musical entertainers, who rely more on natural talent and physical skills than formal education, are more likely to come from less well-to-do families and have unskilled or unsuccessful fathers. (Ludwig, 1995, p. 33)

He reported that parents who were less conforming were much more likely to raise freethinking children, who were more likely to enter less mainstream careers, such as the arts, theatre, or writing. In contrast, the children of more conformist parents were less likely to enter the creative arts and were more likely to follow in their fathers' footsteps. Not only did Ludwig find the parents' own occupations to be influential on their children's choice of careers, parents' interests also played an important role. A parent with creative and aesthetic interests was much more likely to have a child who grew up to be a musical entertainer, poet, composer, artist, actor or architect, than those who did not.

Like other researchers before him, Ludwig was interested in the impact of childhood trauma on later achievement. He found no significant differences in the incidence of parental death between the various categories of eminence he studied. Because his sample included individuals born decades apart, and from many different countries, Ludwig reported that he was unable to determine whether or not the incidence of parental loss was greater for this group than it might have been for a comparable group of less eminent individuals. However, he maintained that across his group there was no evidence for the impact of early parental loss on a lifetime of creative achievement.

What Ludwig did find among his eminent individuals, was an over-representation of first-born children. While birth order did not seem to be associated with a difference in career choices for females, it did for males. Males who were only children were more likely to become actors, non-fiction writers, explorers, and musical performers, while later born children were more likely to become soldiers, public officials, and social activists.

Approximately 10 percent of his eminent persons had a genetic, congenital, or acquired disability. However, without any comparative figures for the incidence of such disabilities in the population generally, he was unable to indicate whether this rate was atypical. The occurrence of a disability differed between careers. For example, 21 percent of natural scientists were reported as having a disability, 15 percent of poets but in the sporting domains it was nonexistent.

Ludwig reported that approximately five percent of his eminent group:

Were described in biographical sources as decidedly ‘odd’, peculiar, weird, offbeat, or eccentric as children, with another 13 percent of them as equivocally so ... Among the various professions, actors, fiction writers, non-fiction writers, and artists (7 to 12%) were more likely than business people, explorers, social figures, or well-known companions (0%) to be thought odd or peculiar. (Ludwig, 1995, p. 48)

He found evidence of early precocity in a specific field in 20 percent of his group. The demonstration of advanced levels of mastery in a field, prior to adolescence, was most often reported for musical composers, followed by musical entertainers, physical scientists and poets. In most cases, these early signs of exceptional ability led to special provisions and support that gave these individuals an advantage for success in their respective fields. What was much more common in this group was a love of reading. Ludwig reported that 37 percent of them loved to read in their childhood. Those most likely to gravitate towards books were those who would become writers.

1.6.1 Conclusion

Although Ludwig’s primary objective in undertaking this study was to explore the link between creativity and madness, his results provide some relevant insights into the development of outstanding performance. Many of his findings resembled those of Goertzel and Goertzel (1962), which is not altogether surprising as both studies used similar approaches to participant selection and information gathering. Like the Goertzels, Ludwig claimed that extraordinary achievements do not arise from emotional contentment. As children, these later achievers were often loners, and as adults they often had an attitude Ludwig described as oppositional in nature. He reported that their parents provided them with optimal resources – not too many and not too few – conducive to the development of a talent.

1.7 Streznewski: Gifted Grownups

This study emerged from the researcher's experiences as a teacher of gifted adolescents, where she became aware of how little seemed to be known about what lay ahead for these young people as they entered adulthood. She was interested in what gifted adults could tell her about the world that awaited her gifted students. Streznewski (1999) interviewed 100 'gifted grownups' from 18 to 90 years of age. The first 40 were selected "by my perception of the personal characteristics I had used to spot gifted students over the years. These were such qualities as mental speed, sophistication of thought processes, sensitivity, drive and a sense of humour" (Streznewski, 1999, p. vii). The remaining 60 were selected as a result of recommendations from professionals.

On the basis of her work with this group of gifted adults, as well as being informed from the students she had taught, Streznewski proposed three main categories of gifted individuals: strivers, superstars and independents. The 'strivers' she described as "high-testing teacher-pleasers." These individuals achieved highly, liked structure and direction and were concerned about doing things right. It was rare, according to Streznewski, to find 'strivers' making creative contributions to science or art. The 'superstars' lived up to Terman's image of the all-American boy and girl. They worked hard and played hard. They nurtured social relationships and were popular with their others, such as peers, colleagues and employees. Whatever field of endeavour they entered they usually found a place near the top. The 'independents' were described by Streznewski (1999) as, "often the least understood but the most accomplished" (p. 8). These individuals worked hard, often brilliantly at what interested them, but ignored what did not. They were driven, according to Streznewski, by inner values rather than external norms or expectations. They did not strive to be popular and rarely became leaders.

Streznewski claimed that these gifted children were very likely to have had gifted parents. These parents had the ability to empathise with their gifted offspring and could help them to work through difficulties that they encountered as part of their giftedness. However, this was not always the case and in some instances a child's

giftedness was neither understood nor accepted by his or her parents. For boys, this lack of understanding and acceptance was sometimes associated with a perception that their interests and abilities were non-masculine and/or impractical. For girls, their intellectual ability may have been viewed as non-feminine. Sometimes, she reported, parents felt threatened by their gifted child's abilities. Mark, one of the participants in Streznewski's study, recounted, "When I was about ten, I remember overhearing my father say, 'That kid thinks I'm stupid. I can't stand having him think I'm dumb!' I guess I had said something pretty precocious." (p. 50). Streznewski believed a supportive family was 'crucial' for a gifted child to reach his or her potential. In her opinion, what made the difference in what parents gave their gifted children was, not so much shared activities but the role modelling of effort and excellence. The key, she concluded, was that parents 'do'; rather than talk about doing.

This study was undertaken in the United States in the latter part of the 20th century and where and when it was common practice to identify children as 'gifted'. Streznewski reported that being labelled as 'gifted' was sometimes problematic:

When parents realise that they have a child with 'it', they may begin to view the child in a kind of separate way, unconsciously treating the child as if he or she is somehow a different type of human being now that a label has been pinned on the child. It seems possible that this, as much as teasing from peers, is the reason some kids hate the term 'gifted'. (Streznewski, 1999, p. 63)

Most of the group Streznewski worked with saw the quality of their school experience as poor. Many of them had serious problems at school and she claimed that, "much of the good work done by parents can be undone by the schools" (Streznewski, 1999, p. 74). She stressed the importance of understanding and supportive teachers in talent development from potential to productivity. The difficulties many of her group experienced at school began early on in their education, where the ways they had been used to operating at home resulted in rejection at school. This is what Streznewski called the *Confusion* stage. One of those interviewed reported that the teachers thought she had a learning disability

because she had difficulty paying attention, “I was just bored, and my mind would wander to more interesting (to me) things” (Streznewski, 1999, p. 76). Another reported his teacher getting annoyed at the questions he kept asking. One person refused to follow a teacher’s instruction to cut the rising and setting sun times from the newspaper, stating, “Once I understood the concept, I saw no point in it” (Streznewski, 1999, p. 76).

The second stage in the schooling experiences of this gifted group was described by Streznewski as *Knowing You Are Different*. She found that the realisation that they were different from their peers occurred at about eight or nine years of age. These gifted adults said that as children they became conscious that what their peers often struggled to understand, they mastered with ease. Often their interests marked them as different from others of their age group. Sometimes it was the hostility of their teachers towards their precocity that set them apart. Streznewski reported that at 12 or 13 years of age the gifted child was likely to feel the school system had let him or her down. It was at this age too, that these children were more likely to have to deal with the negative comments and actions of peers. She found that some children responded to this situation by ‘masking’ their abilities. Others chose to fight back, to challenge teachers and a system that they perceived was unresponsive to their interests, abilities and needs.

At the *Adult Mind, Adolescent Body* stage “modes of conduct have been chosen, survival skills have been carefully honed, and some substantial dues have been paid ... More than ever, an adult mind is operating in an adolescent body, buffeted by adolescent emotions” (Streznewski, 1999, p. 83). Streznewski found that young people at this stage ‘hit the brick wall’. Where these gifted students had previously been able to achieve highly with little effort, the increasing sophistication of material meant more effort was now required.

Finishing school did not necessarily mark the beginning of a stress-free period in the lives of gifted young adults. According to Streznewski, leaving the relative control of family and school to establish their own lives could be quite traumatic for these gifted individuals. Part of this, she believed, was related to the level of emotional intensity characteristic of many gifted individuals. In addition, these

young people entering adulthood “may be a little behind in relationship-building skills so necessary to making wise choices for marriage and family living” (p. 106). University life could be as difficult as school was for some of the gifted. Streznewski found that universities demanded conformity in a manner similar to schools and were intolerant of those who did not fit. Some gifted students found the continuation of ‘lockstep’ learning so intolerable that they dropped out of university and achieved much less than earlier indications of their ability would have predicted. She claimed that for many gifted young people, learning was much more important than a qualification, and if they believed that their learning was being hampered by an ineffectual instructional style, they sometimes left the learning institution.

Streznewski looked at the developmental stages of her group, from early childhood through to adulthood. She concluded that, in many instances, the stages of development were somewhat overridden by a constant drive for growth, which continues throughout life:

These people focused on accomplishing one goal and moving on to another, regardless of any stages. I concluded that gifted grownups experience a constantly repeating cycle of renewal and growth which does not seem to be keyed to any life stage. Indeed, there seems to be a special rhythm to which the gifted life moves, must move, if the adult is to feel fulfilled and contribute to society. (Streznewski, 1999, p. 51)

In employment, Streznewski’s gifted adults exhibited intensity, an insistence on excellence and a “chronic impatience with shoddy work and slow thinkers” (p. 131). Their insistence on high standards for others often attracted resentment. Sometimes their approaches to tasks was very unconventional, something which could irritate co-workers. Their idealism could cause conflict with those in authority. Some had difficulty accepting what they perceived as illogical. However, Streznewski found that a tendency towards heightened sensitivity meant that they could be particularly vulnerable to peer rejection.

This gifted group had constant need for challenge, and boredom and lack of stimulation seemed to be much more intolerable for them than for their less able peers. “If the challenge is simply to survive the day’s aggravations, or to successfully smooth the same waters day after day, then it will not be enough” (Streznewski, 1999, p. 134). The gifted adults who found themselves in unstimulating and unrewarding occupations sometimes became unproductive, and frustrated with the speed with which others processed ideas or made decisions. As one of her group reported:

It’s a fact of being intelligent that you get frustrated with people around you. You’re waiting, and everyone else is discussing and trying to figure things out – the mind wanders. In school, my associates were bright but socially deviant people who were bored by school. Well, in business it’s at least ten times as boring as it is in an educational environment! (Streznewski, 1999, p. 140)

She identified some interesting differences in the career paths between the *independents*, the *strivers* and the *superstars*. The *independent* can be restless and rebellious in work, may change jobs frequently, and never fulfil his or her promise. The exception is the *independent* that is recognised as the ‘resident genius’, and that works in an area where creativity is valued. The *striver* may rise to heights within a particular occupation, only to be displaced by someone younger or more creative. The *superstar* usually continues his or her successful pathway to fame and/or fortune.

Streznewski noted that sometimes the gifted go awry. She provided examples from her study of individuals who used their talents in less acceptable ways. While she offered no empirical evidence to support her claim, she suggested that up to 20 percent of gifted people are imprisoned, a rate four or five times greater than for the population generally. Streznewski posited some possible explanations for deviant behaviour among the gifted. One of these was simply that such actions are the result of some ‘biological defect’ that causes some gifted individuals to be less sensitive to moral issues and less empathetic to others. She suggested that the intelligent individual, who lacks some higher purpose or deep loyalties, may be

more affected by the superficiality of life and turn to antisocial, bizarre, dangerous, even self-destructive exploits to find stimulation in an unfulfilling world. Another explanation she offered was that the gifted lawbreaker does not start out with criminal intent but this becomes an extension of the circumventing of rules and the playing of pranks, behaviours that are characteristic of a divergent thinker. Streznewski proposed the computer hacker fits this description. According to her reasoning, the computer hacker is initially captivated by the challenge of ‘beating the system’, rather than of committing a crime for personal gain or deliberately undermining other people’s efforts. A further explanation for deviance amongst the gifted is connected with the failure of some gifted persons to meet the high expectations held for them. The suggestion made here was that the young person who has failed to live up to expectations of others lacks a sense of identity or belonging and may find this in antisocial activities. She also argued that young people who grow up believing they are ‘special’ may consider that the rules that apply to others do not apply to them.

1.7.1 Conclusion

Although Streznewski’s study can be criticised for a lack of rigour methodologically, most of her ideas have support in other studies. She, like others before her, identified the importance of parental role modelling in the realisation of talent. The categorisation of gifted individuals, while unique to this study, also articulates with other research. Her background as an educator provided a primary motivation for this study and her findings were frequently linked to school experiences. This is yet another study that showed that many gifted individuals struggle within formal schooling. Interestingly, she found that the frustrations with school were sometimes repeated at university, and for some, their workplace experience mirrored the difficulties experienced at school. Streznewski reported significant emotional differences amongst her gifted group. Many talked of feeling different from their peers from a young age.

2. Longitudinal Studies

2.1 Terman: Genetic Studies of Genius

Lewis Terman's longitudinal study of 1528 gifted individuals remains the most comprehensive research study undertaken in the field. Lewis Terman was born in 1877 on a farm in Indiana. After a short period as a school teacher he went to Indiana University, transferring in 1903 to Clark University, where he worked with G. Stanley Hall. It was at Clark that Terman began to explore the literature on the education of gifted students, and his doctoral thesis compared the performance of seven 'bright' and seven 'dull' boys on a 48-hour battery of individual tests. Terman was then drawn to the more favourable environment of California because of his poor health. In 1910 he was appointed to Stanford University's Department of Education, and his first major project there was the construction of an American version of the Binet and Simon intelligence test developed in France in 1908. While undertaking this project, Terman's interest in gifted children was rekindled, and he began to plan for the study that has become known as the Terman Gifted Children Study. His work was published in the five-volume *Genetic Studies of Genius* series (Cox, 1926; Terman, 1925; Terman, Burks & Jensen, 1930; Terman & Oden, 1947, 1959).

Using field workers, Terman began a search of schools in California for students with high IQ scores. His original aim was to include all the children in the top one percent in the three metropolitan areas of San Francisco, Oakland and Los Angeles, but he gave up on this when he realised the cost would make it prohibitive. He settled on including those who could be easily located and his final study group consisted of 1,528 mainly Californian children, primarily from urban schools, with IQs of 135 or greater and with a group average IQ of 147. The average age of his subjects at this stage was 12 years.

In later years this study attracted widespread criticism for the selection procedure and for what is seen as an unrepresentative study group. Terman and his associates screened for high IQ children who had first been nominated by their teachers. Winner (1996) proposed that these teachers probably chose high

achieving, all-round students, while overlooking troublemakers, highly creative children, or those with learning difficulties. She also believed that they probably reflected a social class bias resulting in the selection of a disproportionately high proportion of children from the middle class. Indeed, compared to the population profile of Californian urban centres at that time, Terman's sample included twice as many Jews and fewer African-Americans and Hispanics. There were no Chinese children included, as they were predominantly educated in Asian schools, which were not included in the schools Terman drew his sample from.

The parents of the gifted group, both mothers and fathers, were better educated than the average for their peers. Among the fathers, 29 percent had a bachelor's degree or higher, 23 held PhD's, 47 MD's and 52 law degrees. Among the mothers, 20 percent had a bachelor's degree or higher, four held PhD's, three MD's and one a law degree. Seventeen percent of the mothers were employed, and all living fathers were employed. Fifty percent of the men, and almost the same percentage of the women in employment, were in occupations listed by the U.S. Census as 'professional', 'semi-professional', and 'higher level of business'.

Most of the children came from intact families (i.e., with a father, and a mother, and their child or children living in the same household). Thirty-two percent of this gifted group were the eldest child in the family, 30 percent the youngest, and 21 percent the middle children in a family of three or more. Seventeen percent were only children.

As a group, these children were physically superior to their age peers in almost every respect. Terman's anthropometric measurements demonstrated that these gifted children were, on average, taller and heavier than the average for same-age American children. In comparison to a control group from another state, his subjects had a greater arm span, wider shoulders and hips, and a stronger grip. The medical examinations undertaken by two physicians confirmed these results, with both doctors agreeing that as a group, the gifted children were physiologically superior to other children of a corresponding age.

A similarly positive picture was manifest from an examination of the group's record of health and physical development. The mean birth weight of the group was almost three quarters of a pound above the norm. Interestingly, the proportion of those breast-fed, rather than bottle-fed, was much higher than for the general population, and was appreciably higher for those with IQs above 160. Most mothers reported that the health of their children in the first year of life was excellent or good, with only a little over three percent reporting it as poor. These children walked on average one month before their peers, and talked three and a half months earlier than them. The incidence of contagious diseases among the group was consistent with the rest of the population, with the exception of scarlet fever and diphtheria, where a higher-than-average incidence was reported amongst the gifted. Schools' reports showed that these children suffered headaches significantly less often than their peers, and schools identified symptoms of 'general weakness' 30 percent less frequently for this group than for the control group. According to school reports, the gifted group enjoyed slightly higher standards of nutrition. The incidence of hearing problems and 'nervousness' were lower than for children in the control group, but vision problems amongst the gifted were reported at a rate 25 percent above that of the control group. The gifted group showed some evidence of entering puberty ahead of their age peers.

Class level acceleration was a common practice when Terman began his study (Terman, 1925), and 21 percent of the group had skipped low first grade and 10 percent the entire first grade. Teachers' ratings of school achievement showed that, in general the gifted children were performing to a 'superior' level compared to their classmates. This superiority was greatest in the 'thought' subjects, but was not evident in subjects requiring physical dexterity, strength or agility, such as handwriting, sewing, games or sports. Two and a half times as many gifted children as those in the control group were rated as 'very even' in mental ability, but twice as many of them were rated as 'very uneven' in comparison to the non-gifted group. Most seemed to like school and many fewer children than in the control group were reported by schools to have an undesirable attitude towards school. Tests of achievement administered to the group indicated that they had mastered school curriculum content to an average of 40 percent above their

chronological age. This advanced understanding and achievement was most evident in general knowledge, language and reading.

Nearly half the gifted children could read prior to commencing school and most of these were reported as having learned to read with little or no formal instruction. The parents of almost half the group reported indications of superior ability in arithmetic, approximately one third reported superior ability in music, and a somewhat lower percentage reported advanced ability in drama or drawing or painting. Only eight percent of parents reported that they had not noted any indicators of superior intelligence. For those who had noted superior intelligence in their children, the most common indicators included quick understanding, insatiable curiosity, extensive information, retentive memory, early speech and unusual vocabulary.

Terman and his associates found that, in general, their gifted children were more interested than other children in 'abstract' school subjects, and less interested in more 'practical' subjects. However, as a group they expressed about the same level of interest in games and sports as other children. The subject preferences of the gifted boys and gifted girls were more alike than that of the boys and girls in the control group. However, the subject preferences of the gifted boys more closely resembled those of the boys in the control group than the preferences of the gifted girls to the girls in the control group. Terman concluded, "Gifted children have more enthusiasms than the average child, and their interests appear to be in general no less wholesome" (Terman, 1925, p. 383). The games and past-times the gifted group appeared to prefer were those "that require thinking and that are mildly social and quiet. They show slightly less preference than do the control group for competitive games" (Terman, 1925, p. 437). The gifted children tended to play alone slightly more often than other children and showed more of a preference for older playmates. They also showed much less of a same-sex preference in their choice of playmates than the non-gifted children, with the gifted girls showing far less of a same-sex preference than the boys. Terman reported that his gifted group was more often regarded by other children as 'queer' or 'different', than were the children in his control group.

The data obtained on the reading habits of the gifted group showed a striking difference to those obtained from the control group. Teachers estimated that 88 percent of the gifted children read more than the average child, while none were reported as reading less than the average child. By keeping records of the books read by 511 of the gifted group and 808 children from a control group, Terman and his co-workers found that, on average, the gifted child of seven years of age read more books than for any age group in the control group, up to 15 years of age. The average number of books read for gifted eight and nine year old children was three times that for children of the same age in the control group. The children in the gifted group were reported as reading books on a much wider range of topics than the children from the comparison group. The gifted children displayed a greater preference for science, history, biography, travel, folk tales, informational fiction, poetry and drama, and they read proportionately less adventure or mystery books and far less emotional fiction books than were read by other children.

There was a commonly-held view at the time that gifted individuals developed their intellectual interests at the expense of social and activity interests (Terman, 1925). Using free association tests, Terman assessed the intellectual, social and activity interests of 609 children in his gifted group, and compared the results with the data gathered in the same manner from 609 children in the control group. All children showed a considerable increase of intellectual interest as they grew older, but little increase in social interest and none in activity interest. While boys and girls were similar in their levels of intellectual interest across most ages, the girls surpassed the boys in social interest, and the boys surpassed the girls in activity interest. The mean level of intellectual interest in the gifted group exceeded the mean of the control group by almost one- and a-half times. Put another way, 90 percent of the gifted group exceeded the average for the control group in intellectual interest. The gifted group demonstrated a higher average score than the control group in social interest, although, while still considered by Terman to be a 'decisive' superiority, the difference was somewhat less than for intellectual interest. No difference was found between the two groups with respect to activity interest.

Using a battery of fairly recently developed character and personality tests, Terman attempted to compare the gifted group to other children across what he saw as important character traits. These tests purported to provide an objective measure of qualities such as trustworthiness, social attitudes and moral stability, and to assess levels of psychological and emotional stability. Terman reported that the mean scores obtained by the gifted on all the tests, across all age groups, placed them at a level significantly higher than those in the control group. The gifted child of nine years, had, according to these results, reached a level of character development approximating that of an average 14 year old. Teachers and parents of almost 600 of the gifted group were asked to rate them on 25 character traits, which fell into seven groups: intellectual, volitional, emotional, moral, social, physical and special ability traits. The teachers of a control group of more than 500 children were asked to rate that group in the same way. Terman reported that there was 'striking agreement' between the parents and the teachers with respect to the traits in which the gifted excel. Their superiority to the control group was evident across all areas, with the exception of mechanical ingenuity, where the control group was rated higher than the gifted group. Parents rated the gifted group slightly higher on average than did teachers. Both parents and teachers rated gifted girls higher than gifted boys on the majority of traits.

Terman and his team conducted the initial investigation during 1921 and 1922. Two years later the first follow-up study was undertaken. Parents and teachers were asked to complete a survey form and provide data relating to factors such as health, school progress and social development. By this stage more than 82 percent of Terman's gifted group had been accelerated at school, and no child had been held back. Interestingly, the group of gifted children that teachers identified in the original investigation as most deserving of acceleration, had not been accelerated in the subsequent two year period any more frequently than other children in the gifted group. Teachers reported higher levels of achievement for those children who had been accelerated than for those who had not. The information provided by teachers showed no evidence of a relationship between school progress and social adaptability. However, those who had been highly accelerated were more often rated as below average in social adaptability.

There was evidence of an increase in the range and intensity of interests of the gifted children over the two-year period since the researchers had had contact with them. The boys showed gains in scientific-type pursuits, while the girls increased their interest in literary and domestic areas. However, it was rare for this growth in general interests to be at the expense of their social development, and there was a reported increase in sociability for the group as a whole. The feedback on the development of other character traits showed that 'gains' were reported nearly four times as frequently as 'losses'.

The first comprehensive follow-up study was conducted in 1928, when three quarters of the subjects were in high school. From that year on the group were revisited by researchers at approximately five yearly intervals through until 1986. In 1928, field workers interviewed about three quarters of the subjects and obtained information on their educational status, changes to families, personal health, personality development and any significant events that could be influential in the future. Additional information was derived from questionnaires completed by parents and teachers.

Terman was interested in the stability of IQ over time and retested his group using the Stanford-Binet test. He reported no greater change in the IQ levels in the gifted group than what would be expected in the general population.

The gifted group continued to demonstrate superior academic achievement. The mean rating by teachers on academic achievement was almost the same as those previously obtained. The group as a whole, revealed similar profiles of subject strengths and weaknesses as was evident in the 1921-22 survey. Eighty five percent of the boys and 78 percent of the girls had attended university, or expressed their intention to do so upon graduating from high school. Overall, they appeared to have retained a positive attitude towards their schooling, although there was a decrease in the percentage reported by their schools as displaying 'desirable' attitudes.

Their earlier overall superiority as a group continued to be reported in adulthood and Oden (1968, p. 50) wrote, “All the evidence indicates that with a few exceptions the superior child becomes the adult.”

2.1.1 Conclusion

Terman’s study has been extremely influential, especially in the areas of intelligence and giftedness. The legacy of Terman’s study, “has been a lasting and seemingly immutable tie between the concept of general intelligence ability, as measured by intelligence tests, and the concept of giftedness, at least in research and practice, during most of the 20th century” (Callahan, 2000, p. 160). As Callahan also reported, the aspects of the intellectual, physical, behavioural, and moral that Terman reported as characteristic of the gifted, are still the most commonly cited defining traits found in textbooks and articles on gifted children. However, as was noted previously, Terman’s methodology and in particular his selection procedures have been extensively criticised and it has been widely contended that his research looked only at one type of giftedness. Davis and Rimm (1998) believed caution should be exercised in generalising Terman’s too widely, and stated that it is unlikely that his findings would apply to the artistically or creatively gifted, to bright underachievers or to intelligent students who are rebellious or non-compliant. More recent critics (e.g., Gardner, 1997; Simonton, 1994) are not convinced that the accomplishments of Terman’s adults were sufficiently outstanding to support his overall thesis that gifted children become gifted adults. Two future Nobel Prize winners, Luis Alvarez and William B. Shockley, were excluded from the Terman study because their IQ scores were not high enough. These two achieved a level of eminence beyond any individual included in Terman’s study, clearly illustrating the limitations of IQ scores as a predictor of extraordinary achievement.

2.2 Arnold: The Illinois Valedictorian Project

This project began with the identification of 83 valedictorians that graduated in 1981 from schools throughout Illinois in the United States. A valedictorian, like the school dux in British systems, is a school’s most academically outstanding

student. Arnold and her colleagues followed this group of valedictorians through university and into early careers, observing “the change and continuity of individual and group values, accomplishments, personality, and aspirations” (Arnold, 1995, p. 25).

The valedictorians participated in five or six interviews and completed questionnaires in 1981, 1984, 1985, and 1988. The first interview focused on school and family experiences. Later interviews dealt with university life, relationships and then marriage and parenthood.

The occupational backgrounds of the valedictorians’ parents were diverse, ranging from unskilled labourers to business owners and professionals. Most of this group grew up in ‘stable’ two-parent families. Only three students grew up in single-parent homes of divorced parents, a much lower percentage, according to Arnold (1995), than for their age peers generally. In every case, one or both parents were extremely influential in a valedictorian achieving academic success. Their families communicated and modelled a work ethic and placed a high value on doing one’s best. Arnold reported that the valedictorians adopted their parents’ values as their own, and generally enjoyed the approval of their parents. High achievement was reinforced and praised, although rarely with tangible rewards. The valedictorians’ parents expected hard work and good grades and closely monitored their children’s school achievement. However, the families varied in the extent to which they could be directly involved in their children’s academic activities. Sometimes, said Arnold, the children ‘internalised’ their parents’ expectations to a much higher level than what the parents actually held for them.

In the main, the valedictorians identified themselves as top students long before high school; most by the middle of elementary school and nearly all by middle school. As academic achievers they excelled in classroom tasks. These young people explained their success at school, “partly because they were intelligent, partly because they were schoolwise, and mostly because they worked hard, persisted, and drove to achieve” (Arnold, 1995, p. 17). Most of them attributed much of their success to hard work and they readily made sacrifices for academic attainment. Even when the topics or classes were not interesting, stimulating or

challenging, these high achievers maintained their commitment to achievement generally, it appeared, sustained by the potential reward of a high mark. The valedictorians believed that they were not naturally intelligent and that their successes were more the result of effort. However, while not dismissing their dedication to working to achieve highly, Arnold believed that they tended to significantly underestimate their natural ability. According to Arnold (1995, p. 29), “Most are highly intelligent by any measure”.

Almost every one in the group could identify a high school teacher who was an important influence. The valedictorians valued their academic reputation with important teachers and strove to please them. These teachers helped their students develop an interest in a subject and derive pleasure from intellectual challenge.

While pleasing parents and teachers was important to their achievement-orientation, doing well academically helped establish a personal identity as a top achiever. The valedictorians were labelled as top achievers and they said that there was a general expectation from their peers that they would achieve high grades. These students reported that such a reputation was more positive than negative and that the pressures of living up to these expectations were less than the pleasure of being regarded as a ‘star’. They seemed to thrive on competition, but for most, winning and impressing others was only part of what motivated them. Most enjoyed the contest, arguably because they were successful competitors, and academic rivalry was part of their social group experience.

Arnold found that all of them enjoyed school and that school was at the centre of their lives. They also endorsed the education system and were generally uncritical of schooling and the structure of achievement in society generally. Most of the group could be considered ‘all-rounders’ and did not fit the socially backward or exceptionally studious gifted stereotype, and the strong work ethic that they applied to academic pursuits was also a feature of their approach to extra curricular activities. However, non-academic activities were always secondary in importance to academic pursuits. These top students “were much less likely than high school students in general to drink alcohol and almost no valedictorians experimented with marijuana or other drugs in high school” (Arnold, 1995, p. 33).

Many held deep religious beliefs that had the effect of keeping them away from non-scholastic distractions. In senior high school, a third reported that religion was a central part of their lives, and only 10 of the 82 participants reported that religion was not a factor in their lives. Their social groups tended to be other high achieving students, those who were in honours classes, advanced placement classes, or who opted into electives such as foreign languages, music, science or mathematics.

At the university stage, Arnold categorised the valedictorians into one of four groups: 'careerists', 'intellectuals', 'strivers' and 'unconnected students'. The careerists' motivation for attending university was largely vocational. These young people had a utilitarian view of university and were interested in acquiring a 'practical' education. The intellectuals on the other hand, followed personal interests, and their choices at university had little to do with preparing for a job. The strivers tried to blend both, seeking courses and programmes that were intrinsically motivating but also career-relevant. The unconnected students tended to lack a focus on either and were likely to have difficulty making academic or career choices, felt out of place at university, or held competing interests to university.

The careerists generally came from families where one or both parents were careerists. These parents espoused the value of a practical education. The careerists in this study tended to be satisfied with their university experience. They seldom changed their initial subject choice and in fact only a small minority had changed their occupational choices in the 10 years following graduation. As adults, Arnold (1995, p. 80) reported that, "careerists remain responsible, hard working, and self-sufficient. They are indeed the most predictably solid achievers among the Illinois valedictorians."

The students classified as intellectuals were more likely to have come from families with highly educated, non-technical, professional fathers. These students achieved the highest grades of any of the four groups. One explanation offered by Arnold for the readiness of some students to pursue personal interests over career

preparation, was that these students were more likely to be come from privileged backgrounds and were thus less concerned about future financial security.

The strivers had a commitment to vocational preparation and liberal arts learning. This group were as likely as the careerists to stay with their original career focus throughout university, although they were more open to career change after graduating. A number of this group completed double majors, the first major with a career orientation and the second in a pure liberal arts subject. In adult life achieving 'balance' seemed an important goal of this group.

The unconnected students included those who had difficulty settling on an academic or career path or felt alienated from university life. For others, personal problems distracted them from academic pursuits. Some of this group indicated that never really wanted to attend university and others had strong interests outside the academic. In this project there were far more unconnected female than male students. Some of these young women had little interest in intellectual pursuits. Arnold found that they were more focused on a future family life that did not involve them in a career, and thus they lacked the incentive to pursue vocationally-oriented programmes.

How successful were these valedictorians beyond school overall? As Arnold pointed out, that is very much determined by how success is defined. As a group, they certainly maintained educational success in the 14 years after completing high school. All 82 entered university from high school and 77 completed a first degree. Three out of four won academic awards or honours, many did research as undergraduates and several were teaching assistants. Forty-six earned degrees beyond the bachelors and one in three completed a doctorate, or a medical or a law degree. Arnold (1995, p. 47) concluded, "The record is clear; nothing succeeds like success and there is no predictor of academic success better than a history of academic success."

The professions the valedictorians pursued were in high status occupations, including medicine, law, science, academia, architecture and business. However, others became successful teachers, therapists, nurses and managers. Not all

enjoyed a 'successful' career path, with one 'chronically unemployed', another reporting an inability to hold down a steady job, and 10 in non-professional jobs not requiring a degree. For some, Arnold reported, the choice of a non-professional career was deliberate, allowing them to concentrate on community service, art, or family.

In general, their reported levels of life satisfaction were high, with nearly 90 percent consistently reporting that they were happy with their lives. As might be expected, the levels of reported happiness varied over time. When the early aspirations of the valedictorians were followed up on, it was found that most achieved their personal ambitions. While in the majority of cases their aspirations remained consistent over time, this was truer of the men than the women in the group. One third of those who achieved their aspirations reported not being happy in their work, and a third had lowered their aspirations. The remainder increased their aspirations.

Over time, most shifted their primary focus on a career to a balance between work and family. Nearly all saw their ideal life as a combination of fulfilling work and significant personal relationships. As high school students, they placed a high value on being financially comfortable, rather than being financially rich. Their early focus was in fulfilling the American dream and before the age of 20 their ambitions were dominated by "material security and interesting, prestigious jobs" (Arnold, 1995, p. 63). Forty-two of the group saw God and as a central part of their lives, and the outworking of their faith as a primary goal.

As Arnold (1995) pointed out, there were significant differences between her group and the 'eminent' achievers profiled by the likes of Bloom (1985), Goertzel and Goertzel (1962) and Feldman and Goldsmith (1986). The eminent achiever likely develops a passion for a single domain sometime in childhood or adolescence, focuses on this area rather than develops multiple interests, and this early interest "evolves into a lifelong, intensive, even obsessive involvement in a talent area" (Arnold, 1995, p. 161). Arnold found that her group used their abilities in multiple areas and not one was "obsessed with a single talent area to which he or she subordinated school and social involvement" (p. 161). They

tended to reflect the values of their families and were motivated to obtain secure and financially rewarding employment. A very small number of valedictorians' subject choice at university reflected a childhood interest and where this did occur, it was most common among the 'intellectual' group. It was this group, Arnold maintained, who were the most likely to achieve extraordinarily in their chosen careers.

2.2.1 Conclusion

The profiles of the individuals in this group resembled the gifted group in the Terman study, and not surprisingly, therefore, the results of the two studies are quite similar. Betts and Neihart (1988) refer to students such as these valedictorians as 'the successful gifted'. They are popular with peers and teachers and work hard. Their abilities are recognised and reinforced by the school system and they achieve highly within it. These students interests and abilities generally represent a very compatible match with the values and approaches of most schools. As adults they constitute the pillars of society, making a significant contribution but rarely an outstanding one. They could be seen as imitators rather than innovators, more comfortable with reproducing the existing social order than transforming it. As Arnold concluded, these students, identified by their schools as their best and brightest, were very well-equipped to 'run' the world, but few appeared likely to 'change' it.

2.3 Freeman: Gifted Children Grown Up

English psychologist and academic Joan Freeman undertook this longitudinal study in the United Kingdom from 1974 to 2001. In the preface to *Gifted Children Grown Up*, Freeman (2001) stated that the aim of this study was to find out what it was like to grow up gifted and to explore how exceptional abilities developed. She was particularly interested in the social and emotional development of gifted individuals and how this might impact on their achievements later in life.

Her study involved 70 gifted children aged between five and 14 years, whose parents belonged to the National Association for Gifted Children (NAGC, UK).

All these children had been assessed and labelled as 'gifted'. She then selected two control groups, each of 70 children. Each child in the gifted group was matched to a child in each of the control groups, by age, gender, socio-economic status and school class. The first control group (Control-1) was also ability-matched with the gifted group, but the parents of this control group did not belong to NAGC and nor had the children been labelled as gifted. The children in the second control group (Control-2) were matched to the gifted group on the other dimensions but not on ability. Freeman maintained that, because the three matched children were in the same school class (at least for part of this study) she would be able to see more clearly the impact influences other than school.

The parents of the gifted group were reported as having a distinctly different profile to the parents in the control groups. Although the mothers across all three groups had received similar levels of education, the 'gifted' group's mothers had reached higher occupational levels. These mothers took greater responsibility for their children's education than did the fathers. The parents of the 'gifted' group were aware of putting more 'educational' pressure on their children than did parents in either of the two control groups.

In this study, the higher the parents' occupational group, the higher their child's IQ. There was a similar relationship between the parents' level of education and the child's IQ. The higher the parents' occupational group and the higher their educational level, the more pressure they were likely to exert on their offspring to be academically successful. According to Freeman, more often than not the children delivered on their parents' expectations. However, the young people with the higher IQs were even harder on themselves than were their parents, and were more likely than those with lower IQs to describe themselves as lazy.

The gifted group parents tended to make more complaints about school (23 percent), compared to Control-1 parents (16 percent) and Control-2 parents (8 percent). The children in the gifted children were much more frequently described by their parents and teachers as difficult and were reported as markedly over-active in school. This group was reported as having much higher levels of

maladjustment and far fewer friends. They were also much more likely to suffer from conditions such as poor sleep, poor coordination and asthma.

Freeman concluded that IQ alone was not directly associated with some of the problems commonly thought to be characteristic of giftedness. The critical factor, she claimed, was the label of giftedness. She reported that the gifted group “had significantly more unusual home circumstances” (Freeman, 2001, p. 18). Freeman cited factors such as parental separation, frequent shifts of location, the gifted child being born after its siblings had grown up, and parents living out their dreams in their children, as some of the factors that caused her to conclude that the homes of these children were significantly more unusual. She believed that these parents were prone to ascribe the emotional problems that resulted from such homes as symptoms of giftedness. Many of these parents, she said, held the view that gifted children were bound to be ‘odd’ and unhappy. The children labelled as gifted were much more likely to be boys than girls (a ratio of two to one). The emotional difficulties the gifted children experienced seemed to affect their school performance and their marks were generally lower than those in Control-1. Those in the gifted group were also more likely to have been accelerated to a higher class level.

The brighter children across all three groups tended to be more advanced in talking, reading and writing. As they got older they were more avid readers than other children in the study. They were better able to concentrate and memorise, and had a wider range of interests.

In 1984, ten years after the study began, Freeman made contact with her original research group (see Freeman, 1991), and then again 17 years later in 2001 (see Freeman, 2001). She remained convinced that being labelled as ‘gifted’ at a young age had a profound influence over an individual’s development. These young people, she suggested, grow up with the notion that their self-worth is dependent on being brilliant. She labelled this group ‘career gifteds’. She claimed

that these career gifteds, both children and adults:

Often ‘dine out on it’, informing the world both of how difficult it is for them as gifted people, and how tiresome they find it having to cope with normal (mediocre) people ... ‘Career gifteds’ normally work very hard, achieve superbly and accept their laurels with a smile, but some insist that if it were not for ... insert excuse ... they would show their true and brilliant colours. (Freeman, 2001, p. 27)

Freeman proposed that these individuals present as confident but behind this façade is a fear of, “being a nobody, of being undeserving of attention, of appearing unworthy to oneself and others and of being exposed as fraudulently gifted” (Freeman, 2001, p. 27). She categorised some entire families as career gifted.

Amongst her group were young people who experienced difficulties because their abilities developed unevenly; what Freeman referred to as ‘lopsided gifts’. This asynchrony occurred in two ways. First, a child’s intellectual ability may be far in advance of his or her emotional development. A highly perceptive child may pick up cues, identify issues and interpret events in a way that is more characteristic of a much older person. However, lacking the emotional maturity to handle such insights can lead to stress and anxiety. Second, a gifted child may be outstanding in one area only, and his or her ability in other areas may be much less advanced, and sometimes even average or below average. This lack of harmony across domains can also cause problems for the growing child.

Some of Freeman’s group failed to maintain their levels of earlier achievement because their “progress had been impeded by the circumstances of their lives” (Freeman, 2001, p. 41). Freeman reported that for some children this was due to the fact that their parents were not able to provide what the children needed. What she identified as the critical deficit in many homes where giftedness was not

nurtured was a lack of breadth and flexibility in their use of language:

For them communication is more practical, sufficient for everyday needs and feelings, but not enough for problem-solving and creativity. Where intellectual stimulation of the young child has a low priority, his or her curiosity is less likely to be appreciated, and spending time reading books and thinking can be unacceptable behaviour. (Freeman, 2001, p. 41)

Poverty presented a disabling factor in the development of abilities for other children in this study, according to Freeman. She provided examples of young people enduring unhealthy living conditions and poor diet, which led to sickness and impacted on school performance.

At all stages of this study the group who were in the top one percent of the IQ range said that they felt different. Generally, the special abilities that made them feel different were a source of pride, and considered a blessing and not a curse. The parents of these students reported that the awareness of being different started at a very young age. There were a small number of this group though, for whom being different was not positive. This was generally because they felt different for another reason as well, and according to Freeman it was the compounding effect of being different in an additional area or areas that was the critical difference between a positive and negative outcome.

Freeman contended that the majority of the gifted young people in her study enjoyed perfectly 'normal' relationships and developed friendships with their own and the opposite gender. Success in this area, she proposed, was very much determined by how a person saw his or her exceptionality. Where their giftedness resulted in feelings of superiority, there was often an associated lack of respect for others of lesser ability and a consequent difficulty developing meaningful relationships with individuals other than their intellectual peers. Only eight of the gifted group felt their giftedness was a significant barrier to developing and maintaining friendships, and of this group all but one were male. Any interpersonal struggles experienced by the young people in the gifted group persisted over time and Freeman expressed pessimism about an improvement to

this situation. She found that there was a tendency for those who had difficulties socially to immerse themselves in scholarly pursuits to avoid having to cultivate and maintain close relationships.

Exceptional emotional sensitivity was found to be very common in the gifted group. These children were more likely to take modest criticism to heart. Their ability to see life through another's eyes was observed to be well in advance of their age peers. A direct relationship was reported between the level of IQ and the level of emotional sensitivity, with those with the highest IQs demonstrating the highest levels of sensitivity. Some of these individuals saw their exceptional sensitivity as a difficult trait to cope with.

As Freeman noted, the literature often reports that the intellectually gifted are bored at school because the speed of the teaching is much slower than the speed at which they learn. However, in this study, the complaints about boredom at school seemed to be made more frequently by parents talking about their children's schooling experience. As these gifted students grew older, the complaints of boredom decreased. Freeman claimed that there was no evidence that the gifted were any more or less bored than other children of the same age. However, more of them expressed feeling 'let down' at the completion of a project. Freeman maintained though, that the vacuum left at the point of completion often "masqueraded as boredom" (Freeman, 2001, p. 67). Such expressions of boredom were frequently associated with holidays and weekends or upon the completion of examinations.

The students in Freeman's study with the highest IQs were more likely to attend more 'selective' single-sex schools, while those with lowest IQs were more likely to go to mixed-ability comprehensive schools. The majority of those in the selective schools won scholarships to attend, although their parents funded some students' places. A small group of parents had moved house so that their children could attend free selective grammar schools. Generally, the gifted students in these schools preferred to be taught in classes based on ability. Any preference for mixed-ability instruction tended to be in subject areas that were not examinable. A sizeable minority, mainly males, seemed to thrive on pressure and competition.

However, many gifted students felt uninspired by the subjects they studied, demonstrated little intrinsic motivation for their school work, and put their efforts into doing well on examinations. Some were critical of boring teaching methods that required them to assimilate without question large amounts of information, and then reproduce it on demand. On occasions, an enthusiastic teacher would inspire a student, but such occurrences seemed rare.

From a young age, many of the high achievers in Freeman's group were described by their parents as competitive, not only comparing themselves to others but comparing their own performances over time. Even at this early stage, those with higher IQs aspired to higher status occupations. Freeman reported that for these individuals, "their combination of high ability, motivation to succeed, and capacity for hard work, proved an excellent recipe for success in reaching their goals" (Freeman, 2001, p. 87).

Freeman subdivided her gifted group on the basis of whether they drew their greatest pleasure from academic or creative activities. The greater proportion (41) fell into the first category, and she labelled this group 'achievers'. The second much smaller group (11) was labelled 'creatives'. There was little difference in the IQ levels of both groups. Most of the achievers (93 percent) were males and most of the creatives (73 percent) were females. The creatives tended to take a wider range of school subjects than the achievers, but they were much less successful in the grades they achieved. The achievers came from families that encouraged them in their school work, but were less supportive of creative pursuits. The creative were much more likely to be unhappy at school and many more creatives experienced serious problems as a result. The homes of the creatives were more likely to contain a wider range of books and there was a most significant difference in their attitudes towards music. In addition, the homes of the creatives preferred what Freeman calls 'much more serious' levels of music, and the family was much more likely to listen to music, rather than use it as background. Using a test of emotional adjustment Freeman found that the achievers were much more troubled with emotional and relationship problems and had much higher levels of hostility. They reported experiencing depression much more frequently than the creatives, and had more difficulty with friendships. Sixty

three percent of the achievers saw their giftedness as a social handicap, compared with nine percent of the creatives.

Some of the gifted group found entering university life a stressful experience. Freeman said that, rather than being the source of difficulties, this transition merely brought long-standing emotional problems to the fore. This was much more common among those who had been labelled as gifted early on in their childhood. Some of this group had been under pressure for many years to make it to university. Having reached that goal, there were now very real feelings of 'let-down'. Some were fearful that they would not be able to maintain the impetus that had seen them get that far, knowing that they were now amongst a much more select group where the competition would be considerably more intense. Most were looking forward to the opportunity provided at university to work with one's intellectual peers. For some, however, the reality was much less positive and after years of schooling, where many occupied the top place in a hierarchy of achievement, acceptance now of a lowlier place tended to affect levels of confidence.

This study found some significant differences between gifted males and gifted females. For example, over 30 percent of the boys, compared to only five percent of the girls, derived their greatest satisfaction from achievement. The boys explained their successes in terms of ability and hard work, while the girls frequently ascribed it to 'luck'. However, the girls took ownership of their failures or shortcomings. For many of the girls being gifted was a potential threat to the image of their femininity. A greater proportion of the gifted boys went on to university, whereas the girls often settled for colleges and polytechnics. Every girl in this study who went on to university had attended an all-girls' school for most of her school life.

While the parents of these children believed boys and girls should have equal opportunities, they still tended to hold more traditional views when it came to subject choices. Freeman simply stated it as, "science for the boys and art for the girls". In reality, three times as many boys as girls specialised in science, and

more than twice as many girls as boys in the arts. Parents were much keener to have their daughters than their sons learn music.

Freeman believed very few of her group who were accelerated at school gained any advantage. A frequently cited reason to accelerate gifted students is the need to alleviate the boredom of having to engage with an age-based curriculum. The students in Freeman's group who were not accelerated were no more bored than those who were. In fact, she proposed that those who remained with same-age peers in mixed ability settings were far more involved in non-academic activities and 'seemed happier'. Nor does she report any academic gains from acceleration, and even goes so far as to suggest the practice may have contributed to a lowered performance in some children. Many of those who had been accelerated reported that being young for their class presented them with difficulties that impacted on their wellbeing generally. Freeman posited that promoting gifted students out of their age group "did not appear to be the best for almost all the gifted young people in this sample. It should be restricted to the physically fit and the emotionally stable, and even then, only as a last resort" (Freeman, 2001, p. 192).

In examining the home circumstances of the children in her study, Freeman concluded that there were two distinct factors that made a difference in fostering talent development: parental involvement and provision for learning. While acknowledging there is no single approach to encouraging the development of outstanding ability, the quality of the parent-child interaction was critical. She stated:

It was example rather than expectations that made all the difference: the way parents conducted their own lives proved to be a very powerful way of teaching their children ... The parents who had the most positive effects on their children's high level development were not those who told their children what to do, but who did it with them. (Freeman, 2001, p. 198)

The more successful gifted children enjoyed a harmony between school and home, with both places supporting, encouraging and valuing their abilities. The less successful gifted students did not enjoy that harmony, often experiencing a

mismatch between their interests and needs and what the school offered. Success was found to be very dependent on motivation and task commitment. The students who were highly motivated and goal directed were pursuing areas that they were interested and able in, and there was a good match between what schools valued and what these students saw as worthy of striving for.

Freeman concluded that, “the most pervasive social influences on an individual’s education is family outlook” and “although this applies to all children, its effect on the gifted can be different and more powerful because the stakes are much higher” (Freeman, 2001, p. 164). In the United Kingdom, she argued, social mores clearly affect people’s lives, and unwritten social rules can radically change the life chances and progress of young people. These life chances are less about money, according to Freeman, and more about people’s ideas about themselves; their self-concepts. Being gifted sometimes resulted in a child changing schools and having to adjust to mixing with a different social group. Sometimes this occurred when a child won a scholarship from a local primary school to a more selective, private secondary school, or later gaining entry into a prestigious university. While most made the transition successfully, a number felt so unaccepted and so out-of-place, that their academic performance suffered dramatically. On the other hand, some never had the opportunity to learn at a more selective institution. Freeman claimed that at least six highly gifted young people in her group failed to win places at private and selective schools because of their social status.

2.3.1 Conclusion

As the greater majority of the longitudinal studies in this field have been undertaken in the United States, this United Kingdom research is important to include as it presents findings and perspectives from a different national context. While many of Freeman’s findings are paralleled in other research in this area, a number are unique to this study. For example, the experiences associated with acceleration reported on in this study, are in direct contrast to the results of studies that were undertaken in the United States (e.g., Brody & Benbow, 1987; Daurio,

1979; Stanley, 1979; Swiatek & Benbow, 1991). This study is also unique in drawing attention to the constraints that social class can exert on realising potential. However, Freeman's findings on the role of parents and the experiences of the gifted at school resonate with numerous other studies of gifted individuals.

Freeman was convinced that labelling young children as 'gifted' was the cause of ongoing problems. However, this causal relationship between early labelling and later difficulties appears just a little too simplistic and Freeman appeared to ignore another very tenable explanation. The parents of young people labelled as gifted were members of NAGC, an organisation that offers support for gifted children and their families. A fairly logical question to ask is: what motivates parents to join NAGC in the first instance? It could be argued that these parents are seeking solutions to behaviours in their children that they are finding difficult to understand or manage. Another possibility is that they themselves have a high level of concern about a potential prodigy in their family, a level or intensity of concern that may be atypical and in some instances even unhealthy. In seeking assistance with these or other issues or problems, these parents join an organisation that results in the ascription of the label 'gifted'. The label is arguably not the problem (although labelling could exacerbate it). The issue, problem or concern, is what led to the labelling.

2. 4 Gottfried, Gottfried, Bathurst and Guerin: The Fullerton Longitudinal Study

The Fullerton Longitudinal (FLS) (Gottfried, Gottfried, Bathurst & Guerin, 1994) began in 1979. This study involved 130 one year-old children and their families. The participants were recruited from hospital birth notifications in the area around California State University, Fullerton. At eight years of age a sub-group of gifted children was selected. To be classified as gifted, a child had to have a Full Scale IQ score of 130 or more from the WISC-R. Of the 107 children still in the study at this stage, 20 met the criteria for inclusion in the gifted group. The average IQ for this group was 137.8, with scores ranging from 130 – 145.

While the FLS has limited relevance to this context, in that it traces the development of gifted individuals from birth to middle childhood and the focus of this study is on a much longer developmental period, it is worthy of inclusion for two main reasons. First, this was a unique longitudinal study because it started when the participants were only one year old. Second, this study was also methodologically unique, in that it sought to minimise any possible bias in the participant selection process, and to study gifted children without ascribing the ‘gifted’ label to them. The initial selection process was not on the basis of intellectual ability. A large sample of one-year-olds and their families was recruited and studied intensively for some years. Over that time it became apparent that some children were performing at a high level. Giftedness, according to these researchers, emerged at different times. By eight years of age 20 of the group of 107 had been classified as gifted. Only at this point did the researchers look back on the material collected over the previous seven years to see if any discernible differences existed between the gifted and non-gifted groups.

Many longitudinal studies in this area involve a selection process that sees the study group labelled as gifted. The impact of such an ascription is impossible to isolate. One can only imagine, for example, the different attitudes teachers may have towards children in their classes who have been selected for a research study on the basis of their exceptional abilities. The researchers associated with the FLS tested the cognitive abilities of the children in their study group, and from that identified a gifted sub-group. However, neither the teacher nor the parents were informed of a child’s designation.

The researchers had used a battery of tests to assess intellectual performance, and had administered these at six monthly intervals from one to eight years of age. When they analysed the results across the two groups, it was found that the gifted group scored significantly higher from 18 months to eight years of age. Not only did the gifted group score higher on generalised high intelligence, the researchers reported that they “are cognitively well-rounded [and] cognitively adept. The gifted group was significantly elevated above their peers on all cognitive skills,

certainly by preschool, and through the school-entry years. We anticipate that these findings will be maintained thereafter as well” (Gottfried et al., 1994, p. 77).

Mothers had been asked to appraise their children’s development at six-monthly intervals from one to three and a half years of age. This assessment involved them rating their children’s function compared to other children of the same age in four areas: intelligence and verbal, social, and motor development. Apart from motor development, the parents of the gifted group rated their children as functioning at higher developmental levels, suggesting parents of gifted children were generally aware of their children’s relative developmental position compared to their age-peers. The early advancement in verbal skills in the gifted group confirmed the findings of numerous other studies.

A number of measures were used to assess the educational performance of both groups, including tests of achievement and parent and teacher progress reports. The academic achievement for the gifted group was found to be significantly higher than that of the non-gifted group. This was consistent over time, across subject areas and assessment measures. The gifted children were viewed by their teachers as harder working, able to learn more and better behaved. The gifted children showed evidence of being more intrinsically motivated towards academic pursuits, and seemed to enjoy learning more. They rated higher on orientation towards mastery, curiosity, persistence, task endogeny, challenge and novelty. From infancy, these children showed higher levels of goal directedness, object orientation and attention span.

This group of gifted children was found to be comparable to their non-gifted age peers in behavioural adjustment. Their social behaviour was also found to match that of their peers. Where the two groups did differ was in the area of social reasoning, where the gifted group produced a greater number of solutions to hypothetical social dilemmas than the non-gifted group. Gottfried et al. (1994) found that, while the two groups were similar in assessment of social behaviour, the social capability and social cognition of the gifted group was at a higher level than the non-gifted group.

Probably the most significant differences between the gifted and non-gifted children were found in their family backgrounds. “The evidence is overwhelming that gifted children compared to non-gifted children receive more enriched environments during the early years ... What is exciting about our results is that these differences are found years before children are identified as gifted” (Gottfried et al., 1994, p. 167). These researchers maintained that the gifted group enjoyed a more enriched cognitive environment than their non-gifted peers. The parents of the gifted children were reported as much more involved, more responsive, and more nurturing of their children’s academic pursuits. They generally held higher educational aspirations for their offspring. The gifted children also influenced the environmental stimulation provided by parents. As a group, these children placed more demands on parents for stimulation.

Overall the gifted children came from families of higher socio-economic status and had parents who were better educated. First-born children dominated the gifted group. On average, the fathers of the children in the gifted group were a few years older than the fathers of children in the non-gifted group. Gottfried et al. (1994) found little difference between the two groups in the fathers’ and mothers’ occupational status, mothers’ intelligence, age of the mothers, experience of divorce, or the number of adults and children living in the home.

2.4.1 Conclusion

These researchers proposed that motivation is an integral part of and not a catalyst for, giftedness. Further, they suggested that approaches to identifying gifted children should include behaviours such as goal orientation, persistence, and enthusiasm and enjoyment of learning. This research found that the home environments of the gifted were more cognitively enriched than those of the non-gifted group. However, unlike most other researchers, Gottfried et al. (1994) pointed to the bidirectional nature of environmental stimulation. In this study, they reported that the gifted children not only were exposed to a more cognitively enriched environment, they made greater demand on their parents to provide this. The picture painted by these researchers of the gifted child within the family was a very positive one and Gottfried et al. (1994) noted the similarity of their findings

to those of Terman's study. This is not altogether surprising, as both studies took a similar approach to defining the concept of giftedness.

3. Comparing the two Methodologies

A detailed discussion of some of the trends, issues and dilemmas emerging from the literature is contained in the next chapter. In this section the two main approaches to studying talent development are contrasted and compared.

One of the first differences that becomes apparent in reviewing the literature in this field is that many, and possibly even the majority of the participants selected using one methodological approach, would not meet the criteria for inclusion in a study using the other approach. Of the individuals selected as young gifted children for inclusion in any of the longitudinal studies reviewed in this chapter, only a small minority would have at a later stage, met the criteria for inclusion in any of the major retrospective studies of gifted adults reviewed. The best example of this is Terman's group, where Simonton (1994), having reviewed their performance as adults, concluded that few of the 1528 would qualify as eminent.

The opposite also seems to be the case, where only a minority of gifted adults were recognised as gifted children, and certainly many would not have met the criteria for participant inclusion in the studies of gifted children reviewed in this chapter. Terman's gifted children study provided an actual example of this occurring, where two future Nobel Prize winners were excluded from participation because their IQ scores as children were too low. Ludwig (1995) reported that only 20 percent of the 1000 'greats' he studied demonstrated early precocity, and the majority of this group were talented in music. Bloom (1985) found that, by the age of 11 or 12, no more than 10 percent of his group provided any evidence of their real potential. A much larger group of gifted adults may have demonstrated the potential for great achievement as children but not in ways or in areas recognised or valued by their schools or teachers. Most longitudinal research involving gifted children has used IQ tests scores to select the group of participants, and many later-to-be luminaries would have scored at levels below that set for inclusion. It is clear that IQ tests measure a very specific type of

ability, and some have argued not the type of ability necessary for creative achievement. For example, Torrance (1962) stated that when intelligence tests are used to identify the gifted, almost 70 percent of the most creative students are eliminated.

A difference also exists between the two studies in terms of the rarity of the phenomenon being investigated. The level of eminence needed to be included in some of the retrospective studies is considerably more extraordinary than achieving an IQ score in the gifted range. An IQ of 130, considered by many to be the threshold for giftedness, occurs at a ratio of about 1 in 100. The level of eminence required to be included in most retrospective studies is much less frequent phenomenon than this. For example, to be part of Bloom's (1985) study, an individual had to occupy a rank of 25th place or higher in their talent field in the United States. Galton's eminence ratio was one in 4,000.

The retrospective studies reviewed here, consistent with others in this field, included a much wider range of human endeavours than did the longitudinal studies. In most retrospective studies the development of abilities across numerous domains can be investigated. Many of these areas of adult achievement are much more difficult to track from a young age. Longitudinal studies of talent development rely upon tools to predict later accomplishment, and in many areas, for example creativity and leadership, eminence is very difficult to predict. As well as including a diversity of achievement areas, retrospective studies can include high achievers across a much greater time span, and some studies, such as those of Cox (1926) and Goertzel and Goertzel (1962), included eminent individuals who achieved prominence in different centuries. It is generally easier and more practically possible using a retrospective approach, to include participants from a much wider geographical area and from a more diverse range of cultural and national groups.

Given that the differences between the approaches result in two quite different research groups, is it even valid to synthesise across the two? While it is apparent that there are differences between achieving a high level of success and achieving

eminence, there are also many parallels. In addition, each approach serves to illuminate the other.

Chapter 3

Trends, Issues and Dilemmas

In this chapter the main findings from the literature are synthesised. This synthesis includes the identification and discussion of trends, an examination of some of the significant disparities in the findings, and consideration of a number of relevant issues and dilemmas. The focus here is on aspects of the research that articulate with this present study.

1. Issues of Definition

One of the most significant issues impacting on a reviewer's ability to make comparisons between the studies in this area is the wide range of interpretations used to define exceptional ability. This variation is well illustrated in the array of terms used in this field, which include gifted, talented, gifted and talented, genius, precocious, prodigious, eminent, intelligent, creative, great, and more. Often different labels are used to describe the same group within a single study.

The 'gifted' label is most often ascribed to very able children and young people, even though some commentators see the term as not appropriate to use with this group. Tannenbaum (2003) considered giftedness a mature concept, and said that, except in the rare cases of child prodigies, children never attain being gifted by adult standards. They may be more advanced in learning and creativity than their age peers, and show promise of excelling in a field, but they are not gifted. Many studies of gifted children have defined giftedness in terms of a score on an intelligence test. Psychologists such as Lewis Terman (1925) and Leta Stetter Hollingworth (1926) identified as 'geniuses', those children who obtained very high scores on these tests. The level at which genius is determined varies from researcher to researcher but generally it ranges from between IQ 130 and IQ 140 and above. While the term genius is often used to describe highly precocious children, amongst studies of outstanding ability the term is used more frequently to describe exceptionally talented adults.

According to Terman and Hollingworth giftedness and genius could be explained in quantitative terms, and divisions between the non-gifted, the gifted and geniuses are the difference between two points on an IQ scale. Gross (2000) used IQ scores to distinguish between mild, moderate, high, exceptional, and profound giftedness. Her 'highly' gifted group have IQ scores between 145 and 159 (1:1000 – 1:10,000), the 'exceptionally' gifted fall between 150 and 160 (1:10,000 – 1:1 million), and the profoundly gifted are those with IQ scores of 180 or more (< 1:1 million). One has to question the validity of this approach, in view of the fact the IQ scores are not absolutely stable, and will vary from test to test, and over time. Given that one IQ point can represent a different classification, using this approach, a person could conceivably be gifted one day, but not the next, or eligible for genius status at one point in time but not at another. In this quantitative approach to exceptional ability, differences can be diagrammatically represented using a continuum. On an ability continuum, most people would probably position the 'talented' ahead of the average or even the above average, but behind the 'gifted'; and the 'gifted' would be usually be seen as inferior in status to the 'geniuses'. While talent may be seen as reasonably common, giftedness is perceived as relatively rare, and genius as unique.

McAlpine (2004) referred to these IQ-based, quantitative definitions as 'conservative' definitions, and reported that these see only a small proportion of the population categorised as gifted - usually one to three percent. The qualitative or what he termed 'liberal' definitions, are much more inclusive, with the gifted making up five to 15 percent of the population. He noted that over the past few decades, schools have adopted much more liberal approaches to defining giftedness.

From their research, Sternberg and Zhang (1995) proposed an 'implicit' or 'lay' theory of giftedness. They referred to this model as *The Pentagonal Implicit Theory of Giftedness*. (This approach is part of the methodology of this study and is more fully discussed in Chapter 5). These writers say that to be judged as gifted a person must meet the criteria of *excellence, rarity, productivity, demonstrability* and *value*.

The word 'genius' can be traced to Roman times, where it referred to a guardian spirit charged with responsibility for providing for the uniqueness of an entity (Simonton, 1999a). More recently it has been used to describe individuals with special ability that goes well beyond the norm. Kac (1985) described two levels of genius:

In science, as well as in other fields of human endeavour, there are two kinds of geniuses: the "ordinary" and the "magicians". An ordinary genius is a fellow that you and I would be just as good as, if we were only many times better. There is no mystery as to how his mind works. Once we understand what he has done, we feel certain that we, too, could have done it. It is different with the magicians. They are, to use mathematical jargon, in the orthogonal complement of where we are and the working of their minds is for all intents and purposes incomprehensible. Even after we understand what they have done, the process by which they have done it is completely dark. They seldom, if ever, have students because they cannot be emulated and it must be terribly frustrating for a brilliant young mind to cope with the mysterious ways in which the magician's mind works. (Kac, 1985, 121)

Howe, in his book *Genius Explained* (Howe, 1999), stated that genius appears to be a mystery and immune to scientific analysis. Consistent with many other writers, Howe maintained that genius is different to the expertise gained through training and practice but is rather "a quality that is bestowed from above on particular individuals who are chosen to receive it" (Howe, 1999, p. 1).

Bloom (2002), in a recent study of one hundred exemplary creative minds, regarded it in a similar way:

We do not know how and/or why genius is possible, only that – to our massive enrichment – it has existed, and perhaps (waningly) continues to appear. Though our academic institutions abound in impostors who proclaim genius is a capitalistic myth, I am content to cite Leon Trotsky, who urged communists to read and study Dante. If genius is a mystery of

the capacious consciousness, what is least mysterious about it is an intimate connection with personality rather than with character. Dante's personality is forbidding, Shakespeare's elusive, while Jesus' (like the fictive Hamlet's) seems to reveal itself differently to every reader or auditor. (Bloom, 2002, p. 5)

Pinker (1997, p. 360) said, "creative geniuses are distinguished not only by their extraordinary works but by their extraordinary ways of working; they are not supposed to think like you and me." Jensen (1996), in reviewing the literature on geniuses, concluded that the label 'psychoticism' could capture many of the personality traits associated with genius. Jensen also believed that giftedness and genius are very different phenomena and not simply different points on a continuum. He saw giftedness as more about general 'ability', whereas genius involves actual achievement and creativity.

However, while recognising that the essence of genius may be qualitative in nature, many of those who have studied this phenomenon have sought to quantify achievement to ascertain who is sufficiently eminent to deserve the title of genius. As noted previously, Galton reported the incidence of genius in the general population at 1 in 400,000. To Galton, genius was synonymous with enduring reputation.

The opinion of contemporaries, revised by posterity – the favourable result of a critical analysis of each man's character by a number of biographers ... I speak of the reputation of a leader of opinion, of an originator, of a man to whom the world deliberately acknowledges itself largely indebted. (Galton, 1869, p. 77)

Following on from Galton, many other researchers have taken a similar approach and used some measure of eminence to determine genius. For example, Cattell (1903) measured the space allotted to eminent individuals in six dictionaries or encyclopaedias and Sorokin (1937) obtained experts' ratings of 2000 philosophers. Farnsworth (1969) questioned members of the American Musical Society to rank 100 classical composers. Simonton (1990) investigated the level

of consensus of experts' rankings across a number of fields and reported that, "So long as the sample of historical figures is sufficiently inclusive as to incorporate a heterogeneous pool of claimants ... multiple indicators with a variety of operational definitions all converge on a conspicuous consensus" (Simonton, 1990, p. 608). In a summary of numerous studies looking at the levels of agreement of different rankings of achievement, Eysenck (1995) stated that, "Eminence, as judged by reputation, is a good guide to genius in all the disciplines and specialities where tests have been carried out" (p. 36).

As noted earlier, there appears to be a general perception that talent is an ability that is slightly inferior to giftedness. Winner (1996) noted that talent is sometimes used to denote ability in a specific area, whereas giftedness is used to refer to general ability. Few of those who write and research about gifted children distinguish between 'gifted' and 'talented'. It has to be assumed most view the terms as synonymous. However, Gagné (2003) believed that these two concepts can be separated and he linked giftedness to "the possession and use of untrained and spontaneously expressed natural abilities" (p. 60) and talent to "the superior mastery of systematically developed abilities (or skills) and knowledge ... that places an individual among the top ten percent of age peers who are or have been active in that field or fields" (p. 3). This is a distinction between aptitude and potential. Gagné (2003) proposed four aptitude domains: intellectual, creative, socio-affective and sensorimotor. According to this model, talents progressively emerge from the transformation of high aptitudes into specific skills through systematic training. The talent fields are as diverse as the domains of human endeavour, and Gagné contended that there is no bilateral relationship between gifted domains and talent fields. To him, talent was a developmental construct and the process of talent development concerned "transforming specific natural abilities into the skills that define competence or expertise in a given occupational field" (Gagné, 2003, p. 63).

Overall, there is a decided lack of consistency in the way groups of high achievers are described or defined. The term gifted and talented appears to be the most popular way of describing very able young people, and is rarely used to describe outstanding adults. The term gifted is applied to both children and adults. The

label genius is occasionally ascribed to children but reserved for the most prodigious. Genius is more often used to describe the very highest level of human endeavour achieved by adults, as judged by their peers. Of course, eminence is almost entirely the preserve of outstanding adults, and sometimes, but not always, viewed as synonymous with or an indicator of, genius.

2. Intelligence

Ascertaining the relationship between intelligence and achievement is anything but a straightforward task. A general lack of agreement as to what constitutes intelligence and how it might be measured is at the forefront of the complications that characterise this search. Many of the early studies of high achievement relied on scores from intelligence tests to make judgements about individuals' levels of real intelligence. As Sternberg (2000) pointed out, it is not totally clear what intelligence tests actually measure but the definitions of intelligence associated with these tests are very conservative. Nor do these tests inter-correlate perfectly.

Sternberg (2000) maintained, however, that notwithstanding all the issues associated with defining and assessing intellect and achievement, there are still adequate reasons for concluding that intelligence is directly related to outstanding achievement. In fact, he further stated that the relationship between intelligence and achievement has been understated rather than overstated. Galton would have agreed, and believed variation in natural ability to be the underlying cause of achieved eminence. Galton sought to 'test' natural ability and his assessment focused on faculties such as sensory acuity, reaction time and strength of grip. As Simonton (1994) commented, while Galton's measures were reasonably reliable, they were totally lacking in validity. Today's intelligence tests are extremely reliable. "Few psychological instruments are as reliable as the best IQ tests. We can measure intelligence with less error than we can assess an individual's motives, values, or attitudes" (Simonton, 1994, p. 220). Intelligence testing has been the target of an ongoing barrage of criticisms, many of which have focused on issues of validity. In fact, intelligence testing has been compared to the Rock of Gibraltar, which has continuously been attacked by the tides, has been the subject of dispute between rival interest groups, and has for a long time been

predicted to disappear in the near future, and yet still enjoys a prosperous existence (Weinert & Hány, 2000).

A casual inspection of numerous studies that propose a the link between IQ and academic success, and IQ and occupational success, would almost certainly lead one to conclude that intelligence tests indeed have high predictive validity. For example, Simonton (1994), drawing on data from a number of studies, proposed the IQ levels necessary for particular attainments. For example:

- 111 The average score for high school graduates
- 116 The average intelligence for those in professional occupations
- 121 The average score for college graduates
- 132 The average score for most PhD recipients

Simonton also presented IQ levels by occupation and suggested that those in the professions have IQ scores about 20 points higher than those of blue-collar workers. He then drew the conclusion that a lawyer, engineer, scientist, or scholar, is much more likely to make a contribution of great significance than is a truck driver, cleaner, or caretaker. In other words, a high IQ may gain you entry into a profession where, if excellence is achieved, there is a much higher likelihood that it will be acclaimed than a similar level of performance in a less prestigious position. Another consideration is the different demands of different occupations on intellectual ability. While a street cleaner may have an IQ score of 135, the demands of the job are unlikely to come close to requiring the full extent of this person's intellectual capacity. However, the same is unlikely to be the case for a person of a similar IQ, employed as a lawyer.

Most studies of the relationship between intelligence and success focus on more general indicators of achievement, such as income, performance ratings and citations (Simonton, 1994). Is there a clear relationship between IQ and achievement when the focus is on outstanding achievement, rather than on more modest occupational success? Terman's group would seem a good place to test this notion. His group of 1,528 children with an average IQ of 151 were revisited

35 years after the study commenced, when most were in their mid 40s (see Terman & Oden, 1959). Terman was in no doubt that his group had delivered on their early promise, and this follow-up study details the group's accomplishments, which do, indeed, appear impressive. For example, 70 had earned listings in *American Men of Science*, three were elected to the National Academy of Sciences, 13 were professors, eight were business executives, and three were diplomats. Ten more appeared in *Directory of American Scholars*, and 31 were listed in *Who's Who in America*. Of the rest, one was an internationally known scientist and another was a distinguished literary scholar who was the vice-chancellor at one of the country's largest universities. A third, with a doctorate in theology, was the president of a small denominational college. His group also included a famous oceanographer, the dean of a leading medical school, and an internationally known physiologist who directed an internationally known laboratory. Collectively, they had published nearly 2000 scientific and technical papers and articles, 60 books and monographs, 33 novels, 375 short stories, novelettes, and plays, and 265 articles on a variety of subjects. Between them they had been granted at least 230 patents. However, as noted previously, Simonton (1994) has revisited the achievements of this group and suggests that the accomplishments are not as spectacular as they may first appear. He concluded that, "a formidable IQ promises nothing, and a sub-genius IQ is still an exploitable resource" (p. 223).

Jensen (1996) maintained that, while individual differences in ability may be normally distributed, the same is not true of 'countable units of achievement', which have a very positively skewed distribution, sometimes referred to as the J-curve. This phenomenon is consistent with a multiplicative model of achievement, where "exceptional achievement is a multiplicative function of a number of different traits, each of which may be normally distributed, but which in combination are so synergistic as to skew the resulting distribution of achievement" (Jensen, 1996, p. 408). Simonton (1994) concurred, and suggested that achievement is likely a function of many factors operating *in conjunction*, and as such, the chain may only be as strong as the weakest link. Cox's work reviewed earlier provides a good example of this principle. Cox (1926) concluded "that high but not the highest intelligence, combined with the greatest degree of

persistence, will achieve greater eminence than the highest degree of intelligence with somewhat less persistence” (p. 187). Galton (1869) offered a similar explanation, maintaining that natural ability consisted of determination and zeal together with intellectual capacity.

In this model, a low IQ is unlikely to be compensated for by high levels of drive, determination or dedication. As Simonton (1994) put it, “... an extremely low IQ exerts a kind of veto power over achievement” (p. 232). As IQ increases, high achievement becomes contingent upon other factors, and if any of these factors is limited, achievement will be similarly limited. While a high IQ does not guarantee success, there is substantial evidence that the highest levels of eminence are limited to those with the most impressive levels of intelligence. Simonton (1994) reported that as levels of intelligence increase, so too does the likelihood of outstanding achievement. However, he argued that there is a ‘threshold’, a point beyond which there is no direct relationship between the two. In other words, there appears to be an optimal level of intellectual ability for exceptional accomplishment, and beyond this point any additional ability may in fact work against achieving great things. The limitations of a very high IQ are in a large part linked to difficulties in communicating with those of lesser abilities (Simonton, 1994). While this may be an issue in terms of leadership of people, it could be argued that the need to communicate with and be understood by the masses is less of an issue in other areas of human endeavour. This may explain why the highly creative in Cox’s study had higher IQs than those who were leaders. The physicist, the poet and the composer have to worry much less about being understood by others than does the politician.

The previous ideas concerning the relationship between intelligence and achievement are very much based on the notion that intelligence is a single, measurable, and largely innate capacity. The notion of a ‘general intelligence’ has its roots in the work of Charles Spearman. Spearman found correlations across several measures of sensory-discrimination ability and assumed there had to be a general intellectual ability that accounted for this (Spearman, 1904). He called this *g* for general intelligence. Thurstone (1938) was one of the first to challenge this view of intelligence and proposed that intellect could be broken down into a

number of primary abilities, including memory, inductive reasoning, verbal comprehension and perceptual speed. Guilford (1967) proposed 120 separate cognitive faculties. Gardner (1983) suggested eight different intelligences: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and naturalist. Sternberg (1985) proposed three: academic, creative and practical.

To what extent do these competing views of intelligence undermine the premise that intelligence and attainment are very closely connected? Simonton (1994) argued that principle still stands, even if intelligence is viewed as having multiple manifestations. He maintained that many studies on achievement focus on the very skills that are assessed by ‘good’ IQ tests and that performance on IQ tests “seems to predict a wide range of activities in domains of creativity or leadership – as long as the domains require the skills that these tests measure” (Simonton, 1994, p. 238). In fact, he argued that theories of multiple intelligences sit very comfortably with a multiplicative model of achievement.

3. Creativity

Many writers maintain that creativity is the primary characteristic of those whose accomplishments ‘make a difference’ yet, as Boden (1991, p.1) pointed out, “Creativity is itself a mystery, for there is something paradoxical about it, something which makes it difficult to see how it even happens. How it happens is indeed puzzling, but that it happens at all is mysterious.” However, the attempts to explain creativity are numerous and cover the range of theories about human behaviour, from the biological to the behavioural, from the psychoanalytic to the cognitive.

Gardner (1993) defined the creative individual as “a person who regularly solves problems, fashions products, or defines new questions in a domain in a way that is initially considered novel but that ultimately becomes accepted in a particular cultural setting” (p. 35). In his book *Creating Minds*, Gardner profiled seven creative ‘modern masters’: Einstein, Freud, Picasso, Stravinsky, Eliot, Graham and Gandhi. At the end of the book he presented *A Portrait of the Exemplary*

Creator, where he brought together findings from all seven to offer, “impressions about which findings are likely to qualify ultimately as reliable generalisations” (p. 360). This portrait is consistent with much of the literature reporting on exceptional creativity over the lifespan.

Gardner’s exemplary creator (E.C.), cast by him as female, is brought up in a community somewhat removed from the centres of power and influence, although not so distant that she and her family are unaware of the significant events of the society to which they belong. The family is neither rich nor poor but comfortable for the young creator. She often feels somewhat estranged from her biological family and she is more likely to develop a close relationship with a nanny, a nursemaid or a more distant relative.

While her family is not highly educated, they value learning and achievement and they hold high expectations for its members. They value hard work and as E.C.’s areas of strength emerge, usually at a young age, they encourage her interests, although their career aspirations for her may be quite conservative. The family values respectability and there is an emphasis on moral behaviour, and sometimes adherence to religious beliefs. E.C. develops a keen conscience, which influences her own actions and against which she may judge others. The creator may, for a period of time, align herself to particular religious beliefs, which are then rejected but which may be revisited later in life.

By the time E.C. reaches adolescence, she has spent 10 years pursuing mastery of her domain of ability and occupies a position near the forefront of the field. As an adolescent or young adult she moves to the city that is seen as the centre of activities in her area of expertise. She quickly aligns herself with like-minded peers, who stimulate each other to move to greater heights. In time, E.C. will discover a problem area or area of special interest, which has the potential to move the field into new areas. Now E.C. becomes isolated from her peers and works almost entirely on her own. During this period she identifies a need for cognitive and affective support, and without this she is at risk of experiencing some kind of breakdown. The breakthrough comes and E.C. is acknowledged, and there follows a dedication to work where she makes tremendous demands on

herself and on others. Her efforts are characterised by energy and commitment and a second breakthrough, less spectacular than the first, occurs about a decade after the previous one. As E.C. ages, she is committed to retaining her creativity, which may see her become more ‘marginal’ or “heighten the ante of asynchrony to maintain freshness and to secure the flow that accompanies great challenges and exciting discoveries” (Gardner, 1993, p. 362).

Gardner concluded that, although his creators differed in terms of their dominant intelligences and also in the breadth and combination of their intelligences, each exhibited distinctive intellectual strengths. In terms of personality, he reported that they were self-confident, alert, unconventional, hardworking, and committed obsessively to their work. Social life or hobbies hardly featured.

Gardner found that the childhood households of these seven were generally strict, and emphasised a ‘Protestant ethic’, which encouraged discipline and dedication. In time, these creative individuals rebelled against this control. However, while the homes were strict and conservative, Gardner (1993, p. 368) said that, “hints were given, either inside or around the home, that it was permissible to strike out at one’s own, so long as one gave a good account of oneself.”

A theme that pervaded Gardner’s work was that of marginality. Some were made marginal by birth (e.g., Einstein and Freud born as Jews in German-speaking countries), others through where they went to live, either by choice or necessity. Gardner reported that each:

Used his or her marginality as leverage in work. Not only did they exploit their marginality in what they worked on and how they worked on it; more important, whenever they risked becoming members of “the establishment”, they would again shift course to attain at least intellectual marginality. (Gardner, 1993, p. 368)

In a later book, *Intelligence Reframed*, Gardner (1999) identified the following factors as those he considered predisposed some people to becoming aspiring creators:

- Early exposure to other people who are comfortable with taking chances and who do not easily admit failure
- The opportunity to excel in at least one pursuit when young
- Sufficient discipline so that a domain can more or less be mastered in youth
- An environment that constantly stretches the young person, so that triumph remains within grasp without being too easily achieved
- Peers who are willing to experiment and who are not deterred by failure
- Late birth order or an unusual family configuration that encourages or at least tolerates rebellion
- Some kind of physical, psychic, or social obstacle or anomaly that makes a person marginal within his or her group. (Gardner, 1999, p. 121)

Simonton (1999b) has used historiometric inquiry to investigate outstanding creativity, claiming that this approach has the advantage of examining creative development across the lifespan. He identified the following six developmental variables that he claimed characterise highly creative individuals:

1. Birth Order. However, the link between birth position and achievement is dependent on the domain of creativity. First-borns tend to be overrepresented in the more 'mainstream' areas, while later-borns are more often found amongst in the more radical, fringe and revolutionary areas.
2. Intellectual Precocity. There seems to be evidence pointing to a relationship between intelligence and creativity, with many highly creative adults showing intellectual precocity as children.
3. Childhood Trauma. A number of investigations have found a connection between early traumatic events, such as loss of a parent or parents, and creative expression.
4. Family Backgrounds. There is a tendency for creative achievers to come from home environments that could be considered

marginalised.

5. Education and Special Training. There is also a tendency for creative adults to have received their education and/or training in environments outside the mainstream.
6. Role Models and Mentors. The influence of role models and mentors can be very significant in the development of creative talent, although the influence may not always be encouraging of growth. The most positive benefits seem to occur when the emerging creative achiever is exposed to a large number of diverse models and mentors.

Defining and assessing creativity is arguably even more problematic than defining and assessing intelligence. In the context of outstanding achievement creativity seems to be viewed in three ways. The first is that creativity is a prerequisite to and a hallmark of outstanding achievement. Whether in mathematics or painting, leadership or dance, musical composition or political revolution, this view holds that those who achieve greatness must have brought a creative dimension to the field. Many studies in talent development are based on this notion. In the field of gifted children, Joseph Renzulli has been extremely influential and his model of giftedness has been widely accepted and adopted by educators. His definition sees creativity, along with task commitment and above average ability, as the elements that comprise giftedness (Renzulli, 1986). However, some would argue that it is a better model of adult giftedness than giftedness in children, and it is interesting to note that Renzulli developed his model from a study of high achieving adults. This view would seem to suggest it is pointless attempting to identify a group of creative achievers amongst those who perform to the highest level, because by definition, they all fit this category. The difficulty with this rationale is that, even a cursory examination of the literature in this field demonstrates that across many aspects of development, those who are involved in what are commonly seen as the more creative domains, such as art, music and writing, do seem to form a relatively homogeneous sub-group.

The second approach proposes that there are domains of human endeavour that are essentially creative in nature, and others that are not, or are much less so.

Studies that take this position, either by design or default, often separate the creative enterprises from the non- or less creative, the former tending to include writers, artists, musicians, sculptors, dancers and the like; those who may be involved in what are often collectively referred to as ‘the arts’. This position is of course problematic, as such an assumption can, for example, denigrate the creativity of mathematicians while elevating the creativity of the concert pianist. Yet there could be no dispute that history’s greatest mathematicians have brought an enormous amount of creative thinking to their work, while some concert pianists are charged with bringing very limited creativity to what they do.

The third and most logical position is that a significant degree of creativity is involved in most, if not all accomplishments that leave their mark, but in some of these accomplishments creativity of thought and action is more central to their production. Of course it could be argued though that it is less about degrees of creativity and the difference is the nature of the creativity required for different activities.

4. Birth Order

In 1874 Galton surveyed 200 notable English scientists and one of his findings was that firstborns were disproportionately represented among this group (Galton, 1874). Since Galton, other investigators have identified a similar birth-order effect (e.g., Cox, 1926; Goertzel & Goertzel, 1962; Gottfried, et al., 1994; Ludwig, 1995; Roe, 1952; Terman & Oden, 1947). One explanation for this phenomenon is related to intelligence and achievement. If, as has been suggested previously, there is a relationship between intelligence and achievement, and if levels of intelligence vary according to birth order, this could account for a birth order effect on achievement. A Dutch study involving 400,000 participants demonstrated a decline in intelligence from first-borns to last-borns (Belmont & Marolla, 1973). This trend was said to be independent of family size and socio-economic class. A study in the United States of 800,000 students who sat the National Merit Scholarship Qualifying Test confirmed the findings from the study undertaken in the Netherlands, with a steady decline in IQ performance from first-born to last-born children (Breland, 1974). Simonton (1994) reported that first-

borns are also overrepresented among child prodigies. He maintained that, “primogeniture implies intellectual superiority” and that first borns are conspicuous among the notables because, “they have brains on their side” (Simonton, 1994, p. 147).

There may be some other advantages long-term to being the first-born in a family. Zajonc (1986) proposed the *confluence model*, where the ordinal position of a child dictates the level of intellectual stimulation that can be accessed. The first-born child is exposed to the ‘mature’ interactions of two adults, but the quality of this interaction is ‘watered down’ as subsequent siblings arrive and the home environment is increasingly influenced by the less mature activities of older siblings. This model explains the success of two groups of later-born siblings, namely, those who lost an older sibling early in their childhood, and those with a large age gap between them and their older siblings. However, as Simonton (1994) pointed out, there are some problems with this explanation. First, it does not explain why last-born children are also overrepresented amongst high achievers. Second, there are domains where a high level of intelligence is not a significant factor in success, yet where first-borns as a group maintain superiority over later-borns.

Alfred Adler provided an interesting explanation for the overachievement of first-borns. To Adler (1938), social interactions in early childhood were very significant in shaping an individual’s personality. Adler maintained that first-born children never get over the birth of other siblings and when a brother or sister enters the family the first-born becomes a *dethroned king*. From that moment on, this child is driven by the desire to regain his or her former preferential position and does this by continuous attempts to win parental affection. From an Adlerian perspective, this drive to win approval sets the first-born on a path towards high achievement. However, while this theory may have some currency in explaining the achievement of first-borns, the reasoning would be somewhat weakened if ‘only’ children achieved to a similar level of adult success to the first-born in families of two or more children. Interestingly, there do seem to be some patterns of difference between the achievements of first-born and only children. For example, very few United States’ presidents have been only children, yet many

have been first-born children, while a number of vice-presidents have been only children (Simonton, 1994).

Adlerian psychology also offers an explanation for the achievements of later-born children. While the first-born may resent the attention and affection given to his or her younger brother/s or sister/s, the later-born siblings envy the special status of the first-born and consequently rebel against all that the eldest sibling represents. The further away a sibling is from the first-born, the greater the intensity of this resentment and rebellion (Simonton, 1994). This also may explain why later born siblings achieve lower scores of ability and achievement. It may be less a reflection of their intelligence and more a reflection of their disdain for authority and conformity (Simonton, 1994). It is certainly true that many later-borns can be found among the more Bohemian personalities, the artistically creative, the political revolutionaries, and the leaders of religious movements (Simonton, 1994).

Another theoretical explanation for this birth order effect centres on intrauterine or congenital factors (e.g., Adams, 1972; Ernst & Angst, 1983). There is a suggestion that first-borns may be exposed to a richer uterine environment. First-borns could be exposed to more trauma and injury during labour and delivery than later-borns, and this may result in parents being more protective and indulgent and thus restricting the development of independence and autonomy.

There are also powerful historical, cultural and economic factors associated with birth order. Primogeniture is of significance from who gets to sit on the throne, to who inherits the family business. In many cultures, at least historically, the first-born male of a family has had birthright advantages and opportunities later-born siblings rarely receive.

5 . Early Adversity

A number of the studies reviewed in the previous chapter reported a high incidence of childhood adversity among eminent individuals. The most common adversity faced by these children was the loss of a parent or parents. The most

comprehensive study in this area was undertaken by Eisenstadt (1978) who examined the lives of 573 eminent individuals and found that 25 percent lost a parent before 10 years of age; 35 percent before 15 years; and 45 percent before 20 years. By the age of 10, three percent had lost both parents and by 15 years of age this had doubled to six percent. Eisenstadt compared these figures with census data, studies of juvenile delinquents and psychiatric patients, and reported that the incidence of parental loss in the eminent group far exceeded the other comparison groups. The explanations for this are diverse and far from conclusive. One notion is that loss of a father (most of the focus in the literature is on boys' loss of fathers) causes disruption to gender identification. One notion is that the male fails to identify fully as a male and, "the outcome could be an androgynous and even slightly feminine male, a type of personality that may be conducive to creativity" (Simonton, 1999a, p. 29). Martindale (1972) claimed that more than half of recognised male poets exhibit traits generally considered 'female'. Another proposition is that the absence of a strong male role model may produce resentment and insecurity, and the child may overcompensate with more extreme masculine behaviour.

This higher incidence of parental loss is possibly more to do with the age at which these parents have children than any other factors. Simonton (1999a) proposed that the parents of outstanding achievers are themselves likely to be intelligent, better educated, and successful individuals. Those who pursue higher education and who then seek to become 'established' in a career, typically start a family at a later stage in life. Their offspring, therefore, have parents who are older, and given that most of the research reporting higher levels of parental death among the eminent come from retrospective studies, sometimes going back some centuries when life expectancy was much shorter, these children were of course at greater risk of losing one or both parents. The success of the children could have been erroneously linked to parental loss, when it was possibly more the result of inherited intellectual superiority.

Simonton (1994, p. 30) concluded that, "The incidence of orphanhood among geniuses, although surpassing chance expectation, is far too small to be the principal contributor to fame." Ludwig (1995) was skeptical about the impact of

parental loss and, based on the findings from his study stated,

Early deaths of parents affect children in different ways and show that the common assumption that the loss of a parent at an early age has lasting adverse effects on most youths is fallacious, especially when the context within which the loss occurs is not considered ... I found no evidence either for the impact of early parental loss on lifetime creative achievement. (Ludwig, 1995, p. 40)

Adversity of course comes in different forms and Simonton (1994, p. 156) suggested that, “traumatic events can provide alternative ways of producing the robust personality. Maybe a parent was an alcoholic, or a favourite sibling was killed, or a household suffered economic ups and downs ... Illegitimacy may also factor.” The adversity may be more direct, and physical and sensory disabilities, and ill health, appear to characterise the lives of a disproportionately high number of gifted individuals. For example, Goertzel et al. (1978) reported that among their eminent group, about 10 percent had genetic, congenital, or acquired disabilities during childhood.

Numerous explanations have been offered to explain the relationship between early adversity and later achievement but Simonton (1999a) suggested that the following three are the most prominent. The first hypothesis proposes that the trauma of loss produces a *bereavement syndrome*, where achievement serves as emotional compensation. The second contends that adverse events contribute to the development of a *robust personality* that will overcome obstacles and frustrations that stand in the way of achievement. The third explanation is that adversity and trauma results in *divergent development*, where the young person is thrust along a developmental pathway that he or she might never have taken under more ‘favourable’ circumstances.

6. Family Background

Most researchers investigating talent development have concluded that the family plays one of the most important roles in this process. Exactly how the family may

influence achievement as easy to discern. Many scholars who work in this area view the family as a “dynamic system that must be understood holistically: The parts influence the whole, and the whole is greater than the parts” (Moon, Jurich & Feldhusen, 1998). Csikszentmihalyi (1996) pointed out that most studies that have attempted to explain the influence of family factors and high achievement have relied on retrospective accounts of childhood experiences. From his research, he found that a person who was relatively happy as an adult was much more likely to describe their childhood in favourable terms. This could be because happy adults by and large have had happier childhoods. However, it is also conceivable that if their adult experience is positive they may be more likely to remember the positive elements of their upbringing. Csikszentmihalyi (1996) provided evidence of adults’ accounts of their childhoods changing over time, as a direct reflection of their feelings of happiness from one time to another. During times of success they were inclined to remember their childhood with affection. In times of despair, their recollections were of much less pleasant early experiences.

It seems that the greater number of high achievers are born into families with socio-economic and educational advantage. For example, in her study of eminent scientists, Roe (1952) reported that none came from a family where the main income earner was an unskilled labourer, and 53 percent were sons of professional fathers. This was an incidence 18 times greater than the proportion of professional parents in the general population at the time. Simonton (1994) reported that Nobel laureates have fathers who are professionals, managers, or proprietors at double the incidence that these occupations occur in the general population. He also pointed out that between 1789 and 1934, 58 percent of United States’ presidents, vice-presidents, and cabinet secretaries had fathers who were professionals, officials, or proprietors. Studies that have examined a wider range of achievement have reported a similar trend, with an average of 80 percent of recognised creators, leaders and celebrities coming from business or professional homes, and only six percent from impoverished backgrounds (Simonton, 1994). According to Simonton, this pattern holds for gifted children and child prodigies.

Roe (1952) believed that this over-representation by one sector of society could be explained by this group’s ‘love of learning’. The parents of the children raised

in these homes recognise the value of intellectual stimulation, creative expression, aesthetic awareness, and of education. Ludwig (1995) believed that it is the cultural and financial resources available to these children, and the success-oriented value system to which they are exposed, that accounts for the increased likelihood of them achieving success at the highest level. In his study, the individuals who achieved in fields that required extensive formal training, such as scientists and academics, were most likely to come from upper middle class, professional families. As well as providing their offspring with access to such resources and experiences, the parents of many outstanding achievers also encourage their children to explore and to investigate and “play an active role in propelling their offspring to precocious accomplishments” (Simonton, 1994, p. 158). Simonton believed that an early stimulating home environment acts like a ‘booster shot’ for the future achiever and launches him or her on the path to achievement.

However, some researchers who have investigated high achievement across a wide range of areas of human endeavour, have postulated that family dynamics are likely to differ according to domain. For example, Moon et al., (1998), in their review of studies on this topic reported that, “The relationship between family value and outcomes like aptitude, achievement, and self-concept are extremely complex and seem to be different for males than females” and, “Certain value systems seem to be characteristic of families with particular gifted children” (Moon et al., pp. 82-83). These authors found that families with highly intelligent achievers were more likely to be supportive and close-knit. Education and high achievement were valued, and the parents in these families were actively involved in their children’s educational, intellectual, and cultural pursuits. Conformity to conventional values appeared to characterise the homes of these young people.

In contrast, the homes of the creatively gifted were often characterised by unconventional child-rearing practices, an emphasis on and encouragement of independence, and openness to alternative ways of thinking and behaving (Moon et al., 1998). Independence, not closeness is more likely to be a feature of these families and sometimes the relationships are strained and tense (Albert, 1978). These parents nurture the development of the creative personality by modeling

and reinforcing the ability to think and act independently, and in ways that differed from those of other parents (Albert, 1978). Ludwig (1995) said parents who were 'socially conformist' were much less likely to raise children who entered the creative arts. He found that of all the talent groups he studied, it was the children of creative parents who were the most likely to mirror their parents' interests in their own choice of career.

Csikszentmihalyi, Rathunde and Whalen (1993) suggested that these contrasting home environments are different in the degree that they reflect the notions of *integration* and *differentiation*.

The bonds of connection between family members are an instance of *integration*, or the stable condition whereby the individuals feel a sense of support and consistency. *Differentiation* refers to the fact that members are encouraged to develop their individuality by seeking out new challenges and opportunities. (Csikszentmihalyi, et al., 1993, p. 155)

From their research on talented teenagers, they noted that a strong emphasis on one over the other can impede the realisation of talent. Their *complex* family was one that was both integrated and differentiated. They used the word complex because they regarded this mix of the two as continually adjusting to meet new circumstances and demands. Of the two (integration and differentiation), they suggested that the latter was more important than the former in the development of 'eminent' talent. They believed that integration promoted the socialisation of well-adjusted and competent individuals, but not necessarily talented or creative ones. They concluded that although the complex family is not *the* essential ingredient for the development of eminence, it does seem to provide a climate that will help sustain an individual's motivation and commitment to a talent area. Csikszentmihalyi (1996) believed that parental influence is especially important where children have to struggle against poor or socially marginal circumstances.

7. Education

The findings here, as one might expect, are mixed. On the one hand history is well represented by outstanding figures whose school performances were unremarkable or even dismal. For example, the study by Goertzel and Goertzel (1962) reported that approximately 60 percent of their eminent adults hated school. The majority of those who had positive experiences at school found fame in science or politics. On the other hand, Terman's group were very positive about their schooling and Goertzel et al. (1978) reported that among renowned achievers in 'modern' times, one-fifth were honour students. While high academic achievement at school is certainly no guarantee of success, many of those who do well in school continue that pattern into adult life.

According to Simonton (1994), to make sense of these contradictory findings, it is important to consider the nature of an individual's educational experience. Whether or not a future luminary does well in school can depend very much on the specific school environment and the teaching methods employed. There seems to be general agreement across numerous research studies in this area that approaches to education that encourage curiosity, independence, autonomy, creativity and the pursuit of individual interests are better suited to more able students and to stimulating outstanding achievement. These values are more characteristic of classrooms today than even a decade or two ago. The classrooms of more than 50 years ago were typically much more formal, took limited cognisance of individual differences, drew on a much narrower curriculum, and there was little flexibility to allow for the pursuit of interests that fell outside the curriculum. It is little wonder then, that a high proportion of bright and creative students of a few generations ago recalled their school experiences with some revulsion. As Einstein said:

It is, in fact, nothing short of a miracle that the modern methods of instruction have not yet entirely strangled the holy curiosity of inquiry; for this delicate little plant, aside from stimulation, stands mostly in need of freedom; without this it goes to wreck and ruin without fail. It is a very grave mistake to think that the enjoyment of seeing and searching can be

promoted by a means of coercion and a sense of duty. (quoted in Schlipp, 1951, p. 17)

Csikszentmihalyi (1996) painted a rather cynical picture of the school experiences of creative achievers, and suggested that frequently school had little effect, or in fact threatened to extinguish the interest and curiosity that had been developed and nurtured beyond the school gates. “The record is rather grim, especially considering how much effort, how many resources, and how many hopes go into our formal educational system” (Csikszentmihalyi, 1996, p. 173). He noted that, although schools rarely received a mention as a source of inspiration, individual teachers did. These teachers he said, were influential because they, “noticed the student, in his or her abilities and *cared* [and] showed care by giving the child extra work to do, greater challenges than the rest of the class received” (Csikszentmihalyi, 1996, p. 174). He reported that this type of recognition and support was much more likely to be given to mathematically and scientifically able students, than those with ability in the humanities or the arts. Memorable teachers seemed to also be those who had an enthusiasm for their subjects, something that appeared to be lacking in other teachers’ classes. Some eminent adults in Csikszentmihalyi’s study could not identify a single teacher they would rate above mediocre.

Simonton (1994) revisited Cox’s (1926) data to gauge the relationship between formal education and training, and success. He found through this analysis that fame as a leader was negatively correlated to education. The most famous leaders in Cox’s study had the least formal education. The relationship between education and creative achievement was less linear and more curvilinear. Those who achieved highly as creators tended to benefit from education but only to a certain point, and beyond this threshold additional education and training seemed to decrease the likelihood that eminence might be achieved. Simonton reported that these trends had been confirmed in other, more recent studies.

With respect to leadership, there appears to be relationships between levels of education, dogmatism and eminence. Simonton (1984) found that dogmatism could be the product of little formal education, but also of a high level of

education. He maintained that dogmatism and creativity represent “opposite ends of a bipolar dimension” (p. 66).

The mixed findings of the relationship between educational experience and educational attainment and later success reflect the complex nature of talent development. What does seem consistent across numerous studies, is that those who achieve in mathematics and science-related areas tend to do better within formal education and are much more likely to recount their educational experiences in positive terms. However, early high achievement in these areas is by no means a predictor of success later on (Simonton, 1994). Creators and leaders are much more likely to recall their educational experiences negatively, and their educational attainments are sometimes anything but outstanding. This may reflect a mismatch between what schools offer and value, and the interests and values of these individuals. There may be benefits, though, to creative students becoming disillusioned with formal education and opting out, because as Simonton (1994, pp. 164-165) pointed out, “Getting the breadth is probably conducive to achievement, whereas increased specialisation may impair the creative mind.”

8. Personality

The relationship between personality and achievement has been extensively studied and to do full justice to this area requires much more depth of examination than this thesis allows. Terman and Oden (1947) identified a group of 150 high achieving adults and a group of 150 low achieving adults from within Terman’s greater group of 1528. The personality traits of both groups were self-rated, spouse-rated and parent-rated. They concluded from this comparison that personality was extremely influential to achievement. Successful individuals, they reported, were less moody, impulsive, and conformist. These people demonstrated higher self-confidence, sociability, perseverance, integration towards goals, commonsense and an absence of inferiority feelings. However, these findings must be interpreted in the light of criticisms made elsewhere in this thesis about the relative homogeneity of this research group.

Cox's (1926) examination of the relationship between personality and outstanding achievement involved a rather complex analysis of 67 character traits. Thorndike (1950) rated 91 famous scientists on 48 traits. A significant development in personality research came with the application to this area of psychometric profiling and factor analysis, which saw the extensive lists of personality traits greatly reduced. For example, factor analyses can collapse Thorndike's 48 into four inclusive dimensions (Simonton, 1994).

Much of the work in this area has sought to identify the personality characteristics of outstanding achievers and compare the profiles of this group with those who have achieved a much lower level of success. A common approach is to use personality inventories. For example Cattell (1965) used his well-known *Sixteen Personality Factor Questionnaire* (16 PF) with 41 Olympians who competed at the 1952 Olympic Games. Although they were similar to the general population on the majority of dimensions, they stood out as different on four: they scored low on *Guilt Proneness*, high on *Parmia* (boldness, spontaneity, and insusceptibility to inhibition), even higher on *Ego Strength*, and extremely high on *Dominance*. Cattell (1963, 1965) also administered his questionnaire to a group of notable scientific researchers. This group evidenced a quite different profile, scoring above average on *Intelligence*, *Self-Sufficiency*, *Dominance*, *Radicalism*, and *Premisia* (tendermindedness and sensitivity). As a group, they rated lower than average on *Guilt Proneness* and *Group Superego*. In other words, they were not overly concerned with living up to the moral standards of others. They tended more towards introversion, generally preferring to work alone than in interaction with others. Cattell was interested in whether or not these notable but not great scientists would differ significantly to a group of the most eminent in the field. Using biographies of the likes of Davy, Faraday, Newton, Pascal and Pasteur, he found their profiles to be almost identical to those of his less eminent living group.

Other research using Cattell's 16 PF has shown that creative achievers reflect very similar personality profiles to these scientists. Simonton (1994, p. 269) said that, "This congruence implies that certain character traits are probably essential rather than incidental to creative success." Although he was careful to point out that

numerous outstanding achievers demonstrated completely different profiles to that suggested from Cattell's psychometric approach, Simonton maintained that there is a profile that seems to be associated with the attainment of greatness, including *Schizothymia*, *High Intelligence*, *Self-Sufficiency*, *Dominance*, *Radicalism*, and *Desurgency*.

More recently, researchers have suggested differences between the personality characteristics of scientists and artists. Feist (1999) reported on research that showed artists to be more anxious, emotionally labile, and impulsive, with a disposition towards intense affective experience. Russ (1993, p. 67) said that, "One of the main differences between artistic and scientific creativity may be the importance of getting more deeply into affect states and thematic material in artistic creativity." Feist believed because artistic production involves introspection and science an external focus, it is not surprising that artists are more sensitive to and expressive of internal emotional states than scientists. Another identified difference between the two groups is in the areas of socialisation and conscientiousness. Artists tend to rate lower than the general population on 'socialisation', 'communality', 'tolerance', and 'responsibility' (Feist, 1999). Scientists, in contrast, tend to be more conscientious and orderly.

From his studies of creative achievers Csikszentmihalyi (1996) identified 'complexity' as what makes their personalities different from others.

By this I mean that they show tendencies of thought and action that in most people are segregated. They contain contradictory extremes – instead of being an "individual", each of them is a "multitude". Like the colour white that includes all the hues in the spectrum, they tend to bring together the entire range of human possibilities within themselves. (Csikszentmihalyi, 1996, p. 57)

He proposed the following 10 pairs of apparently antithetical traits, which he said that highly creative people vacillate between, as indicative of this complexity of

personality:

1. Energy and activity versus quiet and rest.
2. Smart versus naïve.
3. Playful versus disciplined.
4. Imagination and fantasy versus reality.
5. Extroversion versus introversion.
6. Humility versus pride.
7. Masculine versus feminine.
8. Rebellion and independence versus traditional and conservative.
9. Passion versus objectivity.
10. Suffering and pain versus enjoyment.

Csikszentmihalyi believed that these ten pairs of contrasting personality traits were possibly the most telling characteristics of creative people.

To some people this fragmentation of personality represents a very artificial explanation of the relationship between personality and the development of talent. The humanist psychologist Abraham Maslow (1970) offered a much more holistic approach to understanding the character of eminent individuals and his study of self actualisers was aimed at presenting a more optimistic picture of humanity. Maslow's self-actualisers included politicians, reformers and humanitarians, scientists and inventors, philosophers and thinkers, poets and essayists, painters, and composers and musicians. He concluded that as a group, self-actualisers are more efficient, more comfortable in accepting 'reality', more accepting of themselves and others, and acknowledge flaws yet still 'appreciate'. They tend to exhibit simplicity, naturalness and spontaneity in their interactions, and avoid the artificial or contrived. They are empathetic and have a strong sense of right and wrong. Their character tends to be democratic rather than authoritarian. They value autonomy, independence and freedom. There is a tendency to focus on issues outside themselves and generally these individuals are much less self-absorbed or ego-driven, characteristics Maslow considered prerequisite to creative productivity. Most can identify a defining moment or moments, a peak experience, which became a primary motivator in their lives.

9. Marginalisation

Marginality has already been touched on in this chapter in the context of creativity. The tendency of people who are on the edge of a society to be over-represented amongst high achievers generally has been extensively documented. Galton (1869) observed that many eminent individuals from many countries had foreign names and were the children of political refugees. Park (1928) contended that every culture commences with new migration and the movement of peoples. Simonton (1999a, p. 122) said, “The marginal person should display more associative richness, divergent thinking, and other cognitive processes that provide the foundation for ideational variations.” He identified three main types of marginalisation associated with achievement: ethnic, religious and professional. Most of the research in this field focuses on ethnic marginalisation and ethnic outsiders in many societies do appear to be over-represented amongst the high achievers. The achievement of the Jews has been given as an example of this relationship in action and Simonton (1999a) reported that, although Jews make up only between one and three percent of the population of Europe and the United States, they occur on lists of the eminent in excess of 10 times that incidence. In addition, almost 20 percent of Nobel Prize recipients come from Jewish backgrounds. While he acknowledged that there are numerous other factors that may account for this ‘edge’, he concluded that the marginal position of Jews in Western culture has enabled them to bring the novel insights of an ethnic outsider.

In Britain, many outstanding scientists have been members of dissenting faiths and in the United States the representation of Unitarians among notable scientists is more than 100 times greater than for the mainstream religions (Simonton, 1999a). Goertzel and Geortzel (1962), in their study of 400 luminaries, reported 227 families expressed strong political attitudes, or held minority views on religion, or espoused unpopular causes, or were involved in reform movements, or expressed controversial views publicly.

There are also numerous examples of the achievements of those who were positioned at the margins of their talent area. Kuhn (1970) maintained that:

almost always the men who achieve ... fundamental inventions of a new paradigm have been either very young or very new to the field whose paradigm they change ... being little committed by prior practice to the traditional rules of normal science, [they] are particularly likely to see that these rules no longer define a playable game and to conceive another set that can replace them.

While ethnic marginality may be linked to prolific achievement, professional marginality is often associated with a single outstanding contribution (Simonton, 1999a). Professional marginalisation seems to be more a factor in scientific domains rather than in the artistic and Simonton (1999a) suggested that this might be explained by looking at the greater constraints scientists tend to impose on their field.

10. Conclusion

What has been presented in this chapter is an overview of some of the main themes from the literature that inform this present study. There are clearly some trends evident in the findings of studies focusing on the development of special abilities. For example, there seems little dispute that a high, but not necessarily the highest level of intelligence, is required for outstanding achievement in most fields of endeavour. There is still a significant division of opinion as to what intelligence actually is and how it might be measured, although there is some overlap of opinion as to the specific traits characteristic of more intelligent individuals.

The importance of creative ability in achieving greatness is generally undisputed. There is also some evidence of a relationship between intelligence and creativity, but it does appear that these may operate in tandem only to a certain level of intelligence. Whether or not a greater level of creativity is required in some domains than others remains unclear. However, those who achieve in areas that

are generally considered the creative domains, and in particular in the arts, seem to share some developmental experiences that set them apart. Moreover, creativity is not just the preserve of the arts but equally important across a range disciplines.

The claim that achievement is more frequent amongst first-born than later-born children is strongly supported across numerous studies, although there are some clear caveats to this principle. It does seem that first-born children are more likely to achieve in more mainstream and more conventional-type pursuits, and birth order may be less about the level of achievement and more about the domain of achievement. It may be that because achievement on the fringes of society does not attract the same level of attention, or is not as widely acclaimed as more mainstream accomplishments are, the achievements of later-born individuals are erroneously perceived as less noteworthy.

The findings on the impact of early trauma appear less than conclusive. There seems to be dispute as to whether or not the incidence of childhood trauma is greater amongst high achievers than the population generally, and even if it is more common to this group, how the experience might enhance achievement remains unclear.

It is in some of the features of the family backgrounds of high achievers that the most common findings across a wide range of achievement areas are evident. Many studies point to the positive effect of an enriched early environment and parents who model a love of learning, task commitment and drive. There are numerous other aspects of an early environment that appear to be a predictor of achievement in more domain-specific ways.

A significant proportion of high achievers report enjoying school and were successful at it. In contrast, many others did not find school a positive experience and were anything but successful academically. There are many reasons why an individual may or may not derive pleasure from being at school, and the more able are not unique in this regard. However, an analysis of the research does indicate that for many high achievers their abilities and dispositions mediate their school experience, and this seems especially true of the highly creative.

The relationship between personality and achievement has interested researchers for many years and their investigations do indicate that highly successful people do share a number of common traits. Some researchers propose domain-specific personality profiles, seeking to demonstrate, for example, that the personalities of mathematicians and scientists are quite different to the ‘creators’, who in turn exhibit traits distinct from leaders.

Being marginal comes in many forms but the main ones to have been investigated are ethnic, religious and professional. It seems the experience of marginalisation may increase the likelihood of a person achieving more highly, but equally, it can constrain great accomplishment.

No aspect of any individual’s life acts in vacuum. The traits, conditions, experiences and events thought to characterise talent development do not act independent of each other, or independent from the other myriad of conditions that are part of a person’s life. Tannenbaum (2003, p. 45) stated,

Behavioural scientists never tire of searching for *the* childhood abilities that guarantee superior accomplishment later in life. The fact is, besides intellect and artistry, *many* attributes of the human psyche interweave with its surroundings to shape a child’s future.

Logically, then, it is the interaction between the many aspects of a person’s life that holds the key to understanding the highest levels of success, and the traditional approach of focusing on each, independent of the others, may only serve to obscure the integrated nature of this process.

Chapter 4

Explaining Outstanding Achievement

This present study is aimed at better understanding why some individuals stand apart from their peers in relation to what they manage to achieve during their lives. The theoretical explanations for outstanding accomplishments can be clustered in a variety of ways. Shakespeare's notion that "some are **born great**, some **achieve greatness**, and some have greatness **thrust upon em**" (author's emphasis) (Twelfth Night, Act II. Sc. 5) may seem a fairly crude form of categorisation but it actually offers a logical framework from which to examine the main theoretical positions.

1. Some are Born Great

1.1 Biological Explanations

The idea that talent has a genetic base is one of the oldest and most universally accepted notions in the world (Simonton, 1994). Galton (1869) was in no doubt that his discovery of a generation-to-generation sequence of eminence was a clear indication of the importance of hereditary factors. Eysenck (1995) was of the view that this generation-to-generation sequence was ambiguous and said it could be argued that eminence was due to genetic *or* environmental factors. However, he did concede that the "emergence of genius from poor soil is difficult to account for except in terms of segregation of genes, and hence speaks powerfully for heredity" (p. 14). In examining the backgrounds of a group of mathematicians Eysenck claimed were the most famous of all times, he reported a distinct absence of mathematical ability in any of their close relatives. For example, Pascal's father was a civil servant, the fathers of Newton, Laplace and Gauss were peasants or small farmers, Monge's a peddler and Boole's a shopkeeper. According to Eysenck there is a difference between talent and genius. He believed that few of Galton's group could be considered geniuses but were better described as

talented, and according to Eysenck, evidence exists for family clustering of talent. He cited evidence of family clustering of talent in music, art, sport, and in particular in mathematics. However, the emergence of genius is unique and “demands a very unusual segregation of genes which would be so unlikely to occur that we would look in vain for anything resembling it in the family of the genius” (Eysenck, 1995, p. 15). To support this contention, he pointed out that there is no record in history of a genius giving birth to a genius. Further, he argued that the laws of ‘regression to the mean’:

Would invalidate any genetic tendency for genius to cluster as Galton thought: not only intelligence, but also all other genetic tendencies contributing to genius and eminence, such as creativity, motivation and persistence would regress to the mean, leaving a much less distinguished progeny, on the average. (Eysenck, 1995, p. 15)

Like Eysenck, Simonton (1994) also considered that Galton underestimated the impact of environment in determining achievement. Clearly, belonging to a distinguished family means much more than inheriting a genetic disposition towards achieving distinction. The accessibility of education, the exposure to role models, the provision of mentors, and the greater social resources available are but a few of the benefits of belonging to such families. While in hindsight, many of Galton’s ideas seem naïve, he did lay the foundation for the field now known as ‘behavioural genetics’ and many of Galton’s techniques provided the basis for inquiry in this discipline. Arguably, the most significant of these involves the study of twins.

Behavioural geneticists have for many years studied twins in an attempt to estimate the relative influence of heredity and environment. Typically, this has involved comparing monozygotic twins, who are genetically identical, with dizygotic twins, who are on average 50 percent genetically the same (Thompson & Plomin, 2000). Most of the research in this area involves scientists using a statistic called ‘heritability’ to describe the proportion of variance in behaviour that can be accounted for by genetics (H^2). Environmental influences are generally divided into shared (C^2) and non-shared. The shared influences include

the experiences that all family members are exposed to. However, in all families individual members are exposed to unique experiences that contribute to dissimilarity. These are called non-shared environmental factors (E2). Thompson and Plomin (2000, p. 158) reported that, “Developmental behavioural genetic studies have consistently suggested that as children mature from infancy through adolescence the magnitude of H2 increases and C2 decreases”.

Researchers such as Thompson and Plomin (2000) claimed that, although intelligence is a complex trait and is influenced by both genetic and environmental factors, “quantitative geneticists have demonstrated that individual differences in intelligence are highly heritable ” (p. 162).

However, even if we accept that heredity is a significant factor in determining general intelligence, to what extent does this necessarily apply to achievement? ‘Social potency’, the self-perceived ability to influence, lead, or dominate others, has been found to be closely matched in monozygotic twins, whether raised together or apart (Lykken, 1982). Using the approach of the behavioural geneticists, it would seem reasonable to predict that if one of a pair of dizygotic twins evidenced this disposition, there should be a 50 percent chance the other twin would share the trait. Yet Simonton (1994) reported that in terms of ‘social potency’ dizygotic twins are no more likely to be similar than any two individuals randomly selected from the population.

One explanation for this somewhat confusing finding can be found in the concept of ‘emergence’ (Lykken, 1982). Inherited traits are often considered to result from the separate contributions of many genes. This is an ‘additive model’, where the contribution of one gene is regarded as independent of the contribution of another. Yet some traits may require all the genes to participate if that trait is to appear. Simonton (1994) suggested ‘social potency’ may fit this description. The emergence of this trait may depend on some degree of physical attractiveness, confidence, assertiveness and charisma, and if one element is missing ‘social potency’ may not emerge.

Emergenesis provides one explanation as to why some of Galton's group were the children of parents who were anything but eminent, and why others failed to produce offspring that came close to achieving their parents' level of greatness (Lykken, 1982; Simonton, 1994). It also helps explain why it is usually only one child in a family who achieves eminence. If creative achievement depends on the complex interaction of a cluster of traits, then even if these traits do run in family lines, it is highly unlikely that more than a very small proportion of its members will inherit the complete set.

It is quite clear from the research in this field that the environments of high achievers share some very specific elements. This is certainly considered by many to support the environmentalist position. However, this evidence may in fact support the hereditarian view (Simonton, 1999a). The reasoning here is that the dispositions of the parents cause them to act in a particular way. For example, intelligent parents generally have a need for intellectual and cultural stimulation. They will purchase books, join libraries, visit museums and galleries, and engage in other activities and experiences to satisfy this need. Their children are likely to inherit a need for a similar level of intellectual and cultural stimulation and will take advantage of the opportunities available to them. Simonton (1999a) argued that the environmentalist researcher could look at this pattern and falsely conclude that it was the enriched environment that stimulated the children's intellectual growth. In fact, if the parents had not catered for this need in their homes, these intellectually able youngsters would probably have sought out stimulation elsewhere. Children with innate talents often exert pressure on the environment to meet their need for stimulation. Parents, at least those with the resource capacity, will often respond and offer an environment that more closely matches their children's talents. Again, it would be easy to conclude that it was the environment that was influential in shaping the child's talents, where in reality it was the child who shaped the environment. As Simonton (1999a) pointed out, the literature on child prodigies contains many examples of those who insisted on pursuing specific interests in spite of parental discouragement.

It is tempting to dismiss hereditarianism out of hand in this context, and a major motivation for doing this is because the environmentalist explanation offers a far

more optimistic view of talent development. However, as illustrated above, what may appear to be able to be explained as environmental influences may actually be more closely connected to innate dispositions. Simonton (1998, p. 154) says, “We cannot deny that biology provides a critical underpinning of both giftedness and genius” but that “contemporary research has teased out some complications ... not foreseen by either Galton or Terman.”

1.2 Sociobiological Explanations

To the sociobiologists, patterns of interactions and social structures are products of evolutionary processes (Simonton, 1994). These theorists refer to the most powerful male in a primate group as the ‘alpha male’. This male is the group’s leader, has privileged access to food and sex, and in return leads in physical conflict. Typically, the ‘alpha male’ is physically strong and experienced and has usually fought to achieve his status and will be constantly challenged to defend it.

History’s eminent leaders may simply be ‘alpha males’. Certainly many leaders throughout history have acquired reputations for sexual prowess (Simonton, 1994). Even more significant is the research showing that a leader’s physical height is an important antecedent of success. Among American presidential candidates there are only a few exceptions to taller candidates being preferred to their shorter opponents (Simonton, 1994). Those considered by scholars to be the greatest presidents – Lincoln, Washington, Jefferson and Franklin Roosevelt - were all over 6’ 1” in height.

There also seems to be a suggestion that popularity as a political leader is associated with participation in aggressive activities prior to entering politics. According to Simonton (1994), this trend can be observed in absolute monarchs, American presidents and modern exemplars of charismatic leadership, who are often seen as leading their respective nations to military victory.

Unfortunately this argument is weakened when we consider how many effective leaders do not fit the ‘alpha male’ template. For example, some of history’s greatest leaders were anything but impressive physically. Julius Caesar and

Genghis Khan could be considered small or even frail and Napoleon was a mere 5' 2" (Simonton, 1994). One of the explanations offered for this is that human warfare is much more sophisticated than that of other primates and the development of techniques to 'kill from a distance' mean size is of limited consequence. In fact, size may even be a disadvantage in warfare of this type, as it presents the enemy with a larger target. Nor are these military leaders prolific reproducers. Galton (1869) noted the relative infertility of great soldiers in his study. It could be that the military leader is simply away from home too often to produce an abundance of offspring.

2. Some Achieve Greatness

2.1 Learning Explanations

Learning explanations, while not identical, are characterised by the view that learning involves:

A stable change in a person's potential to behave; therefore, development means increase of potential to perform and behave ... The potential to perform higher order activities is not the result of spontaneous orgasmic growth, but is the outcome of learning appropriate techniques. (Monks & Mason, 2000, p. 142)

From a behavioural perspective, the drive to achieve greatness can be linked to reinforcement. As an individual achieves a degree of recognition for achievement from family, teachers and peers, and experiences the tangible rewards that often accompany this, the likelihood he or she will continue to strive is increased. Accompanying this may be a lack of reinforcement when the person is perceived to have fallen short, or not produced, which diminishes the likelihood of these behaviours being repeated. Certainly experimental research has shown how creative outputs can be increased through reinforcement. In an experiment conducted by Glover and Gary (1976) eight children were given 10 minutes to list 'all possible uses' for an object. Reinforcement was provided over a five-day period. These researchers reported that elaboration, originality, fluency and

flexibility increased with reinforcement. Other researchers have demonstrated similar trends in children's painting (Goetz & Salmonson, 1972), block building (Goertz & Baer, 1985), and drawing (Holman, Goertz & Baer, 1977). The creative product becomes the operant and the recognition of others, prizes, awards and the like, the reinforcers.

In contrast, Amabile (1983) maintained that intrinsic motivation is conducive to creativity but extrinsic motivation is detrimental. Simonton (1999a) contended that Amabile's conclusions have been drawn from work undertaken in laboratory simulations, and he argued that when the lives of illustrious creators are examined it is much less clear if extrinsic reinforcement is counterproductive. However, there do appear to be some serious limitations to the idea that great accomplishments can be explained by reinforcement and reward (Simonton, 1999a). First, the feedback available to achievers is often inconsistent and the early ideas and products of great creators are rarely universally applauded. Second, reinforcement, both positive and negative, and punishment, are not stable over time. While one achievement may be lauded, others may be ignored or rejected. Third, even where the feedback is consistent and stable it rarely offers anything but minimal information about the basis for success or failure. In reviewing the relevant findings in this area Simonton (1999a) reported that it is almost impossible for a creator to make inferences from feedback that would have any consequence. He claimed that this holds for both scientific and artistic products.

Reinforcement may be far more influential in some talent domains than in others. For those, such as performers and political leaders, who have chosen the public arena to express their abilities, and for whom the public determine the measure of their success, recognition and reinforcement may be very powerful influences. While one can only speculate as to the extent to which public attention is their primary motivation, there is no doubt public reaction 'shapes' their behaviour in specific ways. West (1984) studied public reaction to candidates' speeches during the 1980 United States' presidential campaign. He found that the more successful candidates took cognisance of the feedback they received from their audiences and adjusted their subsequent speeches accordingly.

While there is certainly evidence that training over a long period of time is a necessary prerequisite for the realisation of talent in some areas (see Bloom, 1985), it is widely accepted that the behavioural view fails to offer a comprehensive explanation of talent development. One criticism of learning explanations generally is that they ignore the influence of innate abilities and the diversity of human characteristics (Monks & Mason, 2000).

2.2 Cognitive Explanations

In the past, cognitive approaches to explaining high performance assigned primacy to perception. Rather than seeing the mind as a ‘black box’ that mediates between stimuli and responses to stimuli, cognitively-oriented psychologists were interested in the sequences of mental operations used to solve various kinds of problems. The difference between lower and higher achievers was believed to be in the speed and accuracy with which relevant cognitive processes were executed. The reasoning was that high achievement is associated with high intelligence and those supporting this connection pointed to studies that indicated that people with higher measured intelligence process information more rapidly than those with lower measured intelligence (e.g., Hunt, 1978; Jensen, 1982; Sternberg, 1977).

This view had fallen from favour by the 1980s and the focus shifted away from a general-process view. Many researchers now maintain that a key difference between the expert and the novice is in the way information is organised in the memory. Sternberg (2000, p. 56) contended that, “abilities take the form of various information processes operating upon mental representations at varying levels of experience to, shape, and select environments.” In his view, more intelligent people are fundamentally superior at acquiring, organising and utilising information. Sternberg has developed a model of ‘developing expertise’ based on the notion that these abilities are flexible rather than fixed, and are to some extent modifiable. He acknowledged that both inherited and environmental influences impact on the development of expertise and that people can become gifted by developing various kinds of expertise (Sternberg, 2000). To Sternberg, expertise involves the acquisition, storage, and utilisation of two kinds of knowledge:

explicit and implicit. Explicit knowledge is knowledge of the facts, formulae, principles, and the major ideas in an area. Implicit knowledge is the knowledge needed to attain success in a field.

The Developing Expertise Model (Sternberg, 2000) involves the following six elements, which are critical to the development of high performance in any area:

1. Metacognitive Skills. Understanding and controlling one's own cognition.
2. Learning Skills. Acquiring explicit and implicit knowledge and skills.
3. Thinking Skills. Processing information analytically, creatively and practically.
4. Knowledge. Acquiring declarative (facts, concepts, principles, laws, etc.) knowledge and a procedural tacit (how systems function) knowledge
5. Motivation. Having achievement motivation and competence (self efficacy) motivation.
6. Context. Attaining meaning from a context.

In explaining why some individuals achieve much more highly than others, Sternberg (2000) pointed to the different abilities of people to learn from what is taught. Connected to this is 'practicing' what is learned and he suggested that those with more ability may practice more, although he did concede that practice may play a lesser role in the development of creative giftedness. Some psychologists have proposed that it takes a minimum of 10 years for the novice to master a domain (e.g., Gardner, 1983; Simon & Chase, 1973). The process by which practice leads to increasing expertise ranges from ability as a function of the number of hours of practice (Erikson & Charness, 1994; Sloboda, 1996) to more talent-based explanations (Sternberg, 1996; Winner, 1996).

Gardner (1995, p. 15) stated, "Our understanding of the nature and processes of leadership is most likely to be enhanced as we come to understand better the arena in which leadership necessarily occurs – namely, the *human mind*." In this

context, leadership extends to any person “who significantly influences the thoughts, behaviours, and/or feelings of others” (Gardner, 1995, p. 6). While not dismissing the significance of culture in leadership, Gardner saw leadership as a process that occurs in the minds of individuals who live in a culture. His focus was on ‘stories’, including the ability to create stories and to understand and evaluate these stories. Gardner believed that there are several factors that are fundamental to an understanding of leadership. The first is related to our primal heritage. In contrast to most other species, the order of primates is hierarchical. There is competition for place or position in the hierarchy and some members become dominant over others. The dominant males according to Gardner, “exhibit characteristic patterns of neurotransmitters ... such as a greater production of serotonin, and lower overall levels of stress” (p. 23). He noted that these physiological characteristics shift with changes of position in the hierarchy. There is also a proclivity in primates to imitate. The critical issue is what to imitate and when. However, lower-status primates invariably imitate higher status primates. These ‘dominance processes’, Gardner proposed, are observable in nonhuman primates and can also be readily seen in the social behaviour of quite young children. For example, dominant young children in a group will often control the toys, limit access to equipment, and decide who is included in games and the rules governing the games. It is clear that size, strength, intelligence, physical attractiveness and gender play a role in who occupies what position in a hierarchy (Gardner, 1995). According to Gardner, as primates we generally expect social structures to comprise leaders and followers.

The second factor influencing roles in society, according to Gardner, is early socialisation. One aspect of this is the establishment of a secure bond between child and caregiver. This is believed to affect how an individual reacts to authority. “Comfort in the presence of others [or] one’s estrangement from others contributes powerfully to how one aligns oneself in later life with members of one’s own group or with more remote groups” (Gardner, 1999, p. 24). Also important are the development of a sense of self and the appreciation of how one is similar to certain other individuals. Gardner observed that children imitate others from an early age, but that this imitation develops in time into a sense of identification where the child feels much more akin to an older person or role

model. Over time the child does not just imitate this role model, he or she begins to learn how their role model would respond in certain situations. Gardner noted that most children identify with role models in their immediate environment, but reported that a ‘marker’ of future leaders is that they are more likely to identify with a more distant authority figure. Children as young as five years of age:

Can appreciate simple stories and, indeed, even create simple patterned narratives of their own ... they already have assumed positions (still relatively flexible ones) within various dominance hierarchies and are becoming proficient at recognising signals of leading, following, and relating to equals in peer-peer interactions. (Gardner, 1999, p. 26)

The third element crucial to the development of leadership, said Gardner, is the attainment of expertise in various domains. Some domains are mandated and this differs from culture to culture. For example, most Jewish boys raised in Russia were expected traditionally to play the violin and to master chess. Other domains are optional but are governed by culture, time, family interests and resources, the school, and the interests and abilities of the individual. In the past, others made the decision as to the option or options an individual would pursue. More recently, at least in Western European cultures, individuals themselves usually make these decisions. As an individual develops to the level of expert in a domain, he or she begins to appreciate the achievements of the masters in the domain. Gardner suggested that historically, early talent identification has been limited to intellectual ability and scholastic achievement, or talent in a specific domain, such as music, art, sport, or mathematics. Some societies have valued interpersonal and intrapersonal abilities, those who are “exquisitely sensitive to the needs and interests of others, and/or individuals who are correlatively sensitive to their own personal configuration of talents, needs, aspirations, and fears” Gardner, 1999, p. 31).

There have been few systematic studies conducted to identify the early ‘markers’ of leadership. However, Gardner reported that some generalisations have been proposed. It is important at this point to be reminded that Gardner’s ideas relate to both direct and indirect leadership. The direct leaders address their public face-to-

face; the indirect leaders exert impact through the works they create. Gardner believed his cognitive explanation provided a new perspective on how both forms of leadership develop. The leader is in essence a storyteller.

When one thinks of the leader as a storyteller, whose stories must wrestle with those that are already operative in the mind of an audience, one obtains a powerful way of conceptualising the work of leading. It is important for leaders to know their stories, to get them straight, to communicate them effectively, and, above all, to embody in their lives the stories they tell. (Gardner, 1999, p. xv)

2.3 Darwinian Explanations

Simonton believed that creative genius could be best understood as a Darwinian process of variation and selection (1999a). The focus here is on isolating “the individual-difference variables that might facilitate a person’s ability to engage in the creative process ... Similarly, certain kinds of environmental experiences may be more likely to enhance an individual’s capacity for Darwinian creativity” (Simonton, 1999a, p. 112). He asserted that some experiences are likely to increase the number and range of ‘ideational variations’ that may be produced from a creator’s mind. These developmental experiences can be direct or indirect. The direct “are those that expand the intellectual capacity for remote association and divergent thinking – the very cognitive processes that produce ideational variations” and the indirect “are those that may encourage the development of the Darwinian personality that optimally supports engagement in the variational process” (Simonton, 1999a, p. 113).

Simonton pointed to Terman’s study to illustrate his rationale. Terman’s group of 1500 young people had high levels of intelligence. Intelligence is a primary Darwinian trait required for general success in any area. The majority came from highly supportive and resource-rich homes. In the majority of cases the parents of these children were well educated and placed a high value of learning. As has been clearly demonstrated in the earlier part of this review, such home environments are often associated with the development of exceptional

achievement. There is no doubt early stimulation adds to children's intellectual development. Yet, while Terman was convinced his group achieved to high levels of achievement as adults, commentators such as Simonton have disputed this claim. Simonton proposed that the development of creative talent requires experiences that "encourage the diversification of the intellect" (Simonton, 1999a, p. 113), an element, he argued, was missing from the experiences of most of Terman's group. A similar rationale can be applied to Arnold's (1995) valedictorians, promising students from predominantly middle class backgrounds whose adult achievements were generally unspectacular.

The degree of diversity of home environments necessary to produce exceptional achievement may vary across the different domains of creativity. Schaefer and Anatasi (1968) studied male high school students in the United States who demonstrated creative talent in either science or art. Compared with a control group of less talented students, this group came from homes where the parents were better educated, read more, valued creativity and supported their children's talents. While these homes provided stimulation for both talent areas, the homes of the young artists were much more environmentally diverse than those of the young scientists. The young artists were more likely to have travelled more and to have lived in a greater number of states. Their parents were more likely to have been born in a country, city or state different from where the family currently resided. The families of the young scientists were much less mobile, and their parents were much more likely to have pursued conventional careers.

The Darwinian view offers an explanation for the contrasting educational experiences reported across the studies in this field. While school performance seems to be reliable in predicting adult success in some areas, Simonton (1999a) reported that it has no predictive value in others, particularly those requiring higher levels of creativity. The lack of a correlation between school performance and later achievement is most pronounced in artistic creativity and artistic creators are much more likely to hold negative attitudes towards their school experiences than scientific creators (Simonton, 1999a). It is also clear that an advanced formal education is not necessary for creative achievement, particularly in artistic areas where it may be considered irrelevant. In fact, there is a suggestion that formal

education may increase the probability of attaining creative success, but only to a certain point and that beyond this it may lessen the likelihood (Simonton, 1999a). The location of this threshold varies according to the domain, but Simonton assessed that for creators in the arts and humanities this point is reached in the last two years of an undergraduate programme. For scientific creators, he speculated, it may be nearer to the first year or two of a postgraduate programme.

To succeed educationally generally requires a relatively high degree of conformity to conventional thinking and approaches and in addition, the longer individuals stay in 'the system' the more specialised their focus becomes. Both these factors may result in a narrowing of the ideational variations that a person can conceive. However, self-education may have the opposite effect and compensate for the limitations imposed by formal education. Although formal education does not seem to closely correlate with creative development, those who create at the highest levels are almost always engaged in self-education (Simonton, 1999a). As Mark Twain put it, "I have never let my schooling interfere with my education."

A number of studies reviewed previously offer some support for the contention that the development of exceptional ability may on occasions be enhanced by trauma or loss in childhood or adolescence. There is certainly evidence that incidence of physical and sensory disabilities (Goertzel & Goertzel, 1962) and chronic illness (Roe, 1952) may be greater amongst eminent creators than it is for the population generally. There is also evidence of many eminent individuals being raised in homes characterised by economic hardship or dramatic changes in fortune, sometimes to the point of bankruptcy or poverty (Simonton, 1999a). Most explanations of how traumatic events may ultimately influence achievement are centred on the notion that such events must have a 'dramatic' effect on the individual. The divergent-developmental hypothesis does not presume that the events are necessarily sensational. In fact, Simonton (1999a) suggested that a number of small events might yield the same results "which is to set the talent on a developmental path that sets him or her apart from the crowd" (p. 117). Simonton pointed out that the incidence rates for trauma and adversity vary across domains of creative achievement and because domains differ markedly in terms of the amount of Darwinian creativity required, there should be a correlation

between the two. There is certainly some evidence to support this contention. For example, a study by Berry (1981) found that orphanhood among Noble Prize winners for literature was eight times higher than those who received the same award for physics.

Marginality in this view would also serve to increase an individual's ability to generate ideational variations. Simonton (1999a), in further explaining the failure of Terman's sample of gifted children to achieve to the level expected, reports that, on the whole, the group represented white, Anglo-Saxon, Protestant America. These young people were the best of the mainstream and to a very significant extent they became involved in activities that reflected mainstream values. There is a reasonable body of evidence to suggest that creativity may be nurtured by being marginalised. Park (1928), for example, in explaining the significant place of immigrants in innovation, noted that these people had to straddle two cultures and "the 'cake of customs' is broken and the individual is freed for new enterprises and new associations" (p. 81). Campbell (1960, p. 391) noted that those who have been, "uprooted from traditional culture, or have been thoroughly exposed to two or more cultures, seem to have an advantage in the range of hypotheses they are able to consider, and through this means, in the frequency of creative innovation."

2.4 Attitudes, Beliefs and the Influence of Culture

Kroeber (1944) contended that culture takes primacy over the individual in any explanation of human beliefs, emotions, and actions, and that eminence is no exception to this principle. In his study of outstanding achievers Kroeber presented his greats, not by domain of achievement, but first by nationality, and then in strict chronological order. His intention was to disprove Galton's genetic theory of genius. He maintained that genius did not appear in isolation but rather a genius tended to cluster with others in adjacent generations. His demonstration of such 'clustering' presented a serious challenge to the notion of inherited ability. If genius is simply a product of genetic inheritance, there should be a relatively even distribution of outstanding achievement from one generation to the next. Kroeber,

and others since him, provided fairly clear evidence that this does not occur. He explained clustering of accomplishment this way:

Genius is fostered by emulation, and it is now envy, now admiration, which kindles imitation, and, in the nature of things, that which is cultivated with the highest zeal advances to the highest perfection; but it is difficult to continue at the point of perfection, and naturally that which cannot advance must recede. And as in the beginning we are fired with the ambition to overtake those whom we regard as leaders, so when we have despaired of being able either to surpass or even to equal them, our zeal wanes with our hope; it ceases to follow what it cannot overtake, and abandoning the old field as though pre-empted, it seeks a new one. (Kroeber, 1944, p. 18)

Kroeber argued that race or ethnicity exerts no influence upon human creativity, maintaining that the culture within which an individual lives is the sole determinant. This view is compatible with contemporary ideas about imitation and social learning (Simonton, 1994). Walberg, Rasher and Parkerson (1980), in their study into the biological antecedents of fame, found approximately 82 percent of those studied were exposed to many adults in their childhood, and about 68 percent came into contact with adults who were working in areas where these children would achieve eminence as adults. Simonton (1984) believed that this exposure to creative role models could be essential to the development of genius. He pointed out that an intergenerational influence may not need to be in the form of personal contact, and that “growing up in times of exceptional intellectual or aesthetic vitality may be conducive to creative development all by itself” (Simonton, 1984, p. 35). As Isaac Newton said of his own outstanding accomplishments, “If I have seen farther than other men, it is by standing on the shoulders of Giants.”

3. Some Have Greatness Thrust Upon Them

3.1 Zeitgeist

The studies of eminent individuals clearly demonstrates that there have been times and places where outstanding achievement is much greater than at other times or in other places. Simonton (1994) provided numerous examples of a ‘clustering’ of talent, where two or more individuals working separately, arrive at the same idea at around the same time. Some commentators have pointed to such events to suggest that creative ideas are the product of the ‘zeitgeist’ or the spirit of the times. The zeitgeist is believed to reveal itself in patterns or regularities that are manifest by historical events over time. While some see this as a cyclic process others believe it is progressive, ensuring that societies advance and progress (Simonton, 1984). Simonton pointed out that advances can be both cyclic and progressive and that the two processes can be complementary.

Creativity is not an autistic activity, but occurs within a social context (Csikszentmihalyi, 1990). For example, creative individuals must be able to effectively communicate their ideas with others. A number of studies have attempted to ascertain how an individual’s creativity may have been helped or hindered by specific types of social interactions (Csikszentmihalyi, 1996; Jackson & Padgett, 1982; Price, 1965; Simonton, 1984). Simonton (1999b) concluded that the influences from Zeitgeist fall into four categories:

1. *Cultural factors* (e.g., the prevailing disciplinary or aesthetic milieu).
2. *Societal factors* (e.g., population growth, social structures, and the position of minority groups).
3. *Economic factors* (e.g., prosperity and investment).
4. *Political factors* (e.g., the impact of war).

Simonton (1984) claimed that political fragmentation is the most reliable predictor of creativity. His analysis of Western civilisation from 700 B.C to A.D. 1839 led him to conclude that growing up in an environment characterised by

numerous sovereign states increases the likelihood of creative productivity, whereas greater political unification with an emphasis on homogenisation is associated with a decline in creative expression. In his view, creative development could well depend on exposure to cultural diversity. However, rebellion against the influences of “imperial homogenisation” is “strongly associated with the resuscitation of ideological diversity” (Simonton, 1984, p. 145).

Furthermore he argued that most historians have propounded the notion that economic prosperity is the foundation for socio-cultural achievements. He maintained, however, that few historiometric inquiries have tested the notion that prosperity and creativity go together and in fact, on some occasions extreme wealth was associated with very little in the way of cultural activity. However, there have been a number of studies examining the circumstances and the emergence of different ideologies. Sorokin (1947) drew attention to the relationship between religion, and economical prosperity and depression, showing that religious activity is generally associated with economic decline. Simonton (1984, p. 143) noted that, “In times of economic insecurity people seem to need something definite to believe in – whether it be a dogmatic religion, irrational superstition, or a strong authoritarian leader.”

The salient question in this context is the extent to which the zeitgeist is influential over the individual. Is genius subordinate to the situation? Tolstoy’s position on this issue was very clear:

A king is history's slave. History, that is, the unconscious, general, hive life of mankind, uses every moment of the life of kings as a tool for its own purposes ... In historic events the so-called great men are labels giving names to events, and like labels they have but the smallest connection with the event itself. Every act of theirs, which appears to them an act of their own will, is in an historical sense involuntary and is related to the whole course of history and predestined from eternity. (Tolstoy, 1942, p. 666-667)

Simonton (1984) examined the lives of 342 European monarchs and found some evidence to support Tostoy's eponymic explanation: "The more battles, revolts, reforms, laws, and the like, the greater the eponymic value of the ruler, and hence the larger the ruler's distinction" (p. 148). He noted that it mattered little whether the events were positive or negative, what did matter was that they were recorded in history. Nor did it seem to matter whether or not the monarch had personal control of the events that counted towards his or her fame. However, Simonton rejected the idea that *zeitgeist* alone could account for a leader's status, and he argued that individual intelligence, morality and leadership ability play just as crucial a role.

In an examination of the eminent philosophers and *zeitgeist*, Simonton (1984) proposed that the greatest thinkers in the Western philosophical tradition have not been representative of their time. Nor have they been ahead of their time. Rather than being ahead of their times, Simonton said the most notable thinkers have been a product of the previous generation's *zeitgeist*, or the *zeitgeist* of their youth. The great thinkers are more likely to emerge in times of intellectual inactivity and are less likely to develop during periods of political instability or anarchy. The presence of role models in the previous generation has a negative impact on the development of outstanding thinkers, where the second generation is more characterised by discipleship rather than leadership. Simonton (1984) identified three individual characteristics that distinguished the more illustrious philosophers from their less auspicious peers. First, the most eminent philosophers embraced a much broader perspective than less celebrated thinkers. Second, they were much more likely to hold extreme views and third, they were able to present their ideas in original ways. Simonton concluded that the greatest philosophers were not typical of their times and often rose above the influences of the *zeitgeist*.

Of course another possible explanation here is the interactionist perspective, or as Simonton (1984, p. 165) put it, "being the right person, in the right place at the right time." Stewart (1977) examined the relationship between birth order and achievement, and concluded that the different developmental experiences of an only child, a first-born son, a middle-born son, and a last-born son, prepared the

adult leader for different political environments. The only child is likely to rise to leadership in times of social upheaval and civil conflict; the first-born son during times of international crisis and war; the middle-born during times of peace, where fine-tuning of internal affairs is demanded; and the last born when revolution is required.

3.2 Cultural Explanations

As noted earlier, anthropologist Alfred Kroeber sought to disprove Galton's ideas of genius as a genetically-endowed ability and to demonstrate that it was more a socio-cultural phenomenon. His evidence showed that outstanding achievement does tend to cluster into cultural configurations. Galton certainly saw clusters of genius associated with different cultures but his explanation was one of racial superiority. Whereas Galton's emphasis on the individual has a bias towards European culture, Kroeber's focus on chronology and domains saw the inclusion of achievements from a much broader range of cultures and civilisations. In the previous discussion of Kroeber's ideas, the principles of emulation, admiration and imitation were explained. Simonton (1999a) found that generational time-series analyses have consistently demonstrated that the number of eminent creators in one generation is a positive function of the number in the preceding generation who have succeeded in the same or related fields. The influence of mentors, role models and other predecessors is thus extremely influential in success in a domain. However, having contemporaries is also important. In both the arts and the sciences there is ample evidence to show that eminent individuals are more likely to emerge when they can connect or form relationships with others working in the same or related fields (Simonton, 1999a).

Another cultural factor that is influential in outstanding achievement is a society's 'intellectual receptiveness'. Simonton gave the example of Charles Darwin to illustrate this point. He proposed that if Darwin had lived during the middle ages, when the cost of heretical ideas could have resulted in death, it is unlikely his ideas would have been anywhere near as influential. During the period Darwin was developing his ideas, others, such as Mill and Spencer were challenging widely held views in different areas. While Darwin may not have been part of

these philosophical movements, he was certainly aware of, and undoubtedly influenced by the more widespread challenge that was being mounted against intellectual hegemonies. It seems that, “when a civilisation is characterised by conspicuous ideological diversity – the presence of numerous rival philosophical schools – then creativity tends to increase, even in those domains that have relatively little to do with intellectual trends” (Simonton, 1999a, pp. 212-213).

There is definitely evidence that great achievements do tend to cluster culturally but there are numerous examples of geniuses emerging in relatively dark periods in a nation’s history.

3.3 Symbolic Interactionism

Proponents of this view contend that the self is not defined by intrapsychic processes but is the product of interactions with others (Rosenberg, 1979). We learn to see ourselves as others see us. Those who achieve highly in society have probably grown up around other highly successful individuals. The less successful have arguably spent more time around others who have not achieved great heights. The language used to describe the abilities and achievements of children growing up shape how they define themselves. For example, children who are told they are ‘gifted’, that their efforts are ‘clever and creative’, will undoubtedly see themselves quite differently from those whose abilities and efforts attract ambivalent or negative responses.

A more recent development in this area is the ‘narrative’ approach, which considers the self from the perspective of a story (Hermans & Poulie, 2000). The assumption here is that the events of one’s life receive meaning as part of a narrative structure. Hermans and Poulie (2000, p. 279) stated that:

When a talented person succeeds in realising his or her ability, creativity, and motivation in one or more performance areas or, on the contrary, is not able to do so as a result of obstacles, the resulting achievements or failures are understood as positively or negatively experienced events in an organised self-narrative.

Simonton (1998) claimed, however, that this interpretation cannot tell the whole story. For example, how does this explanation account for the luminaries who saw themselves as different from most others? History is full of examples of innovators whose original ideas were rejected by their peers. Yet these greats persisted, holding to a self-view that was in complete contrast to the opinion of others.

4. Conclusion

As noted in the introduction, the categorisation of explanations of outstanding achievement used in this chapter is a convenient way of making comparisons. However, it is highly unlikely that any single theoretical explanation can do little more than account for part of what is involved in any one person's rise to prominence. The commonly used explanation of someone who succeeds as being 'the right person, in the right place, at the right time' is probably a truism. Clearly, the combination and relative influence of factors contributing to the highest levels of success varies considerably from person to person. In addition, different aspects exert a different level and type of influence on the development of achievement across different domains. For example, there appears to be some areas where a genetic disposition is extremely important, such as in some physical pursuits. However, there are also very few fields where any natural ability will be realised in high-level accomplishment without significant nurturing or development. On the other hand, it has been argued that in the creative areas some learning experiences may be counterproductive to innovative productivity. Finally, and maybe the most influential, is the contribution made by the 'many' environments an individual is part of. It is also equally important to recognise that we interact with our environments and are not passive players in our own developmental journey. One argument here might be that the potentially great among us shape their own environments to a much greater extent than most other people. What remains clear is that the development of talent to the highest level is a complex, dynamic and little understood process. Simonton (1998, p. 171) concluded that, "Whoever pulls off this vast integrative synthesis will become the Isaac Newton of our field."

Chapter 5

Methodology

This chapter includes an overview of the methodological approach to this research and an outline of the actual procedures and processes used. The first section provides an outline of the aims and scope of this thesis. This is followed by description of qualitative methodology generally, life history inquiry in particular, and discussion as to why these were considered the most appropriate approaches for meeting the aims of this study. A framework for researching adult achievement is then detailed. Finally, the processes of participant selection, and data gathering and analysis are described.

1. Research Focus and Research Questions

As noted in the introduction, this study was borne out of a long-held interest and involvement in the education of gifted and talented children and young people. The focus on gifted adults, although interesting in its own right, was seen as a way of better understanding the development of talent in the years of childhood and adolescence. The aim of this study was to examine the development of talent from the perspective of individuals who had achieved highly across a range of endeavours. This seemed to be most compatible with a qualitative approach to research and in particular with elements of a life history approach. The term qualitative “implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity or frequency” (Denzin & Lincoln, 2000, p. 8). Qualitative research involves the socially constructed nature of reality and researchers using this approach explore how social experience is created and given meaning. Quite simply, qualitative research “was born out of a concern to understand the ‘other’” (Vidich & Lyman, 2000, p. 38).

Qualitative research cuts across disciplines, fields and subject matter and involves a “complex, interconnected family of terms, concepts, and assumptions” (Denzin

& Lincoln, 2000, p. 2). However, these authors have also identified a set of core principles that characterise the qualitative approach:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self [which] involves an interpretive, naturalistic approach to the world ... qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (Denzin & Lincoln, 2000, p. 3)

In this context, people as the embodiments of lived stories and not, as opposed to formalist inquiry, as exemplars of a form, an idea, a theory or a social category (Clandinin & Connelly, 2000).

2. A Life History Approach

Life history has had some strong advocates in the field of psychology (e.g., Bruner, 1990; McAdams, 1985; Mair, 1988) but in the main it has been oral historians, sociologists, anthropologists and cultural theorists who have employed the approach. Plummer (1995) contended that there was much to be gained in psychology from the use of life stories and maintained that the approach provided an important counterbalance to mainstream psychology.

The term life history means many things to many people. Cole and Knowles (2001) suggested that if you asked a roomful of life history researchers what life history research was about, you would probably get a roomful of diverse responses but all would be “loosely connected to a central epistemological construct illuminating the intersection of human experience and social context” (Cole & Knowles, 2001, p. 9). Watson and Watson-Franke (1985) offered a definition that articulates with this study, where they stated that, “life history is any retrospective account by the individual of his [sic] life in whole or part, in

written or oral form, that has been elicited or prompted by another person” (p. 2). Watson (1976) maintained that the only direct purpose of life history is as a commentary of the individual’s very personal view of his or her own experience and as he or she understands it. This present study fits within these broader and more generic definitions of life history research but it is important to point out that this research would not meet some of the more specific criteria many in the field would consider critical elements of the approach.

Life history inquiry is generally about gaining insights into the human condition by coming to know and understand the experiences of other humans within their respective and collective contexts (Cole & Knowles, 2001). In their book entitled *Lives in Context*, these writers state that the slogan “context is everything” could be the hallmark of life history research. In this present study, context is certainly considered important, but the aims are more modest. Rather than telling the story of an entire life and tracing that life’s complexities, this study has a much more confined focus.

This present study sits within the discipline of psychology but differs from conventional psychological research. The study involves psychological life writing, which brings to life history “a method with which to encounter the biographical subject [and] makes for a deeper, fuller, ultimately more satisfying biographical picture” (Schultz, 2001, p. 2). Schultz maintained that life history restores the individual to psychology and suggested life writing can improve psychology, but that psychology can also improve life writing. As Elms (1994, p. 12-13) stated:

Lives are not lived in the laboratory. In the real world, personalities are not divided into statistically analyzable components. Experiments and correlational studies, and statistical analyses of the data they generate, may identify significant variables in the lives of people-in-general. But I haven’t encountered a psychologist yet who could put a whole person together from those statistical body-parts and honestly cry out, ‘It’s Alive!’

Life history research acknowledges that any research is in part an expression of the researcher's life history. The researcher is a person and as such his or her personal history cannot but guide aspects of a study. Schwalbe (1995, p. 331) reflected that, "It could be that all my studies of other people are partly a roundabout way to know myself better." Thus, there are two qualities central to a life history orientation, the autobiographical and the relational.

Consistent with a life history approach, this present study does not seek to uncover the truth but rather it represents human experience, thus inviting readers to make meaning of what has been written through the lenses of their own realities. While the study of individual lives can provide an insight into a larger group, this is much different from the notion that to understand *one* is to understand *all*. Cole and Knowles (2001) have argued that the in-depth exploration of individuals' stories brings us much closer to understanding the complexities of lives in communities.

Where this study most closely resembles life history inquiry is in the approach taken to interviewing. Interviewing as a technique for gaining insights into the human condition has been practised for many years. However, up until quite recently the approach was constrained by a preoccupation with quantifiable scientific rigour. Central to a life history approach is recognition of participants' ideas as to how the research may be undertaken. Participation is invited and the researcher is not cast in the role of expert, nor is research presented as a highly specialised, complex or scientific procedure. An essential ingredient to this approach is gaining trust and as Fontana and Frey (2000) pointed out, even when this has occurred, trust can still be very fragile. These writers maintained that establishing rapport should be paramount in this type of interviewing.

The increased attention to participant voice means that life history interviews are generally less structured in nature. According to Fontana and Frey (2000) semi-structured interviewing provides a greater breadth of data than more structured approaches. The approach taken in this present study is best described as 'guided conversations'. This interview is not entirely without direction and the interviewer using this approach typically has some topics or themes that he or she wishes to

find out about. However, the interview is essentially informal and the questions are open-ended. The conversational-style interview is where the researcher develops connections with participants and where they 'share' their stories and ideas (Aston, 2001). This may sound positive and one could assume participants would welcome greater autonomy, but as Plummer (1995, p. 53) reported, "It is simply not what most people think of an interview, so that makes the task difficult from the outset; there are no clear prescriptions as to how the participant is expected to behave. Often the participant is expected to take the lead."

This method of interviewing "requires openness, emotional engagement, and the development of a potentially long-term, trusting relationship between the interviewer and the subject" (Denzin & Lincoln, 2000, pp. 633-634). The researcher in this context is not regarded as an impartial, unbiased or remote figure and the relationship between the researcher and participant is recognised as an important aspect of the research process. Cole and Knowles (2001) said that the notion of 'relationship' is central to the research process. In contrast to more formal and structured approaches, the relationship here can be viewed as "more humanistic ... complex, fluid, and ever changing with boundaries that blur in kaleidoscopic fashion" (Cole & Knowles, 2001, p. 27).

This research involved a single interview, which could be criticised as inconsistent with the notion that life history inquiry is concerned with depth rather than breadth (Cole & Knowles, 2001). However, as with all research, this present study involved some practical constraints as well as competing priorities. For example, the majority of the participants in this study were people with extremely busy schedules and it was anticipated that to obtain a second interview was going to be very difficult and that the attrition rate would likely be high. This was confirmed by how long it took to arrange and complete one interview, and it was clear from that experience that including a second interview would have added a minimum of 18 months to this study. Another consideration was the cost. The travel involved in undertaking the interviews was quite extensive, with four interviews taking place outside New Zealand. The additional costs associated with a second interview made this added commitment prohibitive. Consideration was given to reducing the number of participants and interviewing each one twice.

However, it was felt that this would have compromised the facility to derive domain-specific conclusions from this study, as this would have limited the scope to two representatives in each a domain.

While this was only a single-interview study, the interviews were in-depth, lasting on average for two hours. I also have significant experience as a qualitative researcher using this type of approach, and considered my skill as an interviewer offset, at least to some extent, the limitations of interacting with the participants on only one occasion.

3. Determining Relevant Domains and Degrees of Adult Achievement

It was important that a framework for investigating adult achievement was selected that was compatible with the aims of this research. This meant that some specific criteria had to be met. First, the approach not only needed to encompass a broad range of human endeavours, it also needed to offer a method of domain classification that allowed for ease of analysis and comparison across areas. Second, because one of the intended outcomes of this study was to better inform educational practice, it was considered preferable to employ an ability framework that articulated with education in this country, especially the education of gifted and talented young people. Third, there were obvious benefits in selecting an approach that had already been used to study adult achievement.

Gardner's (1983) multiple intelligences (MI) was considered the one approach that met all three criteria. The breadth of this model allows for the inclusion of an extremely wide range of talent areas but it also offers a way of categorising these into broad ability domains. MI has also been widely accepted in schools in New Zealand, both to inform practice in education generally but particularly as a way of conceptualising giftedness and talent (McAlpine, 2004; Ministry of Education, 2000). Finally, the model is grounded in studies of outstanding adult achievers (e.g., Gardner, 1993, 1995, 1997) and similar to the goal of this present study, the findings from Gardner's investigations have been used to inform practice in general and gifted and talented education (e.g., Gardner, 1999; von Karolyi et al., 2003).

The theory of multiple intelligences was first presented in the book *Frames of Mind* (Gardner, 1983) and it represented a serious challenge to the idea that an individual's intellectual abilities could be captured in a single measure of intelligence. Although he did not dispute the notion of general intelligence, or *g*, Gardner “does challenge the scope and dominion of its explanatory power” (von Karolyi et al., 2003). Gardner (1999, p. 33-34) conceptualised talent as “a biophysical potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture.” While Gardner was not the first to propose relatively independent human faculties, he did pioneer ways of investigating human achievement as a basis for theory. Prior to Gardner's work, most other explanations of human intelligence came out of the psychometric tradition. This tradition generally relied on identifying correlations with *g* and was restricted to abilities that could be assessed by oral questioning or pen and paper testing. Gardner initially reviewed the literature using the following eight criteria or 'signs' of an intelligence:

1. Potential isolation by brain damage.
2. The existence of savants, prodigies and other exceptional individuals.
3. An identifiable core operation or set of operations.
4. A distinctive development history, along with a definable set of 'end-state' performances.
5. An evolutionary history and evolutionary plausibility.
6. Support from experimental psychological tasks.
7. Support from psychometric findings.
8. Susceptibility to encoding in a symbol system. (Gardner, 1983)

Using these criteria Gardner (1983) proposed the following seven intelligences:

1. **Linguistic intelligence:** Sensitivity to the spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals.

2. **Logical-mathematical intelligence:** The capacity to analyse problems logically, carry out mathematical operations, and investigate issues scientifically.
3. **Musical intelligence:** Skill in the performance, composition, and appreciation of musical patterns.
4. **Bodily-kinesthetic intelligence:** The ability to use the body or parts of the body to solve problems.
5. **Visual-spatial intelligence:** The ability to recognise and use the patterns of wide space and more confined areas.
6. **Interpersonal intelligence:** The capacity to understand the intentions, motivations and desires of other people.
7. **Intrapersonal intelligence:** The capacity to understand oneself, to appreciate one's feelings, fears and motivations.

In 1999 Gardner added naturalist intelligence and suggested that existentialist intelligence be considered for future inclusion. Naturalistic intelligence was not included in this study for three reasons. First, the design of this study was completed prior to Gardner proposing an eighth intelligence. Second, unlike the other seven intelligences, Gardner has not included any individuals with naturalistic intelligence in any of his studies of extraordinary achievers. Third, my own personal experience indicated that very few New Zealand schools were using the extended version of Gardner's multiple intelligences. Inasmuch as this study aimed to make relevant connections to classroom practice, the addition of naturalistic intelligence seemed unwarranted.

Each intelligence is considered a relatively autonomous intellectual faculty and capable of functioning independently. However, in most cases, according to Gardner (1983), the intelligences work in concert with one another and what distinguishes people is their profile of intelligences. While theoretically a person could perform at a similar level or even excel in all of the intelligences, in reality most individuals evidence a more jagged profile of abilities (von Karolyi et al., 2003).

In his book *Creating Minds*, Gardner (1993) profiles the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham and Gandhi to exemplify each of the seven intelligences. He concludes from this investigation that these eminent adult achievers differed, not only in terms of their dominant intelligence but also in the breadth and the combination of intelligences. He has subsequently applied his model to profile other groups of outstanding adult achievers.

Initially, Gardner's original seven intelligences seemed an apposite basis for determining the scope of this present study. However, it was later decided to make two modifications to the model so that it was better suited to the aims, scope and approach of this study. The first was the removal of intrapersonal intelligence. It was felt that assessing self-knowledge and from that determining who could be considered outstanding in this area was a very difficult task. That is not to suggest it is not possible, but it was believed that the methods intended to identify people who had achieved highly in the other six intelligences would probably be less effective in evaluating levels of intrapersonal ability. The second adaptation was the addition of a business-entrepreneurial category. Gardner has argued against this category and a business-entrepreneurial intelligence would almost certainly not meet his eight criteria for inclusion as a separate intelligence. However, in the context of studying adult achievement, business-entrepreneurial ability seems a very valid area to investigate and one that is not readily captured by any of Gardner's group of seven. Gardner (1999) partially addressed this issue in *Intelligence Reframed*, where he stated, "MI theory was devised as a description of individuals ... But the corporation was set up in direct analogy to the person" (Gardner, 1999, p. 194). He then argued that different business enterprises utilise different intelligences. For example, financial businesses draw on logical-mathematical intelligence; the entertainment industry on musical and/or visual-spatial intelligences. He noted that across the business sectors, the full range of intelligences should be employed, which "asserts the challenge that there is a single 'business' intelligence" (Gardner, 1999, p. 197). He then dismisses this idea, maintaining that each intelligence can be harnessed in an entrepreneurial environment and that those with varying blends of intelligences should assume the critical roles in business.

While acknowledging the validity of Gardner's arguments, it was still considered legitimate to include business-entrepreneurial as a category for inclusion in this present study. The alternative was to take an approach more consistent with Gardner's rationale and assume that those who had succeeded in a particular business would have to have strengths in a field that articulated with the nature of that enterprise. However, the development of entrepreneurial ventures, at least in New Zealand, rarely appear to follow such well defined lines and I remained convinced that the successful development of a business or entrepreneurial enterprise requires special abilities that are more than a sum of the parts of some of the other intelligences. With the addition of the business-entrepreneurial category, it is arguably inappropriate to refer to the final seven as 'intelligences' and these should be seen more as domains of adult achievement.

Having decided on the domains of ability to be included for this study, the vexing question of what actually constitutes outstanding achievement remained. It was thought this would be partially addressed by focusing on the 'top four' New Zealanders within a domain, or category within a domain. However, it still seemed important to guide those making nominations by offering some criteria against which an individual's contribution might be judged. *The Pentagonal Implicit Theory of Giftedness* developed by Sternberg and Zhang (1995) was selected as the model best suited for use with this research. This 'implicit' theory identifies five components that comprise giftedness in adults:

1. *Excellence*. To be considered gifted an individual must be 'extremely' good at something.
2. *Rarity*. The gifted individual must possess high levels of an attribute that is superior in relation to their peers but also rare relative to the abilities of their peers.
3. *Productivity*. Their superior ability or abilities must lead to productivity.
4. *Demonstrability*. This superiority must be judged against valid assessment.
5. *Value*. The product or performance of the individual must be valued by society.

4. Ethical Issues

This research had to be approved by the University of Waikato School of Education Ethics Committee prior to any contact being made with participants. Clandinin and Connelly (2000) suggested that this in itself poses an ethical dilemma for the researcher. Clearly, it is inappropriate to approach participants until institutional approval has been sought. However, complying with this means some of the aspects of the inquiry cannot be negotiated. Therefore, the proposal submitted for ethical approval was left as open-ended as possible to preserve the integrity of the life history approach.

The major ethical issue that all of those involved in the design, approval and supervision of this study were aware of, was participant anonymity. Many of the participants in this study are people who have or have had, a very high public profile. To openly and honestly represent the stories told by these individuals meant the inclusion of information that could result in their anonymity being compromised. The life stories of some of the participant group in this study have been documented elsewhere, making their identity easily discernible to those reading this research. Some participants are less well known to the public at large, but their peers are very familiar with information related to their accomplishments.

However, it was decided that it was still more appropriate not to name the participants and to avoid including material that made a person's identity readily obvious. This issue was discussed with each participant and no person expressed any concern or anxiety about it. Almost all participants said that they would be happy to be named, or identified by implication, with two saying that they would prefer to be named. Three said they thought that not naming participants was an advantage in this type of research, but all three conceded that it would be possible for some of those who knew them well to identify them from the written thesis. The participants were asked to read the transcripts with this in mind, and were invited to delete or amend any portions that might make their actual identity more obvious. The researcher was also sensitive to using references made by the

participants to other people, knowing that if the participant was identified, other individuals referred to in their conversations could also be identified.

In life history inquiry the researcher is asking people to open up their lives and it is important to be aware of the potential of this to touch on sensitive areas. The researcher has to be careful that in probing to obtain a clearer picture that he or she still maintains the boundaries of respect (Aston, 2001). To this end it is important that the participants feel they have control over the interview. Acker, Barry and Esseveld (1996, p. 82) maintained that, “the powerful subject has no difficulty in being active and determining the parameters of the interview.” It was considered that the principles that underpin life history research, as detailed earlier in this chapter and adhered to in this research, would empower participants in this way. If they were to share material that they later felt was inappropriate to include, the opportunity was provided for this to be deleted from the interview transcript.

5. Participant Selection

It was decided to include four individuals in each of the seven MI domains, making a total of 28 participants in all. The participants were to be living New Zealand citizens but not necessarily of New Zealand birth or currently domiciled in New Zealand. The aim was to include an ethnic mix that was representative of the major groups in the country. A gender balance was aimed for, across the participant group as a whole but also within the specific domains.

Approaches to participant selection used in other retrospective studies of adult achievement have been reported on previously in this thesis. The common method is to evaluate achievement in terms of reputation and a variety of ways have been used to establish this. In this present study, the approach was to seek nominations from ‘experts’ in the various domains and to ask these individuals to nominate the four living New Zealanders whom they considered had reached the very highest level of achievement in the country, consistent with the criteria used in the *The Pentagonal Implicit Theory of Giftedness* (Sternberg & Zhang, 1995). The selection of nominators was arrived at following extensive discussions with

colleagues and associates who worked in or had an expertise in the various domains. Library and internet searches of books, journals, magazines, newspapers, newsletters, web sites and numerous other sources were also referred to. A list was compiled of 12 nominators and four backup nominators for each domain. The aim was to obtain nominations from at least 10 of these experts. The backup nominators would be used if, after a few weeks, the number of responses appeared unlikely to reach the target of 10. Clearly, in a country as small as New Zealand, some of those approached as nominators could also qualify as participants in the study. All nominators were informed that it was acceptable to self nominate.

A problem that emerged at this stage was deciding what areas would be represented within a domain. Clearly, each domain could include a diverse range of activities. For example, the logical-mathematical domain could include scientists and mathematicians, but it could also include physicians, surgeons, computer programmers, statisticians, etc. The approach here was to some extent convenience sampling, which could be seen to impose a significant limitation to the range of achievers that might be nominated. However, there were two safeguards against a strong bias towards a particular area within a domain. First, my own knowledge of outstanding New Zealand achievers, derived from personal experience and extensive reading, informed the selection of nominators to ensure as many eminent individuals as possible would be considered for inclusion. Second, the nominators were provided with a description of the domain only, and given no direction to choose an area within a domain that reflected their specific expertise.

In this first phase, an invitation to nominate potential participants was sent to 84 experts. The mail-out comprised a letter outlining the research, identifying their domain of expertise and inviting participation (see Appendix A); an overview of the seven domains of ability being investigated and the criteria to guide nomination (see Appendix B) and; a participant nomination form (see Appendix C).

After one month, responses had been received from 55 of the 84 invited to be part of the nomination process. Two of this group declined to participate and the remaining 53 had each nominated four potential participants, constituting an overall response rate of 63 percent. Across the categories, the response rates ranged from a high of 83.3 percent for the logical-mathematical domain, to a low of 41.6 percent for the business-entrepreneurial domain. The next phase involved a mail-out to backup nominators. This required adding experts to the initial list of nominators as the attrition rate in two areas was greater than had been anticipated.

The final number of completed nomination forms received was 72. This ranged from 12 in the logical-mathematical domain to eight in business-entrepreneurial domain, with an average of approximately 10 per domain. All but two nominators had identified four outstanding achievers in their field (one had nominated three and one had nominated five). The nominators were asked to nominate in the one domain that they were expert in. Most of the domains could include a very wide range of quite different activities. For example, the visual-spatial domain includes painting, sculpting, carving, photography, graphic design, architecture, etc; the musical includes performance and composition in any of the musical genres. There were obvious disadvantages in attempting to canvas expert opinion across the widest possible scope of activities associated with each of the seven domains. A narrowing of this focus was achieved by approaching nominators who represented a limited range of pursuits within each domain. For example, for the logical-mathematical domain those approached were expert in either mathematics or science. In the visual-spatial domain the nominators were expert in the visual 'arts'. However, there was no direction given for nominators to limit their nominations to a category within a domain. They were provided with the domain for nomination, and an explanation of that general domain. However, almost all nominators limited themselves to nominating within their own specialist area.

The next phase involved ranking nominees according to the number of times each was nominated and identifying the 'top four' individuals in each domain. These four would then become the first group invited to participate. The level of consensus between nominators varied greatly across domains and was highest for the logical-mathematical domain and lowest for bodily-kinesthetic. However, it

should be noted that the domain description, the number of discrete categories of activity a domain represents, and the range of activities the nominators represented, was much wider for some domains than others. The actual differences in agreement, therefore, could just as likely to be a reflection of these factors than an actual lack of consensus across a domain. There was universal agreement on a single individual across all nominators in the logical-mathematical, musical and bodily-kinesthetic domains. Each of these first 'top four' groups contained individuals who had been nominated by two or more experts. The average number of nominations received across the group of 28 was 5.28.

In the next phase, this group of 28 was invited by letter to participate in the research (see Appendix D). A *Participant Consent Form* (see Appendix E) and a pre-paid return envelope were included with the letter. Where a response had not been received within a six-week period following the posting of the letter, a follow-up reminder was sent.

After two months a group of 18 had provided written consent to be involved in the study; a response rate of approximately 64 percent. The level of consent was highest for the verbal-linguistic domain, with three of the four invited agreeing to participate, and lowest for the business-entrepreneurial, where only one positive response was received. Five of the 28 invited declined to be involved, and a nil response was received from the other five.

This left all domains with less than the four participants required so a further 10 individuals were invited to participate. This invitation extended to the 5th ranked nominee in three domains, the 5th and 6th in three domains, and the 5th, 6th and 7th in one domain. This group was also sent reminder letters after six weeks. This second round of invitations to participate resulted in a further six participants being added to the research group, with only three domains now a single participant short of the target of four participants. The previous procedure was repeated for the third time. At the end of this phase a group of 28 participants, four for each domain, had been established. In the business-entrepreneurial domain this involved extending the participant group to a 9th ranked nominee, but

across the remaining domains all participants held a position of 8th or higher in the pre-selection rankings. From this point in the study, none of the 28 participants withdrew. Participant details are listed in Table 1 and the ‘talent description’ was that chosen by the participants to describe themselves in the context of this study.

Table 1
The areas of outstanding achievement of the 28 study participants

Domain	Participant ID	Gender	Talent Area
Verbal-linguistic	VL1	M	Writer
Verbal-linguistic	VL2	M	Broadcaster
Verbal-linguistic	VL3	F	Writer
Verbal-linguistic	VL4	F	Writer

Logical-mathematical	LM2	M	Physicist
Logical-mathematical	LM1	M	Mathematician
Logical-mathematical	LM3	M	Medical Researcher
Logical-mathematical	LM4	F	Scientist

Musical	M1	M	Musician
Musical	M2	M	Concert Pianist
Musical	M3	M	Singer/Song writer
Musical	M4	F	Singer

Visual-spatial	VS1	F	Photographer
Visual-spatial	VS2	M	Artist
Visual-spatial	VS3	F	Artist
Visual-spatial	VS4	M	Artist

Interpersonal	I1	M	Broadcaster/Political Commentator
Interpersonal	I2	F	Public Servant
Interpersonal	I3	F	Politician
Interpersonal	I4	M	Diplomat

Domain	Participant ID	Gender	Talent Area
Bodily-kinesthetic	BK1	F	Sportsperson
Bodily-kinesthetic	BK2	M	Athlete
Bodily-kinesthetic	BK3	M	Dancer
Bodily-kinesthetic	BK4	M	Golfer

Business-entrepreneurial	BE1	F	Business Manager
Business-entrepreneurial	BE2	F	Business Woman
Business-entrepreneurial	BE3	F	Business Woman
Business-entrepreneurial	BE4	M	Entrepreneur

6. The Interview Process

The next phase of the study involved arranging interviews with the participants. This was not a straightforward process, as this was a group of extremely busy people. As a consequence, the interviews took a period of 18 months to complete. Arranging the interviews was usually by email or telephone. The busyness of these people’s lives is reflected in the number of occasions the interviews were postponed. Of the 28 interviews completed, 10 were re-scheduled once, three were re-scheduled twice, and two three times.

The participants decided the venue for the interview and the expectation was that I would travel to meet with them. However, three participants were able to schedule an interview during a time when they were visiting the city where I live. One of these interviews was undertaken in my home. Of the other 27, 10 were conducted in the participants’ workplaces, nine in their homes, seven in hotels or cafes, and one by telephone. The telephone interview was the last interview and became necessary when the participant had to leave the country unexpectedly and could not give any assurance of when he might return. This participant was so enthusiastic about the study that it seemed inappropriate not to involve him when a face-to-face interview became impractical.

Consistent with the methodology chosen for the study, the interviews were semi-structured and open-ended although a set of topics guided the conversations.

However, the participants were accorded a high degree of autonomy of direction, both within these topics and in what other topics were discussed. The following broad themes guided the interview:

1. Participants' ascriptions of their achievements.
2. The influence of parents, family and home on the development of their abilities.
3. Educational experiences.
4. Social and emotional development.

On average, the interviews lasted for just over two hours. The shortest interview was one hour in length and the longest four hours. The participants were only interviewed on one occasion, although seven sent supplementary information by email or letter following the interview. This additional information was unsolicited. With the permission of participants, all the interviews were audio-taped. The taped interviews were then transcribed and the transcripts sent to participants for amendment and approval. Four participants made amendments to the original transcripts, one deleting a section referring to a living family member, the other three inserting additional information.

Upon the completion of each interview notes we made on aspects of the interview that it was considered might not be captured in a recorded conversation. This included information relating to the setting, seating arrangements, interruptions, background activity and distractions, the presence of other people and significant aspects of a participant's manner or response.

7. Dealing with the Interview Material

The task at this point, according to Cole and Knowles (2001), is similar to that of an archivist, where the research information is 'deposited' in a way that makes sense for future 'retrieval'. They pointed out that it is important to organise the information in a way that "maximises access and ongoing visitations of the material." (p. 96). Each transcript was analysed as soon as possible after the interview and notes made on a hard copy. This was considered vital, given the

length of time it took to complete all the interviews (18 months). However, the protracted nature of the process held some advantages in this present study, in that it allowed time for the reflecting on and organising of the interview material. Time is the element that Plummer (1983) said is a necessary part of the process.

In many ways this is the truly creative part of the work. It entails brooding and reflecting upon mounds of data for long periods of time until it 'makes sense' and 'feels right', and key ideas and themes flow from it. It is also the hardest process to describe: the standard technique is to read, make notes, leave and ponder, reread without notes, make new notes, match notes up, ponder, reread, and so on. (p. 99)

Plummer's account is a fairly accurate description of the process of data analysis undertaken in this study. In the first instance I used QSR NUD*IST (R) 3.0 (Non numerical Unstructured Data Indexing Searching and Theory-building), a multifunctional software system for the development, support and management of qualitative data analysis (QDA) projects. This software is designed to deal with unstructured qualitative data such as text from interviews. While not discounting the value of this method, I found a more manual, hands-on approach to dealing with the text yielded a dimension that was not achieved using NUD*IST.

I felt it was important to transcribe the first four interviews myself. In particular, this enabled me to appreciate how the transcribed interviews could result in an incomplete or different record to the actual conversation. The remainder of the interviews were transcribed by two different secretaries, both with extensive experience transcribing research interviews. The transcriptions were completed as soon as possible after the actual interview. These were then printed on A3 size paper, with sufficient space for notes alongside the actual transcript. Once I received a transcript I listened to the actual interview and identified and noted any discrepancies between the two, and inserted details about tone of voice, hesitation or pause, laughter and any behaviour evident from the taped conversation but not from the printed transcript. I also recorded on the printed transcripts relevant details from the field notes made immediately following the interview.

As noted earlier, the transcripts were sent to participants for amendment and approval. Twenty-four participants approved the interview transcripts without change. Three added information, and one deleted a section referring to a living family member. At the same time as the transcripts were returned to the participants, an invitation was extended to them to forward any supplementary information that they thought might be relevant to the study. Six participants availed themselves of this opportunity. This additional material usually entailed a fuller explanation of responses made during the interview.

Multiple copies of each annotated transcript were then printed and these were used to 'partition' the interviews in multiple ways, including chronologically, by gender, ability domain, age, educational experience, educational qualifications, family background, level of parental support, age an ability was first noticed, influence of mentors, critical events and ascriptions of success. Eventually, the most appropriate categorisation of the data seemed to be by 'themes'. However, one becomes aware that any clustering of responses in this manner can over-represent trends and under-represent the individuality of people's experiences and stories. It may be that the ideal way of dealing with this dilemma would have been presenting the data as 28 case studies. However, that was beyond the scope of this study. In addition, in a country as small as New Zealand the use of case studies would have made the identity of many of the participants immediately apparent. Nevertheless, in an attempt to reflect the uniqueness of each individual's account and the holistic nature of the talent development process, it was decided to include two case studies.

8. Conclusion

This study involved a group of 28 outstanding New Zealanders from seven areas of ability, six of which match Gardner's original multiple intelligences. Experts in fields within each domain had previously nominated the members of the group. It was decided that a life history approach offered the best method for obtaining the views of adults on the process of talent development. The data gathering involved individual interviews, which could most accurately be described as guided conversations employing open-ended questions around some broad topics. As

Plummer (1995) pointed out, the researcher's role in this approach is similar to "the non-directive, phenomenologically aware counsellor" (p. 53). Central to this method is the uniqueness of the person and the situation. A key ethical consideration for this study was the issue of anonymity, which could not be guaranteed to participants, given the high public profile of many of them. This issue was raised with each of the participants and none of them expressed any concern that their identity might be revealed.

Results and Discussion

This chapter presents and discusses the major findings from this study. There were a variety of ways these findings could have been organised but it was decided to structure the information according to the emergent themes. These themes mirror the topics the participants gave primacy to in their conversations, but they also closely reflect the broad areas this research aimed to explore. The first theme is 'Drive', and it is placed in this position because this aspect emerged as the strongest single feature of the stories told by the participants about their achievements. This is followed by, 'The Family', 'Education' and 'Marginality'.

1. Drive

It's just an engine of delight and fun and mystery and I want to stretch the limits of my physical, mental, emotional and intellectual self. VS 3

The word 'drive' is part of our everyday language and is used in a manner consistent with the *Concise Oxford Dictionary* (Thompson, 1995), which defines drive as, "The capacity for achievement; motivation and energy; an inner urge to attain a goal" (p. 414). Roget's Interactive Thesaurus (2004) lists as synonyms to drive: ambition, effort, energy, enterprise, get-up-and-go, impetus, impulse, initiative, momentum, motivation, motive, vigour and vitality. Woodworth (1918) first coined the term 'drive' in the context of human behaviour and explained it as a force within the individual that activates or energises behaviour. Freud did not use the word drive (he preferred psychic energy) but was one of the first to develop what has become known as 'drive theory' (Jones, 1953). The critics of drive theory argue that while it may be useful to describe behaviour, it is not useful to explain the causes of behaviour. In general, the participants in this study used the notion to describe their behaviour but a small number went a little further and gave an explanation of it. This group usually described it as an energy or force from within. An artist explained it this way: "For me it [drive] is not about

fame or career or anything as disgusting as calculated moves, it's just an engine of delight and fun and mystery and I want to stretch the limits of my physical, mental, emotional and intellectual self" (VS 3)..

1.1 Results

In reviewing all 28 interviews the one aspect of the participants' lives that stands out more strongly than any other is probably best encapsulated in the word 'drive'. Approximately half the participants in the study actually used the word drive in the context of describing or explaining their motivation, determination, persistence, and commitment to their area of accomplishment. These people tended to talk about their drive as part of their personality or character, generally in positive terms, but a few noted some negative aspects associated with their drive. Participants who did not use the word 'drive', described their engagement with their talent area in a manner that was consistent with how the others used the term. They described themselves as: determined, extremely energetic, persistent, unrelenting, strong-minded, single-minded, zealous, stubborn, fanatical, fixated, obsessive and driven. Three people mentioned that this was how others saw them, but not necessarily how they saw themselves, although two of this group acknowledged that it was probably an accurate description.

Interestingly, drive was not necessarily what all participants attributed their achievements to when asked the question, "How do you account for your achievements?" This question was usually posed early on in the interview and more than half the participants responded that their successes came about by chance or luck, or by being in the right place at the right time. However, as their stories unfolded, it became very clear to the interviewer that each had a level of drive and determination that much more likely accounted for their successes than chance factors could. As an interview progressed, a number seemed to come to the realisation, or else felt more comfortable acknowledging, that luck was actually not as influential as they had first said it was. As one person reflected:

Actually, I'll take back what I said earlier about being lucky and luck is why I am where I am today. I realise that luck played a part but only a

small part. I have worked hard every step of the way and continue to work hard. Maybe luck played a part in which corner I turned, in the direction of my accomplishments, but it's not at the heart of it. To some extent I am driven, and I believe that's more likely what those of us who enjoy a high level of success have in common. Not luck. Not even special opportunities. It's drive. (BK 4)

It was supposedly the renowned golfer Gary Player who said, 'The harder I work the luckier I get'. Some of the participants in this study expressed a similar sentiment:

Luck or chance has had very, very little to do with it. I have worked hard. I believe I got fewer breaks than most of my peers but the difference was I was much more determined. It's almost like a disease and I couldn't shake it off even if I wanted to. Since I was very, very young I have thrown myself one 110 percent into things. I don't let up. It causes me problems with other people, who in the past have, I know, seen my level of drive as almost pathological. But it's the key. Chance produces one-off wonders who do something significant, then disappear, or lose it or destroy it. (LM 3)

So much about life is timing. And I've been very lucky. Having said that I don't believe in luck. Yeah – I made my luck. And you make your luck by being open to opportunity. You make your luck by being informed and having a good attitude ... and it's talent and determination. (VL 3)

Well, in a sense that you have no choice over where you're born, or who your parents are, so that's the first bit of luck isn't it, whether we get a good start in life. And after that I think you have to create your luck. (I 3)

A small group of the participants acknowledged that their level of drive was not common and the examples they provided of motivation, determination and single-mindedness of purpose reinforced this exceptionality. Some felt that a high level of drive was central to and an innate aspect of their personality. A few believed

that they had little power to control such strong urges and one person described it as, “An absolute feeding of a necessity” (VS 1). Three others described it in a similar manner:

I do work hard and I always have. Why? Something deep inside me will not let me settle. All other things in life take second place to what I am doing. If I try to pull myself away I become frustrated and irritable. If I have to go to a social engagement when I’m in this space it’s a disaster. My body is there but my mind is somewhere else. I keep thinking how can I escape? How can I get out of here and back to my work? There is also a sense that there’s so little time and there’s so much I have to do, and every minute spent on something else is a minute wasted. (BE 1)

A lot of things drive me. It is hard to define what it is exactly. I’ve never stopped to think about it. I’ve always just gone about things. Like I said, I’m not satisfied just to cruise ... I have never been able to sit still. I have always wanted to run around and do things. Sometimes I go so hard I feel like my heart is going to explode. Sometimes, when I was younger, I would get five hours sleep a night - if I was lucky. I just kept going until I got things done. (VS 3)

I think [my success] it’s a combination of things. I’d like to say the overriding factor is hard work. I’ve always worked hard. This probably sounds strange to many people but I actually enjoy hard work. I thrive on it. (VL 2)

A number of participants offered an explanation of where they believed their high level drive came from. There were some differences here across the eight domains. The artists and writers, and to a lesser extent the musicians were more likely to talk about their drive in terms of something internal or intrinsic. A good example of this is found in an earlier quote where an artist referred to her drive as “an engine of delight.” A writer spoke of writing before he was able to read: “I’d arrange little wooden blocks in patterns ... making what I thought were little cities ... and I’d tell the story of the people who lived in them.” (VL 1). Once he learned

to read he wrote stories and wrote so much he said he felt guilty. He referred to this desire to write, there from a very young age, as an ‘energy’ and said, “I just need to do it and I don’t feel right if I’m not doing it.” These individuals were highly intrinsically motivated and some indicated that they would write, paint or perform, irrespective of the presence or acceptance of an audience. As a singer/song writer said, “It’s a bonus that people enjoy my work but it’s not this that motivates me to write and play music. I do it to satisfy my soul” (M 3).

In contrast, a small group, primarily those whose activities and accomplishments were more public, felt that attention and recognition was central to their motivation and determination. One, who has gained recognition through the medium of radio and television said he had been an ‘applause seeker’ from when he was quite young. He believed this drive for attention and recognition was typical of the many high achievers he had interviewed:

I think often a lack of real confidence goes together with high achievement, and this is one of the things I have noticed in my interviews over the years. The more the self doubt the more they are inclined to be competitive high achievers. Entertainment people in particular need applause, and in my experience no matter how much applause is given, it’s never enough. (I 1)

An athlete considered that amongst sportspeople there is a “craving for recognition” saying he was, “Absolutely sure we wouldn’t do it if people were not watching” (BK 2).

Three of the 28 said their entry into their careers was borne out of necessity. These three were all women and all in the business-entrepreneurial group. In one case a woman’s husband was killed and she was forced to assume primary responsibility for their business. Under her leadership this business has progressed dramatically and enjoys a level of reputation and productivity that far exceeds what previously existed. Another woman, who lives in the United States, maintained that she was very practically motivated: “I got divorced when my children were very young, and I had to put them through college ... so a lot of this

has been purely from the practical point of view that I needed a job and I needed a salary” (BE 1). The third woman in this group started her own food business in response to her husband’s difficulties finding work. Within seven years this business had grown into a multi-million dollar enterprise. However, she believed that her success could not be attributed to necessity alone, “On the one hand it was about survival, but I also saw the potential and I was passionate about making it work” (BE 2).

Four participants pointed to growing up in poor circumstances and their personal determination to have a better life for themselves as influential in their success. The following account is typical of all four:

I grew up in poverty. I heard the debt collectors knocking on the door. I saw our furniture being repossessed – and on more than one occasion. I saw my mother’s tears when my father squandered yet again what little money the family had. I saw him even spend my sister’s wedding money. I determined at a young age that this wasn’t going to happen to me. Whatever it took, however hard I had to work, there was no way I was going to live in poverty. To me, the first step was to get an education. (I 2)

Once person said her drive came from a long-held interest in people and a desire to know more about what motivated them to behave in particular ways:

I think I’ve got a real drive actually. Well there’s two drives. One is that I love humans, in the sense I think they are the best things going on earth. And then I hate what’s happening. I mean look at our track record. I can’t understand why we are like this, so I keep trying to find out, which is an impossible task. And the other thing is that I want to know the where’s and why for’s of everything. It’s not quite social justice. I want to know why. (VL 3)

For another, the opportunity to be involved in contributing to the betterment of society was a primary motivation:

Contributing to the wellbeing of others is a very, very important driver. You think at times what is it you leave behind. You can leave a good name, you can leave children, and you can leave a reputation ... and then you can leave a contribution to improving the human condition; that's really all you leave. (LM 2)

To understand the levels of drive of the individuals in this study it is important to look at their attitudes and approaches to what could loosely be termed their 'work'. In almost every case in this study, there seemed to be a blurred line between what was work, and what could be considered 'non-work'. There was a sense that the two merged into one, not just in terms of time but also in terms of attitude:

Whenever I fill in the census form and am asked how many hours I spend a week working, I think, I'm always working. Why would I not want to work, it's so good. So I'm either writing or thinking about my writing ... when I'm alone I'm working all the time ... I'm always astonished by people who say they need time out and things like that. (VL 1)

I don't think of my work as my work. I guess that's why I am so motivated. How good is that. I get to do what I enjoy most in life. My issue is not getting started; it's when to stop. I guess my work is my world and my world is my work. (M4)

Like M4, many of the 28 indicated, either explicitly or implicitly, that their work was also their pleasure. One person put it this way: "I work incredibly hard. Even though I am in my 70s I still work hard. I love work" (VS 1). Another person said that others often referred to her as a workaholic because she tended to work an average of 18 hours a day. She said this level of drive seemed to bewilder many people and some clearly viewed it as "unnatural and unhealthy." To her it did not represent great effort and she was adamant that her drive could be accounted for

by, "The pleasure principle" saying, "My work is my pleasure" (VL 4). One person seemed to find it difficult to even conceptualise what he did as work: "I guess I spend a lot of my life doing what people call work and that I enjoy doing" (LM 3). A musician expressed a similar sentiment. "I am always working. My mind is never far away from my work. Everything I see is a potential idea I can use. How do I relax? I work. How do I have fun? I work. But then, what is work?" (M3).

For some in this study the alternatives to work, the recreational activities that others might pursue to find relief from the stresses, demands and tedium of work, were a poor alternative to working:

I am fortunate to really enjoy what I do. It doesn't seem like hard work. I don't have a problem with motivation or drive. How many hours do I work? Well it's hard to count, because you're going and going, even when you're asleep. I often wake up in the morning and I've solved the problem that I'd been thinking about for the last month. I can work all night. Last night I worked until 1.00 am, then was up again at 7.00 am, and that's not unusual. It's not hard work, it's actually harder to stop. Oh look, I can sit and watch television I suppose, I'm not particularly enamoured with going to a concert, and I never go to a movie and I can only read so many junk novels. I'd rather be using my brain. (LM 2)

Thus, the overriding impression gained from talking to these people, was that the level of drive that they demonstrated was not something that they had worked hard at cultivating, but something that seemed much more intrinsic. It is difficult to ascertain whether or not these levels of drive represent what could be termed an essential trait or aspect of their character and would exert an influence over whatever they undertook. There is little doubt that some would have achieved highly had they chosen a different area to pursue. It may be that they would not have achieved to quite the same level but undoubtedly this inherent drive would have seen them achieving much more than a modest level of success. A number showed evidence of this, and gave examples of a high level of achievement in activities outside the one for which they had become well known. One of the most

striking examples is provided by the Olympic gold medalist who, having failed the School Certificate examination on the first occasion, and who two years later failed University Entrance examination, and later failed tertiary examinations, went on to complete a PhD at a highly regarded university in the United States. He believes this was as great an accomplishment as his Olympic victories. “My motivation is to be the best I can” (BK 2).

However, there were a small number whose drive seemed inextricably linked to a specific domain, those whose motivation levels increased dramatically when they found something that interested and excited them:

I would not say that I’m generally a person with incredible drive. I guess overall I’m fairly intense; but then again in some areas I’m a slob. But when it comes to my work I seem to have an energy that’s unexplainable. I cannot get enough of it. It’s no effort to get up at 5.00 am and work until midnight. It’s others who pressure me to slow down or take a break. So I make token gestures to appease their anxieties. Holidays? What are they? I have a better time working than I do sitting on a beach doing nothing. (BE 4)

I was nothing at school; lazy, unmotivated, and generally not interested. I’m like that if I’m not turned on. However, when I find something I like, and something that presents me with challenges, I’m unstoppable. I’m a paradox really. (I 4)

Ten of the participants indicated that they believed their drive could be accounted for, at least to some extent, by heredity. Four of these mentioned their Scottish heritage as being significant in their own levels of drive. A number of participants saw the combination of the inherited dispositions of their two parents as providing them with the attributes that accounted for their achievement. The following is quite typical of how these people saw this amalgam, where one (usually the father) was reported as providing the drive, determination and hard work, while

the other (usually the mother), contributed to their creative and/or sensitive disposition:

My father's side is German/Samoan. My sensitivity comes from my Maori mother but my drive, tenacity and the hard work ethic comes from my father, who is a hard worker and who taught us from an early age, when you've got a job to do, you do it properly and you've got to complete it. My brothers have similar drive. It was drummed into us by our father. (VS 2)

Over half reported that one, or both of their parents had modeled a strong work ethic. While, as a group, their parents may not have achieved the relative success of their offspring, they placed a high value on hard work, discipline, dedication, self-sacrifice and the pursuit of excellence. A small number related this back to religious beliefs:

Both parents had enormous drive so I guess that's where I get it from. My brother did not seem to have it until quite recently. Religious fundamentalism is back-firing badly. As a child I had a strict Protestant work ethic and religious values drummed into me whether I liked it or not. I was too polite generally and spent a lot of time reading, writing, drawing, playing piano, ballet, sports - talk about an overachiever. It seemed then not at all excessive. My eldest daughter has inherited this work ethic; the younger one reacted against it. (VL 3)

Approximately a quarter of the group reported possessing high levels of drive from a young age, or provided examples of this in their childhood or youth. One person said, "I was a kid who pushed through obstacles. I had that trait. Maybe excessively nurturing parents would have been an obstacle and I could have rebelled against that" (VL 4). Another, who said he too had strong drive as a young person, spoke of sitting the School Certificate art examination on two occasions, failing both times, but in spite of these setbacks remaining determined to pursue a future as an artist and said: "The setbacks only made me more

determined, and more driven” (VS 2). Hard work was something one person said was evident in how he approached tasks from a young age:

Even as a kid I didn’t mind work, helping my dad, doing my own garden. I was always keen to work. I don’t mind any kind of work. I’ve always worked. I did lots of different kinds of work when I was a young man and when I worked, no matter what job I did, I put everything into it. I tried to do it well. (VL 2)

LM 3 said his thirst for knowledge was evident as a young child but that this was not always welcomed by others; “I questioned all the time and I was a pain in the butt apparently. I was driven by a need to know. I don’t know where that came from. I puzzled about things. I wanted to understand things.”

One person compared his drive to an addiction saying, “I guess I’m blessed with a pretty good brain, and a set of strategic skills, and also that addictive personality. It’s part of the drive. It is really bizarre. It drives people mad, this addicted workaholic” (LM 2). A small group stated that they were very aware that many of their friends, acquaintances, and even some of their own family saw their drive and determination as representing an imbalance in their lives. While they were aware of this perception, no one reported modifying their behaviour in any way to appear more well-rounded or balanced:

By most people’s definition of the healthy personality, I’m dysfunctional. Why? Because I am considered obsessive. The general feedback I get is that my drive and the hours I put in and the determination and persistence I have is obsessive. I am viewed by many people as an obsessive perfectionist. But not those of a like-mind. Thankfully, I have a number of friends who are as ‘mad’ as I am. I don’t want to be well-rounded or to have balance in my life. What future is there in that? (LM 3)

Many people clearly feel my life is out of sync. I get comments often about ‘all work and no play.’ On the other hand, some seem to envy what I have achieved. One friend commented once that I had fitted into my life

the equivalent of what three people manage to do. Others predicted I would die at a young age. Well, if they're waiting they'll be waiting a long time. I still have so much to do I can't afford to die. (BE 4)

As high achievers get older the ability to work for long hours without a break usually diminishes, albeit in some cases only slightly, but for most the drive and determination has not lessened. LM 2, now in his mid-fifties, reported that he arrives at work at 7.15 am, returns home at about 7.30 pm, has half an hour with his wife and then works for a further two or three hours. He also works for most of most weekends. A photographer, now in her 70s, reported high levels of drive, but provided an insight into the frustrations of declining energy levels:

I'm in my 70s, so obviously I get much more tired but I love hard work. My friends are always saying, 'slow down', and I ask, 'why?' Soon enough one will have to slow down. I often say to my husband, 'You go to bed but I don't want to. You spend the rest of eternity in bed'. For years I've had amazing energy. (VS 1)

Similarly, a writer in his 50s bemoaned the need for more sleep as he grew older:

I actually need sleep a lot. I need eight and a half hours on a regular basis otherwise I suffer. But I hate that because I don't want to go to bed, I want to write, and I resent the fact that I cannot work without sleep. How much more could I achieve if I didn't have to sleep? (VL 1)

Four people talked about the adverse effects and costs of working too hard and talked of physical, psychological and emotional exhaustion. All four said that they recognised the need to monitor the potential effects of driving oneself too hard. As one said:

The drive issue is very complex but one has to build a healthy base or one goes for a trip to the hospital. I get exhausted, pull in, see no one, rest, watch television, don't communicate, then build up gain slowly and work very fast. I've damaged my nervous system or maybe it's that

supersensitivity ... I'm dedicated and intense as a person but also now know when I've had enough silliness and exhausted my batteries. (VS 3)

Another person also said that he paced himself much better now, having suffered the consequences to his health of working long hours:

I have learnt to space my energies much better, to use my energies much more efficiently I think, and also in a way that better preserves my equilibrium as a person. The commitment to the hours [led] to a kind of prolonged sleep deprivation that caused serious ructions in my personal life about five years ago. There are still some days where I start at 4.00 am and don't finish until later at night, having not had a single break. Those days are fewer now. (VL 2)

The individuals in this study not only exhibited high levels of drive, in general they were able to sustain their intensity of motivation and determination over a long period of time, and in many cases over a lifetime. Some talked about ebbs and flows of motivation and commitment, of periods where their levels of enthusiasm waned, although these were invariably short-lived episodes. They reported increases in their drive as they became more immersed in their field. One person talked about her drive as a developmental process, where it, "feeds on the last thing one did [and where] the obsession grows with habit, minor success, and the interest in one's subject. It develops with understanding, encouragement, self-knowledge and tuning into a larger more universal understanding of the world" (VS 3).

Only one individual acknowledged that he was the exception to this and reported that while he had high levels of drive he reported that he had difficulty sustaining his focus. He explained this as part of his personality reflecting that, "there's a really strong element in my career and my personality of not sticking to things. I keep moving on. Four or five years ... then I go on to something else" (I 1).

The way most spoke about the realisation of their talent and their commitment to the pursuit of excellence was more akin to a calling than a choice. There was

evidence of a sense of purpose in what many were committed to doing. When asked what else they might have done in life, a number seemed taken aback. Five were adamant that it would have mattered little what their upbringing had been like, they would have inevitably found their passion. One person put it this way:

I was destined to write. I have never really wanted to do anything else. From as far back as I can remember that is all I wanted to do. I just need to do it and I don't feel right if I'm not doing it. (VL 1)

1.2 Discussion

The fact that drive features so strongly in these interviews would not come as a surprise to those familiar with other studies of outstanding achievers. In study after study, extraordinary accomplishment is ascribed in a large measure to high levels of drive, motivation, energy and hard work. To Galton (1869), having some natural ability, together with zeal and the capacity for hard work, was virtually a recipe for success, and he contended that if one possessed these traits he or she could not help but achieve great things. Cox (1926) said outstanding achievers “are characterised not only by high intellectual traits, but also by persistence of motive and effort, confidence in their abilities, and a great strength or force of character” (p. 218). In a sense, Cox saw drive as a more critical factor in achievement than ability, and argued, “That high but not the highest intelligence, combined with the greatest degree of persistence, will achieve greater eminence than the highest degree of intelligence with somewhat less persistence” (p. 187). Czikszentmihalyi (1996), in his study of outstanding creators, believed that, “After curiosity, this quality of concentrated attention is what creative individuals mention most often as having set them apart ... Without this quality, they could not have sustained the hard work, the ‘perspiration’” (p. 185).

Two key questions seem salient here. The first is, “What is drive?” The second is, “Where does it come from?” There seems to be general agreement that outstanding achievement is accompanied by tenacity of purpose (Cox, 1926), passion (Bruner, 1962), devotion (Henle, 1962), driving absorption (Roe, 1952) and persistence (Newell, Shaw & Simon, 1962). However, there is much less

agreement as to what produces this drive. Freud believed that many people sublimate or divert excess libidinal energy into socially acceptable activities (Jones, 1953). Others, such as Fairbain (1938) and Segal (1957) suggested that creative drive was associated with a need to atone for unconscious destructive or aggressive urges. Rogers (1954) believed that drive was synonymous with a motivation to fulfil one's potential. According to Rogers, this drive for self-actualisation is present in everyone, but to be fully expressed it needs to occur in a context of self-evaluation rather than a concern with the evaluation of others. Other theorists believe what is crucial to sustaining motivation and drive is a deep love for and enjoyment of the tasks being undertaken. This is often referred to as intrinsic motivation, what Collins and Amabile (1999, p. 299) described as, "motivation to engage in an activity primarily for its own sake, because the individual perceives the activity as interesting, involving, satisfying, or personally challenging; it is marked by a focus on the challenge and enjoyment of the work itself."

The notion that a high level of drive is connected to a high level of intrinsic motivation may help explain the findings of this research. The participants in this study certainly exhibited high levels of 'drive' but they also demonstrated that they found their pursuits, interesting, engaging and challenging, and a source of pleasure, enjoyment and fulfilment.

Rawls (1971) offered an explanation for the pleasure and enjoyment that some people derive from what others would consider the tedium of hard work. According to Rawls, the Aristotelian principle suggests that, "Other things equal, human beings enjoy the exercise of their realised capacities (their innate or trained abilities), and this enjoyment increases the more capacity is realised, or the greater its complexity" (p. 426). Murray (2003) stated that, "Exercising our realised capacities is, in the truest sense of the word, enjoyable" (p. 386). In Maslow's words,

A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy. What man can be, he must be ... This tendency

might be phrased as the desire to become more and more what one is, to become everything one is capable of becoming. (Maslow, 1943, p. 383)

Csikszentmihalyi (1990) described his notion of 'flow' as the experience of being fully engaged in an activity, where the focus is so intense and where the individual is so consumed by the experience that he or she loses track of time and is oblivious to things going around him or her. A number of participants in this study provided examples of a level of absorption in their work that was similar to this description. Flow is considered to be the height of human enjoyment and is most likely to occur when the skills demanded are high but where the challenge is also high (Csikszentmihalyi, 1990). Murray (2003) put it this way,

Human beings enjoy the exercise of their realised capacities, with the enjoyment increasing the more the capacity is realised. Those with the capacity for excellence do not need to be cajoled into wanting to realise it. The pursuit of excellence is as natural as the pursuit of happiness. (p. 389)

To Murray (2003) this drive is not just about pleasure, it is also about purpose. Those who participated in this study certainly did not give the impression that the drive for excellence was essentially about the self. Murray argued that, "A major stream of human accomplishment is fostered by a culture in which the most talented believe that life has a purpose and that the function of life is to fulfil that purpose" (p. 391). As Murray pointed out, while fame can come easily, excellence is almost always accompanied by extremely hard work that demands a single-minded intensity. The willingness to make such a commitment, according to Murray, is usually associated with a sense of vocation. In many instances this sense of purpose will not be ascribed to any source, but Murray maintained that, "A person with a strong sense of this is what I have been put on earth to do is more likely to accomplish great things than someone who doesn't" (p. 391).

The work of psychologist Kazmierz Dabrowski offers a different explanation for the phenomenon of high levels of drive amongst high achievers. Dabrowski's ideas, although first described some 70 years ago, have recently generated considerable interest and widespread support (Piirto, 1998). His studies of gifted

and creative children and adults led him to conclude that these individuals are characterised by intensities, or ‘overexcitabilities’, which may be psychomotor, sensual, imaginal, intellectual or emotional (Dabrowski, 1972). The overexcitabilities, considered to be innate, are characterised by an, “Unusual capacity to care, an insatiable love of learning, vivid imagination” and an “abundance of physical, sensual, creative, intellectual, and emotional energy” (Silverman, 1993, p. 13). These overexcitabilities usually appear in childhood and lead to the development of value structures that combine to, “Create an inner life which marks the gifted as different from their peers” (Silverman, 1993, p. 12). The overexcitabilities, as outlined by Dabrowski and others, definitely fit the childhood and adult profiles of some of those interviewed in this present study, and although his theory has limited support in terms of research, the ideas do seem to enjoy support from gifted individuals themselves (Piechowski, 1991). In this present study, the participants provided many examples of what supporters of Dabrowski’s theory would see as evidence of overexcitabilities.

Galton (1869) believed motivation and drive to be ‘inherent stimuli’. He referred to drive as ‘a natural craving’ and suggested that not satisfying this would result in irritability. He argued that it was akin to being ‘haunted by an incessant instinctive craving’. Some of those interviewed in this study shared the view that their drive was to a large extent inherited, and a small number made a connection to the national or ethnic background of a parent in explaining their own levels of drive.

A number of the participants in this study mentioned the influence and example of their parents in their own high levels of drive. Some pointed to the modelling and reinforcement of a strong work ethic within the family as the influential factor in their own drive. In their study of eminent individuals Goertzel and Goertzel (1962) found that almost every one of their group had a least one parent who had a strong drive towards achievement. As a group, the parents of these later-to-be luminaries were described as “restless and seeking ... physically driving, intellectually striving” (Goertzel & Goertzel, 1962, p. 3). They described this drive as a ‘dreadful urgency’ and reported that these extremely high levels of drive continued well into old age, and well beyond what they as researchers

thought was typical of most people. Their illustrious offspring tended to reflect this high drive and could be rarely described as all-rounders.

Many writers believe drive is a trait that is characteristic of gifted children. History is replete with stories of the incredible motivation, determination and focused attention of young prodigies. For example, Schachtner (in Deutsch, 1965), who was a family friend of the Mozarts, said of the young Wolfgang, “Whatever he was given to learn occupied him so completely that he put all else aside, even music. When he was doing sums, the tables, chairs, walls, even the floor was covered with chalked figures (p. 454).” Winner (1996) identified three ‘atypical’ traits that she contended distinguish gifted children from their non-gifted peers: precocity, an insistence on marching to their own drummer and a rage to master.

Gifted children are intrinsically motivated to make sense of the domain in which they show precocity. They exhibit an intense and obsessive interest, an ability to focus sharply, and what I have come to call a rage to master. They experience ‘flow’ when they are engaged in their domain – optimal states in which they focus intently and lose sense of the outside world. The lucky combination of obsessive interest in a domain along with an ability to learn easily in a domain leads to high achievement. (Winner, 1996, pp. 2-3)

After an extensive analysis of research studies of gifted individuals, Renzulli (1986) drew a similar conclusion, and argued that giftedness in children and adults involves the interaction of three sets of characteristics: above average intellectual ability, creativity, and task commitment. To Renzulli, task commitment is synonymous with high levels of interest, enthusiasm, fascination, and involvement in a particular problem, area of study, or form of human expression, as well as the capacity for perseverance, endurance, determination, hard work, and dedicated practice.

There were a small number in this study who provided evidence of a high level of motivation or drive in childhood. This is not to suggest that some of those who

did not mention this or provide examples of it may not have been similarly motivated or determined. For a few within this group, their drive could be considered more as a trait or attribute or disposition, as it seemed to transcend numerous areas of endeavour. However, for a significant number, their high levels of drive were very much domain-specific and did not transcend other interests or activities, at least not to anywhere near the same degree. For many of these people, their educational and familial worlds did not provide access to the experiences that might have resulted in this 'rage to master' and it was only after they had left school that they developed this level of enthusiasm for a domain. Certainly, most of those who had early exposure to the general area that they were later to excel in, demonstrated a keen interest and exceptional ability in that area from that stage. In addition, there was not a single example of an individual who developed a passion for an area as adult, that he or she was ambivalent about or uninterested in during childhood and adolescence. Renzulli (1986) maintained that one of the most important functions of schools in developing talent is to provide multiple opportunities for students to find an area in which they have some ability, and where their interest and enthusiasm might be captured.

In this present study, those involved in art and writing, and to a lesser extent music, talked of high levels of inner drive, or of intrinsic motivation. The link between extraordinary creative productivity and intrinsic motivation has been reported in a number of other studies (e.g., Amabile, Hill, Hennessey & Tighe, 1994). While the athlete or broadcaster or politician may be intrinsically motivated, they arguably cannot avoid being affected by external influences. Some participants in this present study openly acknowledged that they were motivated by a desire to obtain the recognition and attention of others. However, those who were involved in creative expression often seemed to make a conscious effort to avoid being overly influenced by the public's response to their work. Some were obviously concerned that too much attention to how others reacted to their work might compromise their own creativity. They may have good reason to be concerned, because there is some support for the principle that extrinsic motivation undermines creativity (Collins & Amabile, 1999).

Ludwig (1999) contended that it is not drive per se that is unique to high achievers but the way it is expressed.

These persons have a drive for dominance, supremacy, preeminence, or power, which goes far beyond the professional ambition and influences the scope and nature of their goals. They behave as if they felt compelled to be the leader, champion, prophet, pioneer, master, founder discoverer, originator, hero, or god-like creator ... Naturally, a drive of this nature is not found in people who doubt their abilities, have modest goals, or are unsure of their values. This drive for dominance or supremacy tends to be found in people with supreme self-confidence or with expansive aspirations. (Ludwig, 1999, p. 190)

The second part of Ludwig's statement does not resonate with the findings from this present study. While the participants exhibited a strong 'compulsion' in their strivings, and while many had expansive aspirations, few exhibited 'supreme self-confidence'. In fact, more expressed significant self-doubt, sensitivity to criticism, and fears of being exposed for being 'an imposter', than exuded supreme self-confidence. There is no doubt that Ludwig's group achieved much more on the world stage than this group could ever hope to achieve, and that may, in part, explain this discrepancy. The difference may be partly cultural, and much has been written and spoken about New Zealanders' tendency to self-deprecate, the value placed on humility, and intolerance of those who are perceived to flaunt their abilities and accomplishments. However, what is also likely is that different methods of studying high achievers will result in different stories being told. Ludwig did not speak to any of the great achievers in his study and he relied almost entirely on biographical information. In contrast, this present study involved participants telling their own stories, and with considerable freedom to choose to talk about the aspects of their life stories that were significant and relevant to them. This may have been a context much more conducive to the sharing of personal fears, shortcomings, misgivings, and feelings of inadequacy.

If drive is such a strong element in achieving great things, why would a number of participants in this study accord primacy to luck in explaining their successes?

One can only speculate that such a response represents modesty, and that these people felt much more comfortable ascribing their achievements to luck than to ability, or even effort. Participants were asked this question early on in the interview and it is interesting that only a few revisited the ‘luck’ theme as they elaborated on the development of their talent. One participant even retracted his earlier ascription of success to luck. It might be that as the interview progressed and as the participants felt more at ease, that they felt less self-conscious about explaining their achievements in terms of effort and ability.

The literature in this area posits as many questions as it offers answers. As Eysenck (1995, p. 146) concluded, “ ... we know very little about the kind of motivation involved, the way it expresses itself, or the possibility of increasing it.” However, there is much to suggest that ‘intrinsic satisfaction’, rather than ‘extrinsic satisfaction’ is the drive behind creative achievement (Amabile, 1983).

1.3 Conclusion

The findings of this present study in the area of drive are very similar to those reported in numerous other studies that have investigated talent development. There is little doubt that to reach the pinnacle in any domain requires an extremely high level of drive. In general, the participants in this present study would concur with Cox’s (1926) conclusion that high levels of drive can compensate for lower levels of intelligence or creativity or natural aptitude, but nothing can compensate for lower levels of drive. Many of the participants in this present study regarded their levels of task commitment, persistence and perseverance as atypical and recounted examples of others interpreting these as unhealthy. This group represents the antithesis of moderation, balance, and well-roundedness, qualities widely extolled by New Zealanders. A number believed their level of drive was an inherited trait and many reported that their parents valued and modeled hard work, discipline and determination. However, most of the participants in this study grew up in the 1950s, an era when the ‘work ethic’ and its related values were honoured, espoused and modelled by many of the country’s parents. A plausible explanation for the levels of drive found amongst gifted adults can be found in the words of one participant, who spoke of the

‘pleasure principle’. The notion is that hard work results in feelings of pleasure, which results in greater productivity, which in turns leads to greater feelings of pleasure. This cyclic pattern of work leading to pleasure leading to work may also explain why for many high achievers the division between work and play is blurred. This intrinsic motivation is probably essential to retaining a commitment to a pursuit where there is no public or peer recognition. What also seems to exert an influence in sustaining high levels of drive is a sense of purpose, which is evident in the motivational attributions of many achievers.

2. The Family

Our family existed in extreme poverty and I am so grateful for the experience. It was wonderful. I learned a lot of things very early in life. VL 4

As noted previously, the interviews undertaken in this present study were intentionally ‘loosely’ structured to provide participants with the facility to identify, with minimal ‘leading’, the aspects of their talent development that they saw as important to talk about. However, some broad topics or themes had been identified as areas I was interested in pursuing. The childhood families of this group of talented adults was one of these, although almost all of the participants introduced this aspect of their life stories without interviewer prompting.

2.1 Results

Most interviews started with the participants being asked how they accounted for their successes. As noted in the previous section, the most common explanation was ‘luck’. Only five out of the 28 gave primacy to their parents’ influence at this point in the interview (although many of the group acknowledged the influence of their parents at a later stage). Two of these focused on hereditary factors first, but also noted the positive impact of parental values and modelling. A politician, who was in no doubt concerning the most important component in her later success, provided the most unequivocal response in this context:

I think the overwhelming influence [was] having a supportive and loving family. This enabled me to develop my talents. That would be the single overriding factor in my success; the support of loving parents, totally supportive of their kids and involved in their kids' education. They put a lot of time into us as kids. (I 3)

A scientist also gave much credit to her success to her parents, saying that her parents always gave her the message that she was capable of anything. She recalled being given many opportunities to explore and investigate. "There were very few limitations exerted over what I could do. And this at a time when the choices available to girls were much more restricted than today. They were enlightened parents and I owe them a lot" (LM 4).

Only two of the 28 adults included in this present study gave evidence of growing up in what might be considered more 'privileged' family circumstances. One of these spoke of his family being 'comfortable' when he was very young, and becoming 'more comfortable' from when he reached middle childhood. His parents were well educated, enjoyed some 'social status' and were successful academically as well as financially. The second person also had parents who were well educated and had achieved 'a degree of social respectability', although they were not particularly financially advantaged. Interestingly, during the interview this person painted a picture of her childhood environment as positive in almost every respect, but some weeks after the interview she contacted the researcher by email, stating that because one of her parents was still living she felt constrained in providing what she referred to as 'the true picture' of her family. She said in this follow-up communication that the impression she originally gave was how most outsiders would have seen her family. However, she wrote,

We were set up like this ideal family but it was as dysfunctional as ever! You see, I view life as not such a comfortable place and comfort is NOT where my driving force to work comes from! I wish I could have another conversation with you but will try and ramble off a few ideas, at a distance, in self-imposed exile from a lot of painful experiences growing

up in Paradise. (This participant gave permission for this information to be used in the study but requested it not be sourced in any way.)

The majority of participants described the socio-economic position of their families as ‘working class’, ‘blue collar’, or ‘lower middle class’. The single most common occupational group was farming. The other parental occupations reported were clerks, salespeople, teachers, a draper, a shopkeeper, a self-employed businessman, an engineer, and a petrol pump attendant. Almost a third mentioned that their mothers worked outside the home. Slightly fewer reported that their mothers were not engaged in paid employment when their children were young, and the remainder did not provide information one way or the other.

A much more common theme than privilege, or even of a secure and stable childhood, was one of difficulty, struggle, hardship and challenge. Ten of the participants described their family circumstances as economically poor. Two said they grew up in poverty, both providing examples of their family’s level of impoverishment:

The four of us would get into one bed on a cold night to keep warm. We didn’t really have adequate bedding ... we had sacks that we’d get from the rubbish dump, and they’d been washed and put on the bed; and if it was very cold we’d get in between the mattresses, and we would tell stories ... We used to eat a lot of bread because we got free bread from a baker and we got free milk from the farmer down the road. (VL 4)

... we were very hard up. There were times when there wasn’t enough food. (VL 1)

While the majority grew up in households with their two biological parents, this was not the experience of almost a quarter. One had lost both parents at a very young age and grew up in an orphanage (see Case Study 2). The father of another died of heart disease when she was 11 years of age, and her mother’s health was

poor, so the extended family played an important role in her childhood:

My mother had, I think, an extraordinarily hard road to hoe. She'd been in hospital very seriously ill the year my father died. She had septicemia after a hysterectomy. She'd had about nine pregnancies in 11 years, so it was a good idea to have the hysterectomy. Anyway, she had been very ill. That put a lot of strain obviously on my father too, who knew he was liable to die of heart disease. There'd been a huge amount of help from my mother's mother and particularly from her younger brother, my Uncle R. He came and looked after the kids as much as possible. But there were also quite long periods when we were split up and sent off to other relations. (VL 3)

One person lost her brother when she was six years old and saw this as an extremely influential event in her childhood:

When I was six my brother died of leukaemia and I was taken out of the local school and sent to a private school, because of all the children asking questions and that sort of thing. He was three. So there was a very difficult six months when he was ill, and I was pushed from pillar to post a little bit, then going to a new school. I took the death of my brother very, very hard, so I think I completely lost confidence, and in those days you just didn't talk about it ... so somebody just said my brother just was no longer alive, and that was it, you didn't mention it, because if you did, Mum might cry or something, so there was no sharing of grief, no proper dealing with it in those days. I don't blame the family. I think it was just how it was done in those days. I was growing quite fast. The rest of my schooling was quite severely limited by the death of my brother, and by the lack of confidence. Apparently I lost my concentration too at that point. (BE 2)

Another, although she lived in the same household as her mother, reported that

her grandparents took a primary role in her upbringing:

My mother became pregnant with me and my father denied that I was his ... My mother's Maori and my nana and koru brought me up. So I was brought up with mum and them in a modest house ... I lived with them for the first seven years of my life and absolutely loved it and it always felt special because of the fact that I didn't have a father and my grandfather took me under his wing. I was given my great grandmother's name, it was my middle name, to look over me so to speak, and so I always had that perception that I was special. I always knew who my father was, Mum pointed him out to me and would say, 'That's your father', so I never had any problems with that. (BK 1)

Another individual never knew his father at all, something that he sees as very influential in his development:

My father and mother separated when I was two, so I never knew my father at all, so I was an only child brought up by a solo mother, and at a time when that wasn't so common as it is now ... And I think that that experience of not having a father, with all the insecurities, and implications of a lack of self worth that go with that, probably made me someone who is very determined to do well and probably quite competitive in my dealings with other people, and someone who wanted to impress other people. I think that's quite a core thing in all of this. (I 1)

During two of the participants' childhoods their parents separated for some years and then reunited. In one case the parents divorced, and then some years later remarried.

Almost every individual who grew up in a single parent family saw the experience as significant, with the majority believing that this aspect of their development was more positive than negative in their development. Those who held this view, talked of having to mature quickly, of being required to take responsibility early

in life, developing resilience, learning to deal with disappointment and to cope with adversity.

Four of the 28 talked the harshness of their parents' approach to discipline, and two provided accounts of physical abuse:

My father was actually really harsh, not only to his kids but also to my mother, and so at an early age that injustice, or the injustice that he reaped on her, was always there, to the point that as a child it was like, when you're very young you cower, you're cowering away, you're hiding under beds, and I was doing this all the time, hiding under beds. Later, as you're getting a bit older you react to it, and it's kind of jumping in the way of my father abusing my mother ... putting yourself at the interface basically. And several times I remember grabbing my mother and saying, 'You're not going to stay here' and pulling her out of the house. (VS 2)

We didn't understand our mother's illness. We didn't understand why she was so unpredictable. I can remember when my sister and I came home from school, we were pretty happy, we were chatting as we walked up the drive. When we came in my mother had my father's belt - it used to hang up behind the door for punishment. She had it down and was waiting for us and said God had told her that we'd been talking about her on our way home from school. And she hit us, and hit us, until we said we had. And we always had to confess and say we were sorry. I would lie. I would just say 'Yes I did', immediately, to stop the punishment. My sister wouldn't, and she came in for awful punishment. And she still has a damaged kidney where she was kicked - kicked in the back. (VL 4)

Even these experiences are seen in retrospect by those who experienced them as adding a dimension to their lives that contributed to them achieving. Of the all the childhood accounts provided, VL4's stands out as the harshest. She was the eldest in a family where her mother suffered from a severe mental illness and her father was often 'cruel'. The parents frequently fought, and in her words they "flew into unreasonable rages, trying to kill each other." For the most part, the family also

lived in extreme poverty. However, when asked as an adult how she viewed her childhood, she replied, “I am so grateful for the experience. It was wonderful. I learned a lot of things very early in life.”

While some felt a degree of support from two parents, mothers overall played a much more important role in the development of talents than did fathers. For highly creative children, particularly males, mothers were much more likely to provide the most support and encouragement. In a small number of cases, the mothers played a significant part, not just practically but also in terms of perceived expectations. One person referred to her mother as being a dominant part of her life and of constantly striving to please her mother.

Some fathers had little or no involvement in their children’s lives. From the accounts given it would seem that some of the fathers saw their role as one more distant from their children, and saw it as the mother’s role to show interest and to provide support and encouragement. A small group of fathers appeared ambivalent to their children’s development generally, and/or were so involved in their own pursuits they had little time for those of their children. Three males reported that their fathers were unsupportive. These individuals have all made their marks in the creative domains. Two of their fathers seemed to take this stance because they themselves did not personally value their son’s pursuit particularly highly, nor did they see it leading to any financial security. A third father held both these views but in addition was also very self-conscious that his son had chosen to excel in musical performance:

He was pretty anti for quite a long time. I used to charitably put it down to the idea he was afraid there was no future in it. He was a farmer and probably like most farmers would like their sons to fit into the farm ... He feared that I was going to be a mummy’s boy – and all those things that he would have hated and resented ... The huge relationship that was going on for me when I was a kid was between me and my father. Much more than between me and my schoolmates. It was the whole thing of trying to bring him around ... I just thought he should love me. I think he did think there was something wrong with me ... At times this did create tensions

between my parents. Now if I had excelled in rugby it would have been an entirely different matter. (M 2)

Two of the males, who have now made names for themselves in creative areas (one in dance and the other in art) both developed their interests in these areas prior to leaving school. However, upon leaving school, they entered banking and teaching respectively, primarily in response to the concern of their parents, and particularly their fathers, that they pursue a career with 'security'.

Two of the most involved fathers were the fathers of boys who excelled in sport. However, in these cases the mothers were also very involved, "I could not have achieved what I have without the support of both parents. While dad's support has always been more public and up-front, mum's has been just as significant and her input has been equally important" (BK 4).

My parents were both very keen on their sports. My mother was a very keen tennis player, and then later on she took up golf. My dad was very keen on cricket, and later took up golf, played rugby in his early days, and so they really gave me every opportunity on the sports field. They modeled, encouraged and supported involvement in sport; but I was also expected to do well at school. (BK 2)

Fathers were also more likely to show interest and offer encouragement of 'academic' ability, particularly mathematics and science, but more often to sons than to daughters. Most of the women received little parental encouragement to pursue a career. One reported that her father insisted that she leave school at 15 years of age, as the family needed the support of the additional income she could earn. This, despite the fact that her teachers informed her father that she had exceptional talent and implored him to let her stay on at school. It was only when the school organised a part time job and private board that she was allowed to continue for another year. Another talked of a complete lack of support from her father when she suggested she might go to university, and decided opposition

when she said she wanted to study law.

After school I went to Victoria University, and I wanted to do a law degree, but my father was very conservative and he was very old fashioned, and could not countenance the idea of a female lawyer really. So actually I did my degree in political science. (BE 1)

For some of this group the school was important to them developing an alternative view of women and achievement to that espoused within the family (see the next section).

The early identification and deliberate nurturance and support of specific ability areas did not feature in the childhoods of all but a few of this group. However, what was common was the modeling by parents of a strong work ethic and of task commitment, perseverance and a sense of responsibility, which many of the group felt was significant to their later success:

If my father taught me anything, he taught me about the value of hard work and self-discipline. These were core values in our family - and a sense of responsibility. He would say, 'A man's word is his bond.' We could not get away with shoddiness. That was my grounding and that has been a big part of my success. 'Stick-ability' was my father's favourite word. (BK 4)

If there is a project that I want to achieve, and there's a limited time to do it, then I would do what is needed to get it done ... I owe [that] to my father ... who is a hard worker and who taught us from an early age, when you've got a job to do, you do it properly and you've got to complete it. (VS 2)

The family values were basically, a strong work ethic and a Sunday School education. So I had this traditional sort of Christian upbringing. (LM 3)

My father used to say to us that nothing of any value was ever achieved without effort. If I mowed the lawns and missed a strip, I went out and mowed it again. If I washed the car and missed a patch, I did it again. I would protest, and he would respond that what he was teaching me was a principle. I have to say he walked the talk though. (VS 4)

Religion was mentioned by a third of the group as playing a significant part in their childhood families. For two, the faith of their childhood was Judaism, for the others the family faith was Christian, of which Protestantism was dominant over Catholicism. While many parents 'lived' their faith to a greater or lesser extent, only two gave the impression that their parents' religious beliefs dominated family life. There were no examples of what might be considered a 'fanatical' adherence to a religion.

There was not a single example provided by the participants in this present study of a member of their family, immediate or extended, who had achieved a level of recognition, in any field of endeavour, that came even close to their own attainments. There was a very small group who reported that both their parents had achieved quite highly, in a career and/or in a creative field, and a slightly larger minority who provided evidence of one parent achieving this. Most provided reports of parents' accomplishments that were modest or even below what might have been expected of them. Three talked about the repeated 'failures' of their fathers, the following example being fairly typical:

My father went from one failed venture to another with great regularity. I witnessed my mother's despair as he repeatedly told her the same old story and of the ensuing hardship the family suffered. The next time was going to be different of course; but in fact it never was. (I 2)

One person spoke of her father being an idealist and a dreamer but not necessarily prone to failure:

I'm very much like my father. I think I had a lot of the same qualities and traits as my father. My relationship with my father has not been a close

parental relationship; it's always been a more of a friend. My mother's a realist, very down to earth and doesn't like taking risks because she believes in coping with what you've got and making a good go of it. Whereas I've got my father who is at the other end, who's an idealist, got to spend money to make money and have dreams, and that's what he's like, so I've had those two forces in my life: someone who's very practical and someone who's a bit of a dreamer. (BK 1)

The single most common feature of the home environments that these people grew up in was a love of reading, and a love of learning. More than two-thirds, in describing the homes of their childhoods, identified one or both of these. While most parents were not highly educated, at least not in the formal education sense, they clearly recognised, not only the pleasure that could be derived from reading, but also the knowledge:

Neither of my parents had any great interest in sporting or recreational activities ... it was about books and book learning, and so no sport - there was no interest in sport. We didn't do recreational things like that. So I grew up with books. I grew up with the radio ... we didn't have a television in the house until I was sixteen. I was cursed, or blessed ... with learning to read very early on, and therefore being accelerated very fast through school. (LM 2)

Well, both my mother and father were great readers. At [home] there were always a lot of books. We had the sad experience of losing our last uncle last year and clearing out the family home ... the number of books there, and the number of old books there was quite astonishing. And it was expected that people would pick up a book and go somewhere else - nobody in my family interrupts anybody else when they're reading. It's pretty useless trying to. There's a vacancy there. The body is with the book; the head is somewhere else. (VL 3)

My father had never been beyond primary school. He was a self-educated man. He read widely and books were important to him. He didn't have

many of his own, but those books he had he'd read well, and he valued them, so he always encouraged me with my education. And my mother was an intelligent book reader too. But they weren't professional, formally educated people. (LM 3)

Although there was chaos and relative poverty, and certainly lots of emotional deprivation, there was that strong role of reading and we [took] books seriously. (VL 1)

The love of reading, modelled by the parents, was often reflected in their children's choices:

I remember my father reading to me when I was a child, so did my mother and there [was] no other girl in my year at primary school who had the obsession and pre-occupation with reading that I had. (I 3)

I was a reader, but I wasn't a great reader. I read all of Enid Blyton, so I'd have to say I wasn't a great reader. Then I got to secondary school ... and suddenly I was presented with books I would never have normally come across ... that was extremely influential. I love poetry and I particularly love Shakespeare; and there was a time when I could quote chapter and verse - some of it I still can. I still love Shakespeare [and] I still love reading. (LM 3)

The reading time available to me was a little scarce ... I used to walk to school reading a book. Then the neighbours gave me a very old bike, it was one of those ancient bikes that had a skirt guard for ladies with long skirts with a rattly chain, and I perched the book on the handlebars. I had to steal my father's torch out of the kitchen cupboard to read after dark. I remember he once wrote to the [battery manufacturers] complaining about the short life of the batteries - that was me reading. So reading time was precious, I used to read under my desk in school and I developed a split focus, where I was aware of what was happening in the class but was still able to read. (VL 4)

My father was a great reader. In fact we were a family of readers. My Uncle H said, 'You have to read until you're sick of it.' Uncle H left school at the end of form two. He couldn't afford to go to high school. A teacher offered to pay for his books but he was too proud to accept the charity, at least that's what my mother always told us. So, yes, we're readers ... I love reading. People underestimate the importance of reading. You learn something from everything you read. (VL 2)

I liked to read from the age of four and I can remember reading voraciously ... I was passionate about reading. (BE 1)

As noted earlier, reading and learning seemed to be strongly linked and many of these parents who had limited formal education valued books for the knowledge they contained. Over half of those interviewed talked of their parents' motivation to learn and a valuing of education:

[My parents] valued education. My father valued education because he never had any, but he was intelligent enough to know there was a world out there, which he learned about from books ... so he always encouraged me with my education. (LM 3)

Although my parents were not well educated themselves they valued learning – both formal and informal. We were taught to enquire. We were always encouraged to find out for ourselves. But my parents also placed a high value on schooling, formal education and obtaining qualifications. (LM 3)

There was a certain energy in my family, and that energy centred very much on books, ideas and philosophy. From this environment I developed a passion for reading that has remained together with a thirst for knowledge. I lived for horses, drama, music, sport and books. (VS 3)

[I] come from a family with four Jewish grandparents, and two Jewish parents, and none have any interest in sport. They have interests in culture and learning, and that projected through young people. So I had a family where none of my first relatives had any interest in matters other than knowledge ... and general knowledge was always my forte and interest. I had this enormous awareness from newspapers and magazines. I didn't tend to read fiction, I tended to read encyclopaedias and things like that. (LM 2)

A number also mentioned that their parents, while having limited formal education, were still very intelligent people:

I think both my parents were pretty clever. I think growing up in the depression meant that they didn't get much of a chance at an education, so they didn't really get a chance to prove that they were bright. (LM 1)

Well my mother was very keen that I should be academic. I think that she had won a scholarship to Oxford and had not been able to take it because of the war. (BE 2)

Almost half this group talked about their homes as places where 'ideas' were discussed and debated. This usually occurred around the meal table and rigorous discussion and debate were typical:

We energised around the family dinner table – conversation about books, ideas and philosophy - there was a lot of tension underlying from the passionate and very different natures of my parents. (VS 3)

It was a politically-aware household. The conversation topic when my mother and her sisters and brothers got together (and I had many cousins) was politics. It was the depression; it was Micky Savage; it was Peter Fraser. My father [was] the same. And my father instilled in both of us a sense of history as well, and curiosity about the old world and the history of it. (VL 2)

I used to find it strange to go to friends' homes, where the dinner table seemed to be a hallowed place, where to talk was to commit a sin. They must have been gob-smacked when they came to my home. Eating was generally secondary to talking. (VL 4)

One person never really knew her parents and grew up in an orphanage and it was her teachers, not her parents, who provided this stimulation:

You know, the teachers were fantastic. They encouraged us to be contentious. They encouraged us to ask questions. We were never afraid to disagree. We knew we wouldn't be punished if we did and no one was. We were disciplined, we had to be, but the teacher never felt that he wasn't going to be put out of his schedule because we were asking questions. (VS 1)

Some parents held strong views of issues, particularly to do with religion and politics:

My father was a Quaker. He was brought up as a Quaker, then my mother became a Quaker - when I was about six I think - and she resigned from the Anglican Church over the issue of the Suez Canal. They were very political, very left wing. There was some talk that nuclear testing actually caused my brother's illness because my best friend died at the same time and there were four people in our village who got leukaemia - all at the same time - and they think it was possibly radiation, where little pockets had drifted across from where they'd been doing the testing. So my father was very involved in the anti-nuclear movement. I used to go with him on marches, the older master marches they were called. I remember following these protests, and I used to colour in the different parts of Britain in various colours. (BE2)

My father was a free thinker and he had a sense for injustice, especially from the Depression, not because he himself had suffered too much, but

because people he cared about very much had had their minds really blighted by that, so that caused him not to be less conventional. He thought independently about politics, and that made him perhaps a little bit left wing in some way. He wouldn't join Rotary for example, he never had anything to do with such organisations, so he must have been a little bit of a free thinker I guess. (LM 3)

My father held strong views on everything as I remember, and most of them were outside the mainstream. He was considered a radical. The trouble was he would espouse his views at some very inopportune moments, or inopportune as I saw it, and I would want the ground to swallow me up. He also thrived on the cut and thrust of debate, especially if it involved politics and religion. Sometimes he would throw in a wild idea as something he firmly believed in, when he didn't, just for the purpose of inviting debate. I guess that's where we kids learnt to question, challenge and to never accept anything on face value. (I 4)

While the above results table trends across the seven domains there were some identifiable differences between them. For example, the experience of hardship in childhood was more common to those in the visual-spatial, verbal-linguistic, business-entrepreneurial, and interpersonal domains. The modelling of reading by parents to their children was noted by at least one person in every category, except the bodily-kinesthetic domain, where it was not mentioned by any of the four in the group. The same pattern was evident in reports from participants of their parents' love of learning and their quest for knowledge, where the only group where this was not mentioned was the bodily-kinesthetic.

While there were examples in most categories of individuals who grew up in households where at least one parent could be termed 'opinionative' the incidence was slightly greater amongst those who are now engaged in creative (in particular writing and art), interpersonal, and business-entrepreneurial enterprises.

2.2 Discussion

The stories told by these adults of their childhoods were more often accounts of poverty than of privilege. As a group, many experienced loss, hardship, difficulty or challenge, and very few experienced the types of early experiences that might generally be considered conducive to later success. In general, the parents of those interviewed were not well educated, nor were their economic circumstances particularly favourable.

These findings stand in stark contrast to most other studies undertaken in this area. The longitudinal studies of gifted children more often than not paint a very positive picture of their families (e.g., Bloom, 1985; Gottfried et al., 1994; Terman & Oden, 1947). From these studies, it would seem legitimate to propose an 'ideal' environment for the nurturance of talent. This family is typically middle class, 'intact', stable, with well educated and hardworking parents who dedicate themselves to providing maximum opportunities for their talented offspring. In fact, Gottfried et al. (1994) found one of the most significant differences between their gifted and non-gifted group was in their home backgrounds. "The evidence is overwhelming that gifted children compared to non-gifted children receive more enriched environments during the early years ... What is exciting about our results is that these differences are found years before children are identified as gifted" (Gottfried et al., p. 167). Not only did the gifted group have more enriched cognitive environments than their non-gifted peers, the parents of the gifted children were reported as much more involved, more responsive, and more nurturing of their children's academic pursuits. In Terman's study, 33 percent of the gifted children came from professional, middle class families, yet at the time his participants were selected, this socio-economic group constituted only three percent of the population (Winner, 1996).

However, there are a number of possible explanations for why children from this 'type' of family background are often overrepresented in studies of the gifted. One of the most significant of these is that the majority of longitudinal studies have used intelligence test scores to select or identify the participants. The critics of IQ scores as an indicator of giftedness are numerous, and their reservations

centre on two main issues: the cultural bias of such tests, which tend to favour children from white, middle class backgrounds and; the limited number of abilities the tests measure, and in particular the value placed on convergent thinking (e.g., see Davis & Rimm, 1998; Gardner, 1997; Kaufman, 2000; Sternberg, 1997; Winner, 1996). Winner (1996, p. 32) reported that, “In the United States, IQ tests have been roundly criticised because members of minority groups ... tend to score lower than do members of more privileged groups.” However, despite this, in the United States at least, giftedness “continues to refer to a unitary, global ability that is best assessed by an IQ test, or if not, by school performance, which is known to correlate with IQ” (p. 32). Terman’s selection process not only suffered from the bias inherent in intelligence testing but prior to his subjects even being tested, they were pre-selected by teachers. As Davis and Rimm (1998, p. 28) pointed out, “We know that teachers have higher expectations for and will identify as ‘gifted’ those children who are pleasant, well-behaved, prompt, conforming, high-achieving, attractive, neat, and popular and who wear expensive clothes and speak standard English.” Gardner (1997) also noted that the Terman group were “probably the least impressive in terms of creative accomplishments” (p. 38), reinforcing the contention that IQ tests tend to disadvantage divergent thinkers.

While this may constitute a plausible explanation for the dominance of people from middle class childhood homes amongst the groups of gifted studied using a longitudinal approach, these selection biases are irrelevant to retrospective studies. The studies using this methodology rely on evidence of actual achievement and not on the predictive validity of a test. It is, therefore, somewhat surprising to find a similar trend in most retrospective studies of eminence. Ludwig (1995), for example, reported that two thirds of his 1000 luminaries were raised in ‘professional’ families. A similar ratio of fathers had attended university and about a quarter of their mothers. Ludwig (1995, p. 183) maintained that:

In general, parents of the truly great seem to recognise the exceptional qualities of their offspring and provide them with the necessary tutors, educational opportunities, and other resources to pursue their professional goals ... It seems that families that provide ‘optimal’ material resources –

not too many and not too few – are not as likely to dull their children’s need to achieve or discourage them from trying to achieve.

Roe (1952) reported that the economic levels of the childhood families of her 64 scientists were extremely varied, and three experienced “serious deprivation” and others came from economically poor homes. However, consistent with the findings from studies, most came from upper middle class homes. Roe (1952) offered a profile of the typical luminary in science: “He was the first-born of a middle class family, the son of a professional man (p. 22).” In her study, no one came from a family where the main income earner was an unskilled labourer, whereas 53 percent were the sons of professional men. Simonton (1994), in reviewing studies of contemporary creators, leaders, and celebrities maintained that 80 percent grew up in business or professional homes.

Bloom’s (1985) study of 120 outstanding achievers (concert pianists, sculptors, research mathematicians, research neurologists, Olympic swimmers, and tennis champions) found the role of parents and the family environment to be extremely important to the development of talent. Most of the individuals in this study were first introduced to their talent area by their parents, relatives, or family friends:

It was in the context of ... the homes or with the family that the children began developing simple skills in the talent area. Parents, or older siblings or relatives, taught informal “lessons” whenever the child showed an interest or when the family was involved in the activity ... The parents responded to this interest favourably, by allowing the child to participate or by arranging special opportunities specifically for the child. Thus, the child’s interest was rewarded or encouraged, and the child did learn some simple skills. (Sloane, 1985, pp. 447-448)

In Bloom’s study, the parents’ role in the subsequent realisation of talent was termed “crucial” and Sloane (1985, p. 476) contended that, “We [the researchers] believe, as do the parents, that the parents’ interest and participation in the child’s learning contributed significantly to his or her achievement.”

Next to Terman, probably the most influential work in shaping ideas about the childhoods of eminent persons came from the work of Goertzel and Goertzel (1962). They certainly did not find that the adult achiever typically enjoyed a trouble-free childhood. They reported that three of every four included in their study were troubled by, "Poverty; by a broken home; by rejecting, over-possessive, estranged or dominating parents; by financial ups and downs; by physical handicaps; or parental dissatisfaction over the children's school failures or vocational choices" (Goertzel & Goertzel, 1962, p. 272). Of the 400 studied, they reported that only 58 "experienced what is the stereotyped picture of the supportive, warm, relatively untroubled home" (Goertzel & Goertzel, 1962, p. 131), and they question how many of the reports from this sub-group were actually a true account of what home life was like. However, like the other retrospective studies cited, they too found a preponderance of children from the business and professional classes. "Wealth is much more frequent than abject poverty ... Three hundred and fifty eight families (some wealthy) can be classified as representing the business or professional classes" (Goertzel & Goertzel, 1962, p. 273).

In attempting to explain the discrepancy between the findings from this present study and those concluding a link between 'advantaged' childhood home circumstances and later success, it would seem relevant to consider what the essential ingredients might be of growing up in more privileged circumstances. Certainly, one could speculate that successful parents make a significant genetic contribution to their offspring's potential to achieve highly. This was Galton's (1869) thesis, and he held the view that this constituted the primary explanation for acquisition of eminence. In his opinion, "By inheriting exceptional natural ability from an illustrious parent, a child should get a head start in the quest for fame and glory" (Simonton, 1994, p. 10).

In this present study, not one single parent had come close to achieving the successes accrued by their children. Nor was there mention made of the exceptional achievements of other family members, which one might have expected to have heard if heredity was the primary determinant of levels of achievement.

Roe's (1952) study of successful scientists would appear to offer a clue as to why, in the majority of studies undertaken in this area, an enriched home environment seems a critical component of future success, and yet in this study the trend appears to almost be in the opposite direction, where difficulty and even disadvantage appeared to be much more a cradle of eminence. Roe maintained that the preponderance of these ideal-type families in the literature can be directly attributed to the love of learning that characterises such homes. Goertzel and Goertzel (1962), for example, found that over 90 percent of the families in their study showed a 'love of learning'. Simonton (1994, p. 157, 158) believed that, "Parents in the professions know at first hand the value of an education [and] are more likely to have cultural and intellectual interests." He believed that children growing up in an enriched environment, get an early "booster shot" that propels them towards success and school, and that, "... one very real possibility is that education, and not social or economic rank by itself, bestows promise on a child. Consequently, our survey of the developmental antecedents of greatness must leave the home for the schoolroom" (Simonton, 1995, p. 158).

In the Gottfried et al. (1994) study, a comparison was made between the mother-child relationships in the gifted group and the mother-child relationships in the non-gifted group. At five years of age, the mothers of the gifted group provided greater intellectual stimulation and access to learning materials than did the mothers of the non-gifted group. At seven years of age, these researchers found that the amount of time mothers spent with their young children varied little between these two groups, but they said the gifted group, "Receive more academically oriented materials and have mothers who are more involved with them in academic activities" (Gottfried et al., 1994, p. 161). At eight years of age, the learning opportunities were much higher for the gifted than the non-gifted group, and books and reading were a feature of the homes of the gifted. "Ongoing reading to the child in the early years is consistently associated with gifted intelligence ... Gifted children were more likely to make more trips to the library each month, read by themselves each day, and have their own dictionary" (Gottfried et al., 1994, p. 161). They also reported that the parents of the gifted

group "... encourage an atmosphere that promotes intellectually stimulating discussions and involvement in cultural and political activities" (p. 165).

If the critical factor then, is a stimulating early environment, where a love of learning is modelled and education is valued, then the homes of a majority who were part of this present study provided exactly that. While children who grow up in more affluent homes may have the access to greater physical resources to 'enrich' their early experiences, that may be the only advantage they had over those of parents of more modest means, or even those raised in relative poverty. What the parents in this present study did provide, often in lieu of tangible resources, was the opportunity to engage with ideas and access to books. As parents, they may not have been well educated themselves but many valued education and were committed to self-education. In these households, the opportunity for children to investigate, to explore, to develop their thinking and to acquire knowledge, was primarily through reading, listening and talking. Goertzel and Goertzel (1962) identified a very similar trend in their study, where they found that, "In almost all the homes there is a love of learning in one or both parents" (p. 272). Bloom (1985) said of the parents of his elite that they were, "... hardworking, active people ... [who] wanted to be involved in something, learning about something, working on something, as often as possible (p. 440)." In reporting the results of a study undertaken between 1990 and 1995 of 91 exceptional individuals, Csikszentmihalyi (1996) found that many of his creative individuals too, came from the professional or the upper classes but many also came from poor families. He concluded that the socio-economic background of the parents was not the critical issue in talent development but rather that, "... it helps to be born into a family where intellectual behaviour is practiced, or in a family that values education ... but not a family that is comfortably middle class" (Csikszentmihalyi, 1996, p. 172). Although 30 percent of Csikszentmihalyi's group were farmers, poor immigrants, or blue collar workers, they did not identify with their lower class status and held high academic aspirations for their children.

Gardner (1993) identified a similar phenomenon in his study of creative achievers. In a section of *Creating Minds*, he paints a portrait of 'the exemplary creator' (see Chapter 4). This person, Gardner said, comes from a family that is

not highly educated, but they value learning and achievement, and they hold high expectations for their offspring. They also value hard work and encourage their children to develop their individual abilities.

Most of the participants in this present study grew up during an era where one of the most frequently heard tenets of childrearing was that, ‘children should be seen but not heard.’ In contrast, the parents of these higher achievers seemed much more of the opinion that ‘children should be both seen and heard.’ These parents treated their children more like adults than children. Csikszentmihalyi (1996) identified a similar trend and concluded that parents who treated their talented offspring like fellow adults made a significant contribution to their children’s development. In these homes parents talk to their children and listen to their opinions on adult matters.

In contrast to the findings of many other studies, few of the parents of those in this present study had a higher education. However, many of the participants mentioned that one or both of their parents was intelligent, indicating that they may have been quite capable of university-level study. It is important to bear in mind that most of this group of parents would have completed their secondary school education in the 1930s. Even if they were intelligent, that alone may not have been sufficient to obtaining an education beyond secondary school. In many instances economic imperatives would have precluded them gaining access to university (King, 2003). In New Zealand at that time, a university education was accessible to only a select minority, and certainly out of the reach of many families. Many children left school as soon as they were legally able to, in order to provide additional financial support to the family (King, 2003).

It could also be argued that the vast majority of New Zealand families at that time did not have a family history of higher education and the expectation that one’s children might go to university because that was a family tradition, was probably limited to all but a very small group. This situation was probably much different in the United States, the United Kingdom and parts of Europe, where most of the research reviewed was undertaken. In these places a family tradition of university education, while still the preserve of a small minority, would still have been much

more common than it was in New Zealand at the same time. The parents of the achievers in this study may have been equally as bright as their Northern Hemisphere counterparts, but access to university and a higher education was probably much more limited.

As well as providing their children with a stimulating early environment, the parents of the group included in this present research also modelled the personality traits often considered essential to the realisation of talent. The significance of parents' modelling and reinforcing values of persistence, perseverance, task commitment and a work ethic is clear in this and other similar studies. For example, Bloom (1985) described the homes of his group as places where doing one's best was extremely important. "It was not enough to stay busy. Emphasis was placed on doing the best one is capable of. Some parents were 'perfectionists'; nearly all set high standards for the successful completion of a task ... Work was always completed before play" (Bloom, 1985, p. 440). Bloom reported that, not only did the parents model these values they discussed their importance with their children and expected them to "learn and live by this value of achievement" (p. 444). Csikszentmihalyi (1996) concluded from his study, that probably the most important contribution parents make to the lives of their talented children is shaping character and teaching values conducive to achieving highly. Goertzel and Goertzel (1962) found that the family value system appeared to have the strongest impact on the child with ability. "Along with the drive for knowledge and achievement there is often a physical vitality in both parents and the child (Goertzel and Goertzel, 1962, p. 27)." They described the parents of their eminent group as intellectually driving and physically striving and noted that over 90 percent placed a high value on achievement.

The early adversity experienced by a number in this present study was interpreted by them as more beneficial than detrimental to them achieving success later in life. Simonton (1994, p. 153) reported that, "Retrospective studies of the biographies of historic figures often reveal frequent hardships in childhood and adolescence." The primary focus on the impact of early adversity has been on parental loss. For example, one study of 699 eminent figures discovered that 61 percent had lost a parent before the age of 31, 52 percent before the age of 26, and

45 percent before the age of 21 (Eisensdadt, 1989). Other studies have reported similar trends (e.g., Albert, 1971; Cox, 1926; Goertzel & Goertzel, 1962; Roe, 1952) and it seems that parental loss may be more a feature of the early lives of eminent creators rather than other outstanding achievers (Simonton, 1994). In a review of numerous studies in this area Simonton (1994) stated that the claims of a significantly increased occurrence of the phenomenon for this group are indeed valid. Csikszentmihalyi (1996) concurred with the view that the incidence of parental loss is greater among creative achievers, and in his study the dominant pattern was of sons losing fathers. Approximately three out of 10 men in his study were orphaned before they reached their teens. In explaining the relationship between paternal death and achievement Csikszentmihalyi (1996, p. 168) said:

A fatherless boy has the opportunity to invent who he is. He will not have to stand in front of a powerful, critical father and justify himself. On the other hand, he will not have the opportunity to become a friend and peer to his father. The relationship remains frozen in time, and the psyche the child always carries the demanding memory of the all-powerful parent. It is possible that the complex and often tortured personality of creative individuals is in part shaped by this ambivalence.

Gardner (1997) contended that early loss motivates a person towards the creation of a more perfect world, which often culminates in a life of creativity or leadership. However, he also pointed out that certain traumas, or too much trauma in childhood, may in fact destroy the potential for accomplishment.

Although parental loss has been the most studied aspect of early adversity, the impact of other negative circumstances or events may be similar. "Other traumatic events can provide alternative ways of producing the robust personality. Maybe a parent was alcoholic, or a favourite sibling was killed, or the household suffered many economic ups and downs" (Simonton, 1994, pp. 155-156). A study by Berry (1981) found that among those who were awarded the Nobel Prize for literature, over 30 percent had lost at least one parent through death or desertion or had experienced the effects of bankruptcy or impoverishment. Goertzel and Goertzel (1962) reported that three quarters of their group, "were troubled by

poverty; by rejecting, overpossessive, estranged, or dominating parents; by financial ups and downs; by physical handicaps; or by parental dissatisfaction over the children's school failures or vocational choices" (p. 272).

Simonton (1999a) maintained that the reason why the achievements of Terman's gifted group were so modest was simply because they had it too good in childhood. As noted in other places in this thesis, most of the 'Termites' grew up in 'ideal' homes, environments that were socially and emotionally stable, and financially secure. "Whatever the intellectual talents of Terman's children, their potential for genius may have been destroyed by a superfluity of happiness" (Simonton, 1999a, p. 114).

Samuel Butler, in his novel *The Way of All Flesh*, offers another perspective on the relationship between success and suffering:

All our lives long, every day and every hour, we are engaged in the process of accommodating our changed and unchanged selves to changed and unchanged surroundings; living, in fact, in nothing else than this process of accommodation; when we fail in it a little we are stupid, when we fail flagrantly we are mad, when we suspend it temporarily we sleep, when we give up the attempt altogether we die. In quiet, uneventful lives the changes internal and external are so small that there is little or no strain in the process of fusion and accommodation; in other lives there is great strain, but there is also great fusing and accommodating power; in others great strain with little accommodating power. A life will be successful or not according as the power of accommodation is equal to or unequal to the strain of fusing and adjusting internal and external changes. (Butler, 1903, p. 20)

Jean-Paul Sartre maintained that the greatest gift a father could give to his son was to die early. However, Csikszentmihalyi (1996) warned against drawing too strong an association here and made the point that there are too many examples of creative talent developing from a warm and stimulating family context to conclude that hardship or conflict is necessary for creativity to develop. He

pointed out that both extremes, that is hardship and privilege, exist in the childhood families of outstanding individuals, but “What appears to be missing is the vast middle ground” (Csikszentmihalyi, 1996, p. 171).

In this present study, mothers seemed to play a more active role in the development of talent than did fathers. The role of mothers in encouraging creative abilities was in some instances very significant, and the previous section provides examples of mothers who supported the creative endeavours in their sons, while the fathers were at best ambivalent, and at worst discouraging. Goertzel and Goertzel (1962) found that many more mothers were ‘dominating’ in the families of their eminent individuals than were fathers. This dominant role almost always existed in a mother-son relationship, rather than between a mother and a daughter. They also found that mothers who dominated households often had “philosophical husbands.” The matriarchal family, they suggested, is a common pattern in Jewish homes, “Which are known to be excellent cradles of eminence” (Goertzel & Goertzel, 1962, p. 81). While some of those studied by the Goertzels rebelled against being father-dominated, many were mother-dominated for the better part of their lives. The Goertzels maintained that the influence of a dominating parent was often a critical element in the development of the eminent individual. Strodtbeck (1958), in a four-year study examining the home conditions associated with achievement, suggested that a father who relinquishes power, either through inability or choice, and a mother who is committed to her son’s achievement, works favourably in the development of talent.

It would be erroneous to draw too close a parallel between the role of mothers as reported in the Goertzels’ study, and the role of the mothers as reported by the participants in this present study. While some of the mothers in this present study played an important part in the development of their children’s talents, very few could be described as ‘dominant’, even if the Goertzels’ more positive definition of the term is applied. There are a number of possible explanations for this. First, there is little doubt that none of those involved in this present study would have met the eminence criteria the Goertzels used for the selection of their ‘greats’. It could be speculated that there is a relationship in the strength of involvement of a parent and the degree of success enjoyed by talented offspring. It could be that

many very successful individuals have enjoyed a high level of maternal support, while those who have reached the very pinnacle of their field and who leave their mark on history, often need much more than encouragement and support. There may also be cultural factors at work here. New Zealanders are very conscious of self-promotion and also of promoting their offspring. Many mothers and fathers are sensitive to being seen as ‘pushy parents’ and are probably more inclined to understate, rather than overstate their children’s abilities. In a society where conformity is often valued over diversity, standing out, and certainly standing tall, can elicit quite unwelcome responses. A number of writers have made a connection between what is often referred to as the ‘tall poppy syndrome’ and our egalitarian heritage (e.g., Parkyn, 1949; Larsson, 1986).

While the role of mothers in the lives of their talented offspring does seem important, the Goertzels’ findings seem more extreme than most others. Galton (1869) found the influence of mothers was most significant in the lives of future scientists, and ‘divines’. Future scientists, he maintained, are the offspring of mothers who break what he saw as the female tendency to comply rather than question. He argued that women were, “Blinder partisans and more servile followers of custom” (Galton, 1869, p. 247) than were men. He was of the opinion that the foundation for scientific endeavours was often provided by mothers who showed their children (sons in particular) that, “... inquiry may be absolutely free without being irreverent, that reverence for truth is the parent of free inquiry, and that indifference or insincerity in the search for truth is the most degrading of sins” (Galton, 1869, p. 247). Inasmuch as mothers, especially during the 19th century when Galton undertook his study, were largely responsible for what type of early environment children experienced, those who allowed for this freedom of inquiry undoubtedly enhanced the likelihood of their offspring pursuing a career in scientific inquiry.

Roe (1953) drew a similar conclusion, but did not accord the same significance to maternal influences. She found that many of her scientists had fathers who were also scientists. However, she did not ascribe this primarily to inherited intelligence, or to a ‘following their fathers’ footsteps’ phenomenon, but rather, suggested it was the result of being raised in an environment where learning was

valued for its own sake. This, she believed, was probably the primary factor in the choice of a scientific career.

In their study of 120 high achievers Bloom (1985) and his associates offered almost no comment on the relative importance of mothers and fathers in children's talent development. This in-depth study investigating the antecedents to success talked almost only about 'parents' with little mention of any differentiation of roles in this process, or any comment on the relative significance of the input or involvement of one parent over another. This may be a reflection of changing parental roles and it is likely that many fathers in the 1980s were much more involved in his children's day-to-day lives than their counterparts three or four decades earlier. It may also suggest that supporting many talent areas in more recent times, takes the committed effort of two parents working in tandem. Take for example, training in a sport like swimming. Children who devote themselves to this pursuit train most days of the week, and often in the hours of early morning. To do this, talented young swimmers will need adults to transport them to and from a swimming pool, and probably to remain with them for the duration of the training sessions. In families where there are other young children this commitment will usually require the involvement of a second parent.

In this present study, some fathers had reservations about their sons entering a career in the arts. Other fathers were less than supportive of their daughters pursuing higher education or 'careers' in male-dominated domains. Csikszentmihalyi (1996) reported both of these in his study but reported that females were more inclined to capitulate to parents' wishes than were males.

A number of people in this present study told stories of their fathers going from one failed venture to another. It is impossible to say whether the incidence of failure-prone fathers among this group was any more or less than one would find in any other comparable group. However, there is some evidence to suggest this may constitute a trend in the childhood families of outstanding achievers. Goertzel and Goertzel (1962) categorised half the fathers in their study as, "... failure prone in the routine of everyday life" (p. 55). They report that these fathers were either, "... given to daydreaming and to scholarly retreat from the

mainstream of life” or “... are impractical [and] grandiose – who leap before they look” (p. 55). The fathers in this present study who were inclined to repeat their failures were more akin to the Goertzels’ second ‘type’ than the first. It seems that for many high achievers the line between success and failure may be fairly fine. Maslow (1943) observed that eminent individuals are often child-like in their spontaneity, are less fearful of the unknown, and are attracted by the mysterious and puzzling. He reported that many are disorderly, sloppy, vague and inexact, all of which he said are qualities that contribute in certain times to the accomplishment of great things. Such men, he contended, are much less concerned with what others think of them. It is possible that growing up in such a home releases children from a fear of innovation. These fathers may often be so caught up in their own pursuits that they exercise little constraint over their children’s behaviour (Goertzel & Goertzel, 1962). This may in turn provide the talented son or daughter with an ideal environment from which to explore and experiment, with limited concern about making mistakes or failing. It seems these children may not grow up as cautious and conservative adults but rather as risk-takers, who bring imagination and creativity to what they turn their hands to (Goertzel & Goertzel, 1962). However, it is also possible that other children growing up in such an environment might be prone to repeating the failures of their fathers. There may also be a connection here to the elevated role of mothers in the lives of talented children. The Goertzels suggested that the wife of a failure-prone husband might turn to a child to make her happy. This child may accept this role and endeavour to achieve in an area or areas that his or her mother values.

Many of the participants in this present study spoke of their parents holding strong views on a diverse range of topics, but particularly on politics and religion. It has been discussed earlier how many of these parents also encouraged their children to engage in discussion and debate, often around the dinner table. Goertzel and Goertzel (1962) described half of the parents in their study as opinionative about a controversial subject, holding views that in time became an idea or position accepted by the majority. Like the parents in the present study, their parents were not neutral or nondirective and the Goertzels stated that, “The neutral parental attitude was practically unknown to the families in this study” (p. 30). They found that few of their group rebelled against their parents and where this did happen, it

was usually short-lived. Although none of the participants in the present study were asked directly about rebellion against parental authority, the interviews had a strong focus on home and family life and one would think that if this had been a significant feature of an individual's growing up, it is likely it would have been mentioned. However, apart from one or two examples of conflict, rebellion against parents did not feature. Consistent with the Goertzel's study, while hostility towards the home was almost non-existent, the same could not be said of their attitudes towards school. While the parents in the present study held strong views on numerous topics, their opinions were generally more liberal than conservative, which may in fact have countered rebellious attitudes in their children. The school, not the home, represented 'establishment' values. It would appear that where parents are in conflict with many mainstream attitudes and ideas, their children are more likely to stand alongside them than fight against them. This probably explains why the school and not the home becomes the focus of their protests and antagonism.

2.3 Conclusion

The family environment has often been referred to as the 'cradle of eminence' as this is where the life destined for great things begins. Most studies of high achievers point to the home as a primary influence in whether or not a person rises to the highest levels of human endeavour. The question here is not 'if' early experiences within families are critical, as this seems to have been widely accepted. It is more about 'what' specific experiences matter and 'how' these exert an influence over the realisation of potential. Only a minority of the participants in this present study said that their later achievements were largely the result of their early experiences within their families. However, the majority pointed to aspects of this part of their lives that they saw as particularly significant to their development. As the participants talked about their childhood homes they did not necessarily talk about specific experiences as important to the development of talent but there were some trends evident across the interviews and some that reflect the findings of the studies that it has been proposed may be more typical of high achievers.

The participants in this study came from extremely diverse family backgrounds and demonstrated that talent is not the exclusive domain of the more privileged. Some of the group were raised in homes that were the antithesis of the warm, secure and supportive environment that many consider a necessary ingredient to success. What does seem critical, is not the advantage of educated parents who are financially secure but a parent or parents who provide an ‘enriched’ home environment, who model a love of learning, value education, have high expectation of their offspring and who encourage and model hard work. In these households, books are prized possessions and reading is the favourite pastime. There is a free flow of ideas, discussion and debate, and children are not just invited to participate, they are expected to.

Many of the participants in this present study faced adverse experiences during their childhoods, although, as other researchers have found, it is difficult to ascertain whether this is atypical of the wider population of children who grew up at the same time. As with other studies, all that can be said from this study is that there is possibly a link between early adversity and the development of talent. If there are positive outcomes to be accrued from dealing with hardship in childhood, it is certainly not universal, and nor does the impact seem be positive across all achievement domains. However, while there has been some speculation that early adversity can contribute positively to the development of creative talent, it could also be speculated that some of these experiences lead individuals towards more creative expression.

The mothers of the participants in this present study were reported as more involved in the nurturance of their talented offspring than were the fathers. This trend has been reported in other studies but it is unclear whether mothers are actually more influential by design or by default. At the time that most of the participants in this present study were growing up, few mothers worked outside the home. The dominant role they assumed in supporting their children may have been more about being available than being a more effective nurturer of talent. Similarly, parental roles during the 1950s and 1960s were generally clearly delineated, with mothers usually having the primary role in child rearing.

3. Education

As with the family, education was identified as a theme to be discussed with all participants. All 28 talked about their school experiences, and where participants continued formal education beyond school, this was also discussed. In many cases this part of their life stories was talked about without researcher prompting, but where this did not occur the participants were invited to recall their experiences but in a relatively open-ended way. None of the group talked about educational experiences prior to primary school and typically, the participants talked less about their primary and tertiary education than they did about secondary schooling.

3.1 Results

Almost all the study group attended state primary schools, although three attended private schools, one for all of her primary schooling and two for the latter part of it. The primary schools most attended were ‘full’ primary schools, catering for children from five to approximately 12 years of age. At the time most of the participants were of primary school age there were few intermediate schools in New Zealand, and only two of the 28 mentioned attending an intermediate school. One person attended a ‘native’ school for part of his primary schooling.

More than half of the participants appeared to have difficulty recalling any significant aspects of their primary school experience. The recollections of these people were generally neither positive nor negative but seemed to be more ambivalent in nature. The following accounts are quite typical of this group:

I have minimal recollections [of primary school] to be blunt. I remember knowing one or two teachers. I was not an outstanding primary school kid. And the only things I can remember about primary school are, in fact, superficial vignettes or a couple of situations where I was ridiculed. It's like a non-event. I don't think any of the teachers at primary school had any great influence on me. (LM 3)

Primary school is something of a blur. As I recall it, it was neither astoundingly good nor astoundingly bad. My memories are fairly vague. The real stuff of significance occurred later in my education. (BE 3)

I don't think primary school had much of an impact. I do remember doing well at athletics and receiving encouragement from a teacher. It was also where I met J, and that was the start of a life-long friendship. Otherwise I think my experience was fairly typical and relatively insignificant in the overall scheme of things. (BK 2)

I remember very little specifically from primary school. I suppose everyone's the same. We remember certain incidents. I remember the smell of the trees, the fire in the corner of the classroom in winter, very nice teachers and lots of friends. (VL 2)

The majority of those who participated in this study are more than 40 years of age, with most in their 50s, so recalling primary school experiences of some 30 or 40 years previously may have been difficult. However, even the youngest person in the group, who at the time of the interview was in her late twenties, seemed to have a similar difficulty:

I think I only have happy memories of my primary school years. I remember always having ear problems. I'm actually just trying to think of what primary school reminds me of. I had lots of friends, and I enjoyed school work. I don't know that much else stands out. (BK 1)

One person, who identified her parents as the most important ingredients in her future success, was particularly dismissive of the impact of the school on her development. "I don't think it [school] matters particularly ... I think it's more the immediate family that was important" (I 3). However, later in the interview she did note that her primary school had made a contribution to the development of independence. She attended a small rural primary school where there was a "very, very small group of kids that you relate to, so you probably tended to be quite self sufficient because there was no other girl in my year."

For some, albeit a small number, this stage of their schooling was very significant, although the nature of the impact varied somewhat. For one person, an important contribution primary school made was to compensate for what was happening at home:

Primary school was my salvation and there were lots of rewards. I found it sometimes scary [and] sometimes there were teachers who were shockers, but there were enough who seemed to me to take interest in me as a person. They were the only people who seemed to actually see me as an individual, who give you the feeling you are worth something – and that they are there to help you. (VL 1)

This person remembered his first primary school teacher with great affection and respect, referring to her as a phenomenon, intelligent and well-educated, and a “... sort of bristly character who stalked around on these high heels and makeup and that seemed to suggest that she could take control of the room, that she could take control of your life.” This teacher was the first of a number who encouraged and supported him at his first primary school.

Another participant singled out a primary school principal for the role he played in allowing her to pursue her passion for reading. She had run into considerable trouble during this stage of her life, describing herself as an “extremely antisocial person.” She had broken into her primary school twice, which had resulted in “quite a bit of damage.”

It was only because I had really good support both from my mother, from her family, [and] a headmaster [who] was very understanding. He took me to the school library and said, ‘Go, read.’ Now it wasn’t a huge library. There was one section where the primers could read ... another section where you could read up to standard two, and then three, four, etc. But I was not only allowed to read my way around the entire library; I could go to it when I wanted. He was a remarkable person. (VL 3)

She was less complimentary about some other of her primary school teachers, describing them as, “basically ... sadists who didn’t want to be there at all.”

For one person, attending a girls’ boarding school was seen in hindsight as a most positive experience. The first five years of her education was in a two-teacher rural school, and then at 10 years of age she enrolled as a boarder at a girls’ school in a large city:

It was an excellent school. The academic standards were really absolutely extraordinarily high; and I was lucky because I had very, very good teachers ... we were taken to everything, every concert that happened in the city. To be successful was part of the culture of the school as much as anything else. As well, it was a school where you were encouraged to work hard and it wasn’t an embarrassment to be studious. (BE 1).

M 2, who attended a two-teacher school where the teaching principal had a passion for music provided one of the strongest connections between experience at primary school and later talent development:

Primary school was a great situation for me. ‘I’, who is a music critic and I think teaches music at a polytechnic, was my primary school teacher. As I recall, he was working off his country service at this point and he must have wondered where the hell he was going. This is a two-teacher, 60 student country school. When he arrived there and he discovered quite quickly that about 40 out of those 60 kids could sing in tune and hold a part and he put us together in a choir. We became quite famous around the area. He did quite difficult things. We made a recording. This was quite amazing for the late ‘50s early ‘60s. He was sort of the 'big room' teacher and the 'little room' teacher could play the piano, and so he had an accompanist built in as well. This experience had to be significant to my future development. (M 2)

One participant, who did not recall her primary education particularly positively, was moved from her local primary school to a private school after her brother’s

death, “because all the children were asking questions, and that sort of thing” (BE 2). She says that she was not that keen on her first school because she was always getting into trouble. However, she continued to get into trouble at her new school as well. She said her primary school teachers would have probably described her as uncooperative. “A few [in my class] were terribly hard working, and totally goody-goody. And then there was another girl, Lindsey, whose father had died, and me, who were a bit out on a limb, and we were the two that always did everything wrong.”

Another person also talked of misbehaving at primary school. He said he often incurred the wrath of teachers, albeit at times for fairly innocuous reasons, as the following account illustrates:

I was a naughty boy [and] I had the crap beaten out of me at school. I was strapped at primary school ... all the time. Basically [for] cheekiness, but sometimes in a bizarre way. In standard 6 when the class was asked, ‘Who is the President of the United States?’ I put my hand up and said, ‘Jack Kennedy.’ I was strapped for that because that was showing disrespect. His name was John Kennedy, and so that was disrespectful to the President of the United States - a bit bizarre. It’s unbelievable, but there you are, children were strapped for such things. (LM 3)

For a Maori participant, primary school was initially a difficult time. His family shifted from one tribal area to another during his early primary schooling, which he recalls as a difficult experience but one that made him stronger as an individual. It was during this time that, like many of his Maori contemporaries, he experienced conflict for speaking the Maori language at school:

At that time it was thought appropriate that Maori would not be spoken on the school grounds ... One day dad actually caught me crying behind the woodshed and I told him I was getting more straps from the school teachers for speaking Maori - more than any other pupil (and getting a kick in the arse from my own contemporaries for being a Maori/Pakeha and Pakeha/Maori). So he went to the school and he said to the principal, ‘I

don't care what your bloody rules are, you are going to change them. You are not going to deny my son the opportunity ... to learn his own language among his own contemporaries, his own mates.' Well, I went from Coventry to the hero of the school then. (MI)

A significant number of the participants reported that it was at primary school where their abilities were first evidenced and encouraged. This was generally in the form of teacher giving encouragement or the provision of special opportunities to pursue an interest area:

I was a very curious child and was drawn towards science. This was not that typical of young girls at the time. One primary school teacher saw that interest and gave me much positive reinforcement and some opportunities to complete individual projects. On one occasion I went to a science club that included kids from a number of classes. I just loved that. (LM 4)

Another person pointed back to a particular event at primary school, where his ability to write was formally acknowledged, an event that was not inconsequential to his subsequent development. "There was a certain day when I was writing something and [the teacher] was reading over my shoulder and she said, 'I see you are a writer'. That gave me my certificate" (V L 1).

BK 2, now a dancer and choreographer, also gave an example of the positive influence of a primary school teacher. Although his interests changed later, he said he was earlier passionate about visual art and he encountered a teacher who nurtured and reinforced this interest:

I remember the reason why I really liked painting and drawing was, because first day at school I was put into a classroom and given some paints and I remember the teacher saying to me at that time, 'What you're doing is great, good on you, it's really nice'. It was coming from someone other than my mother or my auntie, and it was someone who was obviously in a position of power that I really respected. From then on my

art would just flourish and after that initial encouragement, and I just went ahead.

Four participants mentioned being accelerated while they were at primary school. VL 1 ‘skipped’ one class level and was consequently a year ahead of his age-peers for the remainder of his schooling. He was unsure whether this was a good option or not, and said that he was “so emotionally screwed up anyway” it is difficult to identify any cause and effect. He did acknowledge that later on, when he was studying for his PhD, being grateful for the extra year. A second accelerated student, LM 2, was uncertain how many levels he missed but believed he was probably two years ahead of his age-peers. He was more condemning of the practice, saying he did not believe he received a balanced childhood as a result, and he still remained opposed to acceleration:

Well, you’re different. I mean, when you’re 11 and your peers are 13 and they’re thinking different thoughts to an 11 year old you can’t really interact in that group, and so you start acting older than what you are. It’s interesting, that right through university I tended to find it easier to relate to people in the years ahead of me than in the years that I was. I wouldn’t want that [acceleration] for my kids and, in fact, we held back one or both - I’m not even certain now - from being accelerated, even though neither of them had any reason to be held back. Interestingly enough, I don’t think any of the other kids who were accelerated to the extent that I was ... actually enjoyed the experience either; even now or in retrospect. And I really feel quite strongly against getting bright kids out of kilter with their peers and age. I think you can provide for brighter kids in other ways, without taking them out of their social group. (LM 2)

A third person who was accelerated was also negative in her assessment of the practice. “At my new school I was ahead, so they moved me up a year. So then, I didn’t really fit in because I didn’t have the maturity, social maturity, that the other children had” (BE 2).

With one notable exception, Intermediate School did not feature as significant in the stories participants told about their educational experience. However, for VL 1 it represented the highlight of his schooling. “Intermediate school was brilliant also because at that time it was ruthlessly streamed. I got put into the class taught by Miss B and we had her for two years. She had us for two years and so she could make us into her image.” This class, where he was with others of high ability, was a place he said where he felt secure, and where he could do things that would have attracted a negative peer response in other classes. In this top stream class, he said, it was acceptable to be different, where in fact, “Everyone was seen as a bit different - some as eccentric.” In fact, because his experience at intermediate school was so positive and affirming, he believed that, while he was always going to struggle at high school, feeling so comfortable at intermediate school exacerbated the impact of what was to follow:

Primary school gave me far more than it took away from me - it did take some things away. But it gave me far more; built me up. Intermediate school did even more so. Then whack, I went right back [at high school]. I went back into myself. So I remember very much the last year of intermediate. I had a real sense of life opening up. I had good friendships with boys - and then high school. It almost killed me. I became suicidal.
(VL 1)

Whereas many of participants were somewhat ambivalent in their reports of primary school, and while some clearly had difficulty recalling significant aspects of this stage of their education, the same was not true of their memories of secondary school. Their accounts of their high school experiences were much more decisive and often recounted with an emotional intensity that was not evident in their primary school stories. The continuum of reactions to secondary school, stretched from those on the one hand who felt that this phase of their education was extremely influential in shaping them as successful adults, to those on the other hand who found the experience very unpleasant and decidedly negative. As would be expected, the majority fell between these two extremes. Overall though, their accounts were more positive than negative and while few

gave their schools glowing testimonials, the positive experiences did outnumber the negative ones.

If there was little relationship between the accounts provided of individuals' primary schooling and the type of school they attended, the same could not be said of secondary schools, where schools of a particular type seemed better suited to the development of talent in some areas. The most positive stories came from those who attended single-sex schools, both state and private. The majority of this group was academically very able and identified their schools' emphasis on academic achievement as an important aspect of their enjoyment of this part of their education. Almost all those who felt their school had provided very well for their academic learning were in 'streamed' classes, that is, classes where students of like ability were taught together. These participants were in the top streams in their schools, and they spoke of the stimulation they received from being in a class with others of like ability. They also mentioned the benefits of being amongst students who wanted to learn and of teachers not being distracted by students who were misbehaving. They also enjoyed the pace of these classes, and not having to wait for others to catch up. Some found the competition stimulating and two mentioned the advantages of having the better teachers take their classes. No one had any negative comment to make on the practice of streaming.

Three males said that attending a school where academic achievement was encouraged, valued and reinforced, meant they could perform to a high level without the fear of being ridiculed or marginalised by their peers:

High School was much better [than primary school]. There was genuine challenge going on. You were in the top class with other kids who were noticeably clever. There was lots of challenge in the curriculum itself and in matching wits with others in the class ... It was a brilliant school and still is ... It was a wonderful place, where it was OK to excel. (LM 1)

LM 2 attended the same school and also recognised the significant contribution it made to his intellectual development. However, it was at this stage where he experienced some of the negative effects of being accelerated at primary school:

At [high school] there were good teachers ... It was here I learned how to learn. Here I thrived – although I didn't always enjoy it. I was in that group of 'nerds' where there were several other kids who were very young for their age, who were very bright and we fed off each other. So in that very competitive environment I thrived intellectually but I didn't thrive socially. (LM 2)

A woman, who attended a private girls' school from the age of 10, said the school was a place where achievement was encouraged and where, "It was not an embarrassment to be studious" (BE 1). This person has been extremely successful in the business-entrepreneurial field and felt that part of her adult achievement is related to the expectations, standards and values that characterised her secondary schooling. "It was pretty influential on my life I have to tell you, it really was ... Of the three stages of education [primary, secondary and university] that was probably the most important." Her secondary schooling occurred during the early 1960s, where she remembered women generally receiving limited encouragement to pursue careers, and where there were still few high achieving female role models. However, she was exposed to quite a different culture, where female achievement she said was presented as the norm, and where it was both encouraged and modelled by teachers. She left school, she recounted, feeling little constraint as a female on what she might achieve. "We were encouraged to be young women who would definitely go to university, definitely have careers - not necessarily by our parents, but definitely by our teachers."

Another woman, who also attended secondary school in the early 1960s, spoke highly of the private girls' school she attended for the second half of her secondary education:

I had a very privileged education. The most significant aspect for me was that, being a very creative person I could have been miserable if they tried to straightjacket me. They didn't. The teachers let me be myself, something I will always be grateful for. (VS 3)

As has been noted above, three people in the logical-mathematical category each felt that their secondary school's emphasis on academic achievement was significant to their future development in this field. The fourth individual in this category, although acknowledging that there were some very negative aspects to his secondary education, seemed able to rise above these and take from it the aspects that were of value to him. He recounted how he had met a former high school classmate whom he had not seen since leaving school more than 25 years previously. This person had mentioned what a "terrible and brutal" school it was at the time:

He told me this story about a particularly brutal incident where a kid was caned quite unreasonably, and it started to dawn on me, this story he's telling is actually about me, and he didn't know who I was, but I remembered it was me, and I didn't have the heart to tell him that because I have quite affectionate memories of my school days, and wonderful teachers. Oh, sure, I had the crap beaten out of me, and very unreasonably. Ironically, he had never been caned at school, but he was brutalised by the environment in which he found himself. I completely validate his experience there, and I think that's one of the horrible things about corporal punishment, it affects kids in different ways. However, the experience of school opened up my mind to a world out there of other languages, other knowledge, mathematics and science, and to literature ... I loved the window the school gave me, and some of the other strange things that happened as part of education in those days didn't seem to matter very much. I even had the mathematics teacher who beat the crap out of me but he mostly taught me some mathematics; and I can still do some tricks and games of mathematics that he taught me. I really couldn't stand the man. He was a sadist. He should have been locked up actually. But he taught me wonderful mathematics, and somehow, the sheer quality of the knowledge of these teachers and their love of their subject was what mattered to me. (LM 3)

He was not the only person to talk about the harshness of some teachers' treatment of their students. Another participant, who was educated outside New

Zealand described some of his teachers as sadistic and the school as awful. However, he developed strategies to cope with this environment:

I think I knew that with humour and good use of language, and charm and all that, you can go a long way. I think I played to all those strengths, and they got me through. I had good relations with the teachers generally. So I was personable. The part of that whole thing was learning that it was important to impress people, so that made me quite personable from when I was even quite young, and it was the same at school. So the teachers liked me and I could easily end up in, say, the teacher's pet situation. (I 1)

One participant recognised early on at high school that her local rural school could not provide her with the range of courses that were available at the nearby city high school, which was a single-sex state school. In particular, the smaller school did not offer any foreign language courses. If a student took a course or courses at the city school, that were not offered at the smaller local school, the bus transport between the two locations was provided free of charge. At the end of the first year of high school she instigated the change of school herself, although she was party to an event that she suggested may have made her continued attendance at the first school a little uncomfortable:

I had a lovely English teacher who let me use the typewriter - I wasn't in the commercial course, which meant you used typewriters after school, and I learned to type. But I would be the only student in school grounds. One day I went to put a typing manual away in a cupboard and I found two teachers in the cupboard, and they weren't married to each other. So I had a sense that my days were numbered at the school anyway. (VL 4)

This person was also largely positive about her time at high school, and though she said she did not like some teachers – and they did not like her – there were others who were, “... strong women, who were leaders in education, saw potential, and who gave me a lot of encouragement.” These teachers were to have a profound influence on her life and from her perspective on the development of her talent. At 15 years of age her father insisted that she leave school, largely for

financial reasons. “I don’t know what happened at that school ... I was called to the principal’s office by a group of teachers, including my English teacher. They said that they had a job for me [as] children’s editor of the [city’s] daily newspaper.” The school had arranged for her to do the job after school, and as well had organised private board for her in the city. The job paid six pounds a week, two of which covered her board, and the remainder went to her family. It was clear that these teachers recognised in her a special ability, and for a young person who was later to make a name as one of the country’s leading authors, the additional year of education, the experience of being a children’s editor of a daily newspaper, as well as the affirmation of her teachers were, she says, very significant in what she was to achieve later.

VL 4 was not the only person who told of taking the initiative to pursue the development of a special interest. A person, now an artist, shared how he had an interest in art from the very early years of his childhood. He attended a high school where art was not taught and his first formal introduction to art was as teachers’ college. However, he said “ We used to do it anyway ... it’s knowing what you want, knowing what you want to do and feeling passionate about what you want to do and sticking with it. It’s a kind of tenacity to be involved in the area that I’m involved in” (VL 2). He and his brother organised to sit the School Certificate art examination at a neighbouring school, even although neither had had a single art lesson as part of their education. His brother managed to pass with 95 percent. VL 2 failed, re-sat the exam the following year but failed again with 48 percent. He said he was not discouraged from continuing his interest and involvement in art (his brother chose a different career path, although he demonstrated such early promise in art). He now believes that this lack of formal art education at high school held some advantages for him because he had to be self-motivated. In addition he said, “By the time I got to actually getting a formal education I was relatively naïve, and it made me sit back and listen and soak up everything that I could get at that time” (VL 2).

Of the group who found high school a positive experience overall, a number identified a particular subject or activity that was a key factor in sustaining their interest and motivation. Sometimes their attitudes towards other aspects of school

life were less than positive, but what they did enjoy seemed to more than adequately compensate, for what one person called, “The monotonous drudgery of much of what we had to endure” (BK 4):

I was totally into my sport. Academic subjects just didn’t do it for me. I didn’t do badly but given the option of studying or playing; it was no contest. If enduring the tedium of study was the price I had to pay, that was tolerable – on a good day. (BL 4)

And high school was an enjoyable experience as well and I participated and never had any qualms about participating in debating or drama. This is where I came into my own. I didn’t get bursary because I got too interested in acting in my last couple of years at high school and really all I was interested in was acting. And I think I was a bit of nerd and funny. Not sporty at all. I didn’t bother going in for things that I couldn’t win. I majored on what I was good at. For example, I won the speech contest for my form all the way through to the seventh form. (VL 2)

VL 1’s story contains the most disturbing account of any person’s secondary schooling (this experience is more fully described in Case Study 1). He provided a graphic account of the differences in his experience from primary to secondary school:

To me they [primary schools] seemed like communities; while high school seemed like a military occupation. It seemed to be a state under a fascist dictatorship. And the appalling uniforms - gross, uncomfortable and ugly. Everything was ugly in high school. Ugly, totally male and only one teacher smiled and took an interest in my ability.

He said he tried to take his own life at this time. He talked about his time there as “a bleak and lonely existence.” Not only did he find school intellectually unrewarding and unstimulating, he also felt emotionally vulnerable and socially isolated. His refuge became the school library, where “a whole lot of “poofy, bookish, miscellaneous boys ended up” and where they “hid”.

In this study, those who were later to make their mark in the creative domains were more likely to have negative feelings about their secondary school years. A writer provided the above account. The experience of another writer was also negative, although her story is not as despondent as that of VL 1. She described the school she attended as being obsessed with building school pride and enthusiasm, which she said, “For someone like me was a dismal failure” (VL 3). Like VL 1, and mirroring her primary school experience, the library became her haven:

Again, as luck would have it, I was made a school librarian in the first year, and I wasn’t discovered to have been a member of the school by the physical education teacher until the second year, because again I had the run of the library.

One person, now an artist, who said he was, “always a different kid” found primary school enjoyable but “struggled to fit in at high school”:

I basically just got fed up. I could not conform, so I resisted, challenged, questioned, took teachers on, and I have to say, except for one or two subjects, just dropped out. It seems to me that schools, at least then, just couldn’t cope with difference. I didn’t fit the mould, but they still insisted on trying to make me. I still resent that. My problem was not with other students, they accepted me - in fact some saw me as something of a hero. It was the damn teachers who labeled me a behaviour problem. (VS 4)

One participant provided an example of the impact one teacher can have on how young people perceive themselves and what they are capable of. This is the person that responded so positively to the encouragement his first teacher gave him in art (see primary school section) but who largely dropped out of secondary school when he received an equally discouraging message:

There was another teacher that, in later years, really damaged, I guess, my chances at Bursary. When I got to 7th form this one English teacher -

whom I recently made a work, a dance piece about - introduced us to Shakespeare. It was the first time we'd had Shakespeare. We were mainly Pacific and Maori students and most of us had tried but had difficulty with the language obviously. She wasn't offering any help whatsoever. She asked questions like, 'How many of you have started reading King Lear?' or 'How are you going?' Most of us kind of tried to find a way of saying to her that this was really difficult - without looking like stupid. She didn't give us a chance, she basically looked up and said, 'Look, don't bother reading it because you're going to fail anyway.' And at that moment I guess I believed her. I said, 'Oh well, she doesn't believe in me', and so I wagged school. I was deputy head boy, chairman of the school council, and all the rest of it. I just didn't turn up. Didn't try. I didn't do it on purpose, but in retrospect that's what happened - I shut down because of that. I think I was very reliant on those leadership figures. As I said, when I was five years old and my first teacher said, 'That's fantastic', that made me flourish. Likewise, when people, teachers, couldn't give me that encouragement it made me give up I suppose. (BK 3)

An individual who completed most of her secondary schooling in England, at a boarding school some 200 miles from her home, described being miserable:

Probably this was the worst time in my life. I was very unhappy. I was from the South, and most of the people were from the North, so I was teased about my Southern accent. Then I had to sit an exam to see whether I'd be in an A, B or C form ... I was put in the C form, and as soon as I got there they realised it wasn't the right class for me, but the B form was too full, so they allowed me to go into the B Form for a couple of subjects, but basically I was still a C former. The C form was only quite small, and people would say, 'Oh you're dumb'. I wasn't there. I wasn't learning. I wasn't inquisitive ... and I failed all my main GCE subjects. Actually, the whole thing started a pattern that, whenever I had an exam, I was ill. (BE 2)

Life at times became so bad she says, that at one point she ran away from the school.

The individuals in this study presented a diverse profile of achievement and accomplishment at school. In academic terms, their overall performance would most accurately be described as above average. Only one appeared to struggle academically, two described their academic achievements as average, but most achieved well above average. A small group performed very highly but only two attested to accomplishments academically that could be termed outstanding. Both of these people were in the logical-mathematical category.

I went to university from the 6th form. I had won a number of scholarships, so money was not an issue. My stepfather and the school wanted me to go back to do a 7th form year but I decided not to. It worked out ... and I completed a Bachelor of Science without much effort. (LM 1)

I ended up at [secondary school] at 11 years and I thrived academically. I excelled in mathematics and science and in the last two years I was always first or second in the class. I got a scholarship in the sixth form to go to university but because I had been accelerated I was only 15 and I was far too young to go, so I went back for another year, which was tragic. I was bored and focused on other things. (LM 2)

Most of the others did well, if not outstandingly. The following are typical of the accounts of the academic achievement told by the majority:

I always did well at school; not outstandingly, but I was always in the top quarter of classes I was in. My strength was in the language arts. I got School Certificate and University Entrance without too much effort. (BE 3)

I did very well across the board at primary school. I had a lot of ability. I [was] used to being the top of the school in primary school, although [secondary school] was of course very competitive, and it took me a while

to come up to scratch with all the kids who'd been through city intermediates because I had been to little school with 10, 11, 12 kids in the class. Now you're competing against girls who've been at huge intermediates, where there might have been 8, 9, 10 classes of that year - obviously the level of competition is much greater. It took me a couple of years to get up to the top of the pole. (I 3)

I knew I was intelligent, I knew I had verbal ability, and I had got a curious mind. I wasn't bad [at school]. I was probably not the absolute top in things, but I was a B+ student, and probably the same right through my school and university career. (I 1)

I always did very well at school. I always managed the top two or three in the class but that was because I worked very hard. But I'm not a brilliant academic, but I just worked hard and liked what I was doing. (BE 1)

A small group considered their school performance mediocre or average but pointed to the fact that this was more a reflection of a lack of motivation, interest or not connecting with what was taught or how it was taught:

I'm not an academic. I think I'm pretty bright. I'm very bright. I think I'm brighter than most people ever realise. I don't think I ever had the concentration until much later than the years at college or university, to apply myself really to a specifically-focussed subject - except performing. As I've got older I've got smarter. I've got brighter. Or, rather, I've come to accept that I'm that bright. (VL 2)

I achieved well at what I was interested in – mainly music. You used a term before that describes me – a selective consumer. If I was not interested, I couldn't see the point. I used to be amazed at my friends who, like me could make no sense of what was on offer, but who conscientiously put their hearts and souls into it. To me, that was just plain hypocritical. (M3)

There were two people who experienced some failure at school. One person who found school work a challenge at times and failed School Certificate the first time he sat the examination, passed it on the second occasion but in the subsequent year failed the University Entrance examination:

At primary school we had A, B, C and D groups, and I was in the B. At high school I wasn't interested in what was offered. And so, history – and some other subjects - I just hated. Now I love history, I think it's fascinating. But somehow I just never grasped the significance of what I was doing. It was something I had to do in order to make progress. I wasn't inspired by learning at all. I was not turned on to anything much that I was learning. I didn't like mathematics that much. I never really ever saw the relevance of anything very much - even biology, which I really enjoyed. (BK 2)

However, some years after leaving school this person went on to complete an undergraduate degree, a masters degree, and then a PhD. He now teaches in a graduate school overseas.

A description of BE 2's unhappy experience at a boarding school in the north of England, which she described as probably the worst time of her life, has already been documented in this section. When her family emigrated to New Zealand and she enrolled at a new school as a 5th former – even though she had completed most of the equivalent level in England – she sat an IQ test and was placed in the top class. However, the history of having difficulties with examinations remained and although intellectually bright, she failed both the School Certificate and University Entrance examinations. In spite of not holding either of these qualifications, she was given special consideration and admitted to teachers' college.

A small number identified a single teacher at secondary school who had made a difference, and examples of some of these have been tabled earlier in this section. Sometimes these teachers made an impression because they took more than a passing interest in the individual. For others, having a special ability recognised

and affirmed made an impact. Some mentioned a specific teacher who inspired them and for three of this group, this teacher became a significant role model. One person talked of a particularly influential teacher, part of whose appeal was that he was quite different to most of his colleagues;

We had a really wonderful teacher. I suppose you could say he wasn't your typical teacher or what we thought teachers should be like. He was a 'bikie' and he had all these pictures of Triumph motorbikes around the room, so we thought he was cool ... I remember a lot of learning went on in that class, and really getting excited about things. So that was the turning point in terms of really enjoying school. (BK 1)

She recalled how this teacher catered for individual differences, set and expected high standards, and inspired in his students a desire to excel. This participant attended an area school, with a small roll. She pointed to what would appear to a disproportionately high number of outstanding achievers who have come from this small rural school and suggested that the school culture of achievement that she experienced may be an influential factor:

I think really in our class we were all trying to achieve. I don't think anyone was trying to buck the system or didn't care. I think we all cared. We all really wanted to be competitive with each another ... we certainly had a lot of good teachers who were really trying to push us and amongst our peers we were really interested in achieving.

She described her school achievements as good but not outstanding. Her parents did not expect her to progress from school to university but she said that because all her friends were following the education pathway she would, "give it a go." Although she made her name in sport, she went on to complete a PhD and is currently employed as a university lecturer.

VS 4, who reported not fitting in at school and who was labeled a behaviour problem because of what he described as an unwillingness to conform, spoke of

one teacher who became “an ally” and who gave him vital support and encouragement:

This art teacher seemed to understand me. I know he was torn between a loyalty to the school and his empathy with where I was coming from. He would say things like, ‘Don’t worry, there’s life after school’ or, ‘Express your frustration in your art.’ I am sure he advocated for me behind closed doors. He was my salvation basically.

One person talked about the eccentricity and passion of some of his teachers as being traits he was drawn to. These men were returned soldiers and untrained teachers, and he doubts whether they would even be accepted for teacher training today:

Many were quite eccentric [and] quite opinionated. They were passionate about their subjects. They weren’t employed because they necessarily were well-behaved teachers with good social attitudes, in fact, some of their social attitudes were appalling. But they were employed ... because they loved English or they loved Chemistry. Some of them were quite mad - barmy. It didn’t worry me at all. I just loved their eccentricity, with the sense of relish they made an explosion in the classroom, or start waxing on about the beauty of some particular element, be it calcium or hydrogen, or whatever, or would sing a song about Newton’s laws. This actually happened. I had teachers who made up songs. I had English teachers who would say, ‘Ah! boys, listen ...’ and he’d read some poetry, read some Wordsworth. He’d say ‘Ah?’ and his eyes would gaze upwards, and there’d be this silence in the classroom. This guy, he’s crazy, but it’s wonderful, and so he made us feel the same way. So I have to say that I didn’t have one teacher, I had many teachers who were wonderful. Now, it may have been very damaging for other children, perhaps, that they were not kindly sympathetic, politically correct people Actually, they were kind behind their gruff exteriors - there was a kindness there - perhaps that shone through but they seemed sometimes, some of them, rather hard men. (LM 3)

Two people talked about specific teachers that they responded to and identified with because these teachers held strong views, were passionate about what interested them, and who got excited:

Mr J was inspirational. It didn't matter that what he was into and what I was into were poles apart, it was that he shared my level of enthusiasm. He got excited, would wave his arms about the place, and sometimes came out with ideas that I would have never shared at home for fear my parents would have been knocking on the headmaster's door and asking for his resignation. In an environment where so many teachers seemed bland and going through the motions, this teacher was like a breath of fresh air. However, many students thought he was nuts. As far as I was concerned, if he was nuts, so was I, and that was fine by me. (VS 4)

A very similar account came from BE 4, who talked about "boring classes taught by boring teachers, who looked like nothing much would ever excite them." He said he himself was an excitable person, who went off on tangents all the time:

When I got into a project or a topic or an interest, I wanted to know everything about it. I got totally absorbed and I could have worked on it for days. Admittedly I had problems with completion on time. There were a couple of teachers for whom this was clearly a real joy to them, as if I was the reason they had gone teaching. They would get into my projects as much as me.

He remembered these teachers with great affection but does not blame other teachers for losing their enthusiasm. "I was a rarity, and often got ridiculed for my level of commitment. My classmates saw me as a pain and a teacher pleaser. I don't think they ever understood that I derived pleasure from what they saw as a chore and a bore."

It is clear that most of the participants were motivated to learn, and so teachers who provided for that were the ones who were remembered with the greatest

respect and affection. These were not necessarily the teachers who employed innovative approaches or who had engaging personalities. What was identified as important was their knowledge of and enthusiasm for what they taught. Teachers who allowed their students to question, to challenge, and to pursue their own areas of interest were also recognised as influential teachers. VS 1 (see Case Study 2), who received most of her education at an orphanage school talked with great affection about her teachers who fostered their students' natural desire to discover. These teachers, she said, never said "'Put your hand down'. We always had our hands up asking questions ... we were never afraid to put our hands up ... You know, the teachers were fantastic. They encouraged us to be contentious. They encouraged us to ask questions. We were never afraid to disagree."

Most of the 28 continued their education beyond secondary school and only seven did not acquire a tertiary level qualification. One of the seven started a law degree but dropped out within a short time. Of the other six, three were the eldest members of the participant group, one in her 70s and two in their 60s. Of those who continued their education beyond high school, 16 went to university and completed a first degree (seven of this group continued to the PhD level). Three completed a teaching qualification, and two of these then went on to graduate with a fine arts degree. One other person completed a degree in fine arts. One has a tertiary qualification in music. From the information provided by the participants, it would appear that only two of the 19 who attended a tertiary institution, did so some time after completing secondary school. Most went directly from secondary to university or teachers' college.

In many cases, these individuals (and some of their siblings) were the first generation in their families to go to university:

My parents were proud, yet afraid. In reality, I don't think they had any idea what university involved and what I was getting myself into. Quite frankly, I had no idea, because, apart from my teachers, I don't think I knew anyone personally who had ever been there. (BE 4)

There was no tradition in our family of university education. None of my parents' siblings had had anything more than either a primary school education or a very small amount of secondary education. So university was a whole new thing, a mysterious thing. (LM 3)

Some, while not necessarily the first family member to reach this level of education, were the first females to do so, and sometimes in the face of paternal opposition or ambivalence. "My father gave me no support whatsoever. He was part of the fact that I went to university. He didn't come from a family that had gone to university ... they were a farming family. On my mother's side the men had gone but not the women (BE 1)."

The transition from school to university meant a narrowing of their focus academically. Some had already developed a relatively firm idea of their direction, and this was especially true of the logical-mathematical group. Three of this group enrolled in mathematics and/or Science degrees, one started a degree in English but he said, "... some how the science took over" (LM 3). The choice he had to make between English and science posed a real dilemma for him, as he had a passion for both and ability in both.

Almost half of those who went from school to university spoke of becoming much more politically aware and politically active as undergraduates. Many were university students during the 1960s and some mentioned this as significant to the development of this part of their lives:

I ended up at Victoria University where political movements were rampant ... and there were student demonstrations and movements, which I was actively involved in. God knows why. God knows what I was protesting about with this wonderful life I was having, with this fantastic free education and all these opportunities, but I was upset about something I guess, I don't know what it was! What was it about the 1960s? (I 2)

He said the Vietnam War was the catalyst to him becoming “politically agitated” which he recounted was much more than an intellectual interest, it was about idealism and principles.

The one politician in the group (I 3), who commenced University in the late 1960s, talked of becoming involved in a variety of movements protesting against the Vietnam War, the proliferation of nuclear weapons, and apartheid. Although this involvement did not lead directly to her entering politics, as she became involved in more committees, some related to “causes” she said she thought, “Perhaps I should have a go rather than only being a support for other people. Maybe it would be great to be able to do this full time, and really work on the issues I am interested in.”

Another woman, who became “politically involved” at university at a very similar time joined a political party and upon completing her first degree worked fulltime for the party for two years. “It was very difficult to remain politically disengaged in that era. In many ways the groundwork for political activity was laid at my high school. We were encouraged to have an opinion and we actively debated these” (BE 1).

Like the two examples above, some others became involved in non-academic activities at university that were to be significant to the development of their talents. VL 2, who was to achieve national recognition in radio and television as a broadcaster, found academic study “extremely boring”, and his involvement in the university drama society much more fulfilling. He joined this group upon starting university and said he was given leading roles very early on. His experiences here led to opportunities in radio drama and while at university he decided his future was not in law but “on the stage”.

University, at least initially, did not live up to everyone’s expectations. Two writers, both who found high school a less than satisfactory experience, found undergraduate study not too much different. VL 1 said he was deeply disappointed with university and that it was not much better than school. He believed he was expecting a “wonderful breakthrough” at this point in his

educational life but that it was impersonal and lacking in intellectual stimulation. He remembered lectures as in the main boring, and as far as he was concerned an uneconomic way of disseminating information, which could be read and assimilated in a fraction of the time it took to deliver it orally. However, he did persist, completed a BA, then an MA, and finally a PhD.

VL 3's experience as a university undergraduate was not dissimilar:

I went to university for three terms and dropped out in the fourth. I was spending more time reading in the law library than going to classes. The library contained so many human stories. In class I was doodling with stories. I ended up working in a fish and chip shop.

Another person found the study of law uninspiring stating that, "It took me a year at university to realise law bored me stupid and that the only thing that interested me about law was the great theatre of the court room - the acting and the performing" (VL 2).

A number talked of their undergraduate years as a time of social as well as academic activity. Some clearly 'played' quite hard and although their studies may have suffered, no one mentioned it affecting their academic progression long term. The social and other distractions early on in their university lives featured much more in the stories of males than females. The balance between having a good time and passing courses was described by one person as, "a fairly fine one, but you know that ultimately you're going to rein yourself in and get back on track. I also felt I had control, and I guess part of that was looking at others who did not, and seeing the consequences" (BE 4). One person, who spent one year at Auckland University before moving to Otago to begin a medical degree, said he discovered the "extra curricular" activities soon after arriving in Dunedin. He saw this as inevitable, as he had started university at 16 years of age and was now 17, and this was his first time away from home. He described his first two years at Otago as, "all about alcohol, the opposite sex, etc. etc., and an adequate, but not stellar performance academically. I didn't fail anything, but didn't do very much"

(LM 2). He “settled down” in his fourth and fifth years as the boring rote learning changed to contextual learning and because “that’s when I met my future wife.”

One male referred to being distracted from academic studies as a “blip” in his university career. He too commenced university at a younger than usual age. “I had a bad year – into drugs and everything. I’d always be drinking a bit too much, and didn’t do much work” (LM 1). However, similar to the others he “got back on track” the following year. Like LM 2, he found the work became more interesting as he progressed, and he also realised he wanted to go on to postgraduate study and if he continued to be “cavalier” concerning his studies this was unlikely to happen.

I 3, who studied law, talked of struggling at university and of failing more courses in the first year than she passed. Her failures were not limited to the first year, but she said she is reluctant to give a detailed account of her academic record in her second year. Her struggles, she believed, were simply because she did not know how to study and as she became more knowledgeable about how to prepare for examinations she started experiencing success. Although her father felt she should leave, and her mother suggested she go teaching, she rejected both these suggestions and continued, determined to succeed. She went on to achieve the highest level of success in the legal field and currently holds one of the highest public offices in the country.

Three of the group graduated from teachers’ college and each acknowledged that the experience was an important part in developing their abilities. Two are now artists, and one a businessperson. One artist, VS 1, grew up in a remote community and said that the students at his high school saw teachers’ college “as their greatest aspiration”. University was never considered as a realistic option. His interest in art was reinforced at teachers’ college and he decided to leave after a short time to study art, much to the chagrin of his home community. He subsequently completed a bachelor’s degree, then a master’s degree in fine arts. He then decided he actually always wanted to be as a teacher, so completed his teacher training as a high school teacher.

BE 1 was given entry into teachers' college, even although she completed secondary school without a formal qualification. She passed teachers' college with distinction and during her time there took a number of leadership roles.

There was an hour at training college, on Wednesday afternoons, where people were attending but nothing was happening. It was a waste of time. I thought, why not organise entertainment, discussions and debate, guest speakers and the like? So I became the cultural officer for the college. (BE 1)

Like her university counterparts she also became politically active and "participated in a number of protests and demonstrations." She says she has always held strong views on issues from high school, "when I remember starting the anti-vivisectionist club."

3.2 Discussion

In general, when asked about their educational experiences, the participants in this present study focused much more on their secondary than their primary schooling. Adolescence is often associated with significant social and emotional changes and challenges in the lives of many individuals. As Pinker (1997, p. 143) put it, "A ... notable feature of access-consciousness is the emotional colouring of experience. We not only register events but register them as pleasurable or painful." Another reason why people may recall their secondary school experiences with greater clarity school is possibly because this stage of education has a much greater impact on post-school choices than primary school experiences do. A different level of performance at secondary school would have altered the career paths of many adults, and for many people that influence continues for all of their working life. It is of little surprise therefore, that the memories of secondary school are easily retrieved and readily interpreted by many adults.

Amongst those who have studied talent development over the lifespan, next to the family, school and education seems to have received the greatest amount of attention. Simonton (1994) reported that the relationship between school

experience and post-school success is a complex one. He noted that the research clearly demonstrates that many outstanding figures were anything but stellar students. In fact, he reported on several studies that showed that a large proportion of famous people despised their school experiences. However, what Simonton also noted, and what is of relevance to this present study, is that of those who found school a positive experience, “Most later attained fame in either sciences or politics” (Simonton, 1994, p. 159).

Of the seven ability domains represented in this present study, it was those in the logical-mathematical domain who, as a group, were the most positive about their education, particularly their secondary schooling. Two of these attended the same boys’ schools, a school that has acquired a national reputation for academic excellence. There is no doubt from the reports from these two that this emphasis on academic achievement was important to them. This was not only because this focus coincided with what they were interested in, but also, and possibly even more importantly to adolescents, it was at the heart of what the school stood for and what was valued and reinforced. This meant that it was acceptable to achieve academically, and doing well in these areas generally enhanced an individual’s status with both teachers and peers. This is clearly not the case in all schools, and in some settings academic achievement attracts peer derision and sometimes, even rejection. The one woman in this field also spoke enthusiastically about her education at a girls’ school, where she felt her interests and abilities in science were encouraged and provided for. One participant in the logical-mathematical category attended a co-educational school, and while not mentioning that the school he attended embodied a culture of academic achievement, he was positive about his secondary school education because what was taught and who taught it satisfied his desire to learn and acquire knowledge. This was in spite of the fact that, upon reflection, he recalled some very negative elements of his secondary schooling.

There was only one politician in the group, so it would be spurious to suggest any relationship between school satisfaction and a later career in politics (as Simonton, 1994, reports). However, it is worth noting that this person’s school

experience was in fact positive. Like the three discussed above, this person also attended a single-sex school.

As noted in the previous section, the type of primary school a person attended seemed to bear little relationship to their recollections of the quality or enjoyment of this stage of their educational experience. However, the same cannot be said of their feelings about secondary school and from this study there is evidence that those who attended single-sex schools were, as a group, almost unequivocal in their praise for their former schools. These positive accounts came from individuals in the logical-mathematical (three), interpersonal (one), business/entrepreneurial (one), musical visual/spatial (one) and verbal/linguistic (one) groups. The positive reports from these schools were connected to the quality of the academic teaching, the emphasis on achievement, the positive role models provided, and the interest and support of teachers. All of these participants said that their former high schools encouraged and recognised high achievement. It is hardly surprising then, that young people who valued achievement and who were prepared to work hard to reach their goals felt comfortable in such settings. It is also not surprising that, not only did this group enjoy high school, they also achieved well throughout it. There is also evidence from this study that these talented young people felt accepted by their peers in these single-sex, achievement-oriented schools, some believing that they may not have enjoyed such a positive experience at a different secondary school.

There is a common perception that there is a very weak relationship between school achievement and adult success. Albert Einstein is an oft-cited example to illustrate the contention that the two are very tenuously connected. Certainly Einstein was extremely critical of his schooling but as Simonton (1994, p. 158) argued, “we should not be too quick to condemn the educational system that elicited Einstein’s complaints.” He also reported that approximately one-fifth of esteemed creators, leaders, and celebrities of recent times were honour students, which is twice the proportion of figures who repeatedly failed classes. In fact, Simonton considered that overall, scholastic competence ‘can’ predict adult success and amongst the famous there are numerous examples of those who excelled at school and the negative experiences of likes of Albert Einstein and

Charles Darwin do not necessarily represent a trend. For example, Marie Sklodowska (later to become Marie Curie) was two years ahead of her age peers in all subjects at elementary school and graduated from the Russian lycee at 16 years of age. Sigmund Freud topped his secondary school class. Ernest Rutherford, the New Zealand-born physicist, was recognised in primary school as an outstanding student and won prizes at secondary school, not only in Science but also in history, English literature, French and Latin. He won a scholarship to the University of New Zealand by answering correctly 580 out of 600 test questions.

In this present study, the majority could be considered to have been successful, or very successful at school. A small group gave accounts of somewhat mixed records of attainment, although even amongst these the level of achievement overall was better than average. Two participants definitely struggled at secondary school but both of these people achieved tertiary qualifications, one a PhD.

However, the notion that school is more often than not an unpleasant experience for high achievers is strongly supported by the findings of Goertzel and Goertzel (1962). In a chapter entitled *Dislike of Schools and Schoolteachers* these researchers reported that:

Three out of five of the Four Hundred had serious school problems. In order of importance, their dissatisfactions were: with the curriculum; with dull, irrational or cruel teachers; with other students who bullied, ignored or bored them; and with school failure. In general, it is the totality of the school situation with which they are concerned, and they seldom have one clear-cut isolated complaint. (p. 241)

While there is little doubt that many luminaries had difficulties with schools and teachers, the ratio of problems reported by the Goertzels is significantly higher than that found in other studies, including this present study. Part of the explanation for this apparent discrepancy may lie in the differences between the actual educational experiences of different groups. Most of the Goertzels' greats received their education in the late 19th or early 20th century. In contrast, most of

those in this present study went to school in the 1950s or 1960s. As Simonton (1994) pointed out, higher education has become much more important to later success, at least in some fields, than it was in the past. Access to higher education is largely dependent on school achievement. Also relevant to understanding the differences here, is the fact that educational philosophy and practice changed radically during the 20th century. Approaches to learning became much more student-centred and holistic. Classroom practices became less formal and structured, and more responsive. Possibly even more important, the curriculum broadened, and significantly for many creative achievers, greater attention was paid to the arts and music, and to creativity generally. It could well be that if the Goertzels' Four Hundred had attended schools some 50 or 60 years later, their levels of discontent with their education may have been significantly reduced.

However, while schools in the 1950s and 60s (the time when most of the participants in this present study attended school) offered a broader curriculum, and while teaching was less structured and formal, there was still an emphasis on the academic, and a high value placed on conformity to a relatively narrow set of values. It is maybe not unexpected then, that in this present study, it was not those who were academically inclined who struggled to fit in; it was rather some of those who thought and responded creatively. Future creators are also overrepresented amongst those who encounter problems at school in the findings of other studies. For example, Ludwig (1995) found that across his 1000 adult achievers, "... through high school and college, the artistic types (12%) were the most likely and the investigative types (3%) were the least likely to have difficulties with their teachers" (p. 51). He found the artistic types were most likely to get poor grades or below average grades and that there was a relationship between educational accomplishment and later achievement, except for those in the creative arts.

VL 1, who attempted suicide at high school, is now openly homosexual, and from an early age he said his interests and attitudes were at odds with macho male

image, which was the norm at his high school at the time. Kerr and Cohn (2001, p. 320) stated that:

despite major changes in gender roles, the culture of boys continues to discourage them from association with the feminine. Unfortunately, emotional sensitivity, creativity, spirituality, and even intellectuality are associated in our [United States] culture with femininity – or at least, with a questionable kind of masculinity.

They noted how agonising socialisation is for many gifted boys, who often hide their sensitivities and talents in order to fit in and to be accepted. At intermediate school, where VL 1 was grouped with others of like ability, he felt accepted and safe. At high school, his haven became the library, where he said other students like him found acceptance and safety.

In his study of 91 eminent creators, Csikszentmihalyi (1996) reported that many looked back on their adolescent years “with barely disguised horror” (p. 177) and nostalgia for their teenage years was almost nonexistent. “Marginality – the feeling of being different, of observing with detachment the strange rituals of one’s peers – was a common theme” (p. 177). He acknowledged that feelings of marginality are common in adolescence but in the case of creative individuals he believed there are very real reasons for it. Csikszentmihalyi (1996) also found that, while individual teachers were sometimes influential, schools were rarely mentioned as a source of inspiration, and in fact often seemed to threaten to extinguish creative students’ interests and curiosity. However, he was surprised how many had no memory of a special relationship with a teacher, especially those gifted in the arts or the humanities. “Perhaps because a precocious math ability is easier to detect, teachers seem more willing to encourage future scientists than students gifted in the arts and the humanities” (Csikszentmihalyi, 1996, p. 175). In this present study, there were examples provided by writers and artists of individual teachers who were important in the interest and support they provided. Consistent with Csikszentmihalyi’s findings, the schools were not always viewed from hindsight with great affection, but some special teachers were.

Although not a large group, some of the participants in this present study were able to identify teachers who did make a difference. These teachers were identified as influential for a number of reasons. Some were good teachers and inspired their students to learn. One person identified his significant teachers as unusual and eccentric, but they knew their subject matter and captivated students with their enthusiasm for what they taught. Others, too, spoke of the positive effect of being in classrooms with teachers who shared their own level of passion for a subject. Some teachers were appreciated for their recognition and encouragement of an emerging ability.

These results closely mirror other related studies. For example, Csikszentmihalyi (1996, p. 174) reported from his study that teachers who were remembered as influential by creative adults were those, "... who noticed the student, believed in his or her abilities and cared." In their study of talented teenagers Csikszentmihalyi, Rathunde and Whalen (1993, p. 249) found that talented high school students, "... liked teachers best who were supportive and modelled enjoyable involvement in a field." Roe (1962) said that her group of eminent scientists identified as favourite teachers those who allowed them cultivate and develop their own interests.

In fact, formal education may undermine the capacity for creative thought. To do well at school, "... often requires a high degree of conformity to conventional ways of looking at the world and people ... Such restriction will tend to confine the number and diversity of ideational variations that the individual can conceive" (Simonton, 1999a, pp, 120-121). He pointed out that while formal education seems to bear an ambivalent relationship with the development of creativity, those who achieve recognition as creators almost always commit themselves to a demanding regime of self-education.

If there is often not a 'goodness of fit' between the traditional school and those with a highly creative disposition, the same is not true of those with interests of a more academic nature, and in particular if their area of academic ability is science and mathematics. As was indicated previously, in this present study, the

compatibility between individual abilities and schooling was greatest amongst those who had achieved in logical-mathematical areas. Certainly three of these individuals attended schools with a strong emphasis on the academic, which no doubt enhanced this match. In her study of 62 scientists Roe (1952) reported that most of the group were positive about and liked their school experience.

Gardner's ideas are particularly salient to any discussion around broadening the curriculum and approaches to delivering it that cater for a greater range of abilities. His theory of multiple intelligences informs how giftedness is conceived and, according to von Karolyi et al., (2003, p. 101), "It calls on society to value a greater variety of patterns of ability and to educate children using approaches that are sensitive to each individual's profile of abilities." The emphasis is on giving children many opportunities to explore and experiment and to develop interests and abilities. "Thus, it reduces the chance that a potential musical prodigy will never have access to musical instruments or a potentially gifted dancer will never try moving creatively" (von Karolyi et al., 2003, p. 107).

Four of those who participated in the present study were accelerated during their schooling. Not one of them was positive about being advanced, with two claiming it was detrimental to their development. However, the literature on the effectiveness of acceleration in the form of advanced placement overwhelmingly endorses the practice. For example, Terman and Oden (1947) found that among Terman's gifted children, those who had been accelerated one or two years made better adjustments than those who were not. Kulik (1992) concluded from his meta-analysis of the research that, "Talented students from accelerated classes outperform non-accelerates of the same age and IQ by almost one full year on achievement tests" (p. v). Rogers (1991) conducted a similar analysis of 314 studies and maintained that acceleration in the form of advanced placement aided social relations as well as academic achievement. Numerous other studies have drawn a similar conclusion (e.g., Gross, 1994, 1998, 2001; Hoekman, McCormick & Gross, 1999; Proctor, Black & Feldhusen, 1986; Richardson & Benbow, 1990; Swiatek & Benbow, 1991).

In contrast, teachers generally have reservations about the appropriateness of the practice. According to Davis and Rimm (1998), their misgivings are two-fold. First, they hold concerns that accelerated students may miss key knowledge and skills, and this will result in gaps in their learning. Second, and a more common concern, is that children will experience social and adjustment problems being moved from a same-age cohort to a group who are a year or more older. A New Zealand study undertaken by Townsend and Patrick (1993) found that both pre-service and in-service teachers believed gifted children would cope reasonably well with the academic demands of acceleration but both groups felt that there were likely to be negative social and emotional consequences. More than half of the respondents believed that acceleration would cause gifted children to miss important social interactions, to have fewer friends, to be less happy, to experience emotional difficulties, to engage in fewer extra-curricular activities, to be less satisfied with their later careers, and to suffer stress and early burnout.

A conflict exists between previous research on acceleration, which is almost unequivocally positive, and the evidence from this present study, which is more negative. Of course it is difficult to compare the studies and reviews cited with the negative reports of a small group of individuals. However, it is legitimate to speculate that there might be some possible explanations other than the present study being so small as to render the findings invalid.

These two different evaluations of acceleration could be an artifact in when and how the practice was evaluated. Most studies have relied on indices of academic performance and information from students, either at the time, or shortly after they were accelerated. It is hard to argue with empirical evidence of improved achievement. However, improvement might also have occurred if the classroom teacher in the pre-acceleration environment had modified the learning and teaching for the able student so that it was more commensurate with the student's abilities. The information about the efficacy of the practice socially and emotionally has typically relied on self-reports and information provided by parents and teachers, again within a fairly short time of the able child being accelerated. The feedback obtained in this present study was provided some decades after the individuals were accelerated, and it is possible, with the benefit

of the additional years of hindsight, that they might not see it so positively and/or may feel less constrained about expressing negative feelings about it. It could be that they too would have been more positive about being accelerated at the time, or shortly after it occurred.

There is one notable study in this area that seems to run counter to the trend in the literature. This less than glowing review of acceleration is provided by a British study and it may not be inconsequential that almost all the research advocating for the practice comes from the United States. Freeman (2001) followed a group of gifted individuals from childhood through to adulthood and reported that this study was the only one she was aware of where the long-term effects of acceleration had been investigated in terms of personal development, relationships and careers. Seventeen of her group of 169 had been either accelerated or were young for their class. Freeman reported that only two of this group thought it was a good idea at the time, and when they were questioned later as adults, even these two had decided it had not been good for them over the long term.

There are arguably some significant differences socially and educationally between the United States, Britain, and New Zealand, which impact on the appropriateness and effectiveness of acceleration. As Freeman pointed out, catering for individual differences within a regular classroom is traditionally less common in the United States than it is in United Kingdom. This means the imperative for acceleration is greatly reduced, and it could be argued that while the practice of advanced placement might lead to an accelerated curriculum, it rarely leads to an enriched curriculum. Most advice on the education of gifted and talented students stresses the importance of both.

In the United States, advanced placement is much more common. As such, it is probably much more accepted and acceptable. In Britain, and certainly in New Zealand, it is much less common, and, as Townsend and Patrick (1993) found in their New Zealand study, negatively perceived by teachers in general. The 'tall poppy syndrome', which is probably more a feature of attitudes in New Zealand and the United Kingdom than it is in the United States, might also be influential in the negative connotations associated with the practice in these two countries.

An educational practice that received much more positive endorsement than acceleration from those in this present study, was grouping students together on the basis of ability. The one student who completed his intermediate school in a class for students of higher ability was particularly enthusiastic about this organisational practice. The particular teacher responsible for this class was clearly very much part of its perceived success. He felt it was an advantage having this teacher for both years at intermediate school. He identified other benefits from being in a class of like-ability peers, some associated with learning and others with socialisation. Those who were in a top stream class at secondary school were all positive about the experience, although they mainly mentioned academic advantages rather than social ones.

The practice of organising classes on the basis of ability (popular at the time most of the participants in this present study went to school) became much less widely practiced in the latter part of the last century. From the early 1980s, intermediate and secondary schools tended to group students heterogeneously rather than by ability. However, some secondary schools established one or two top stream classes in years nine to 11, or ability-grouped in some subjects, such as mathematics. More recently, anecdotal evidence would suggest that placing more able students together at the intermediate and secondary school level has become a more widespread practice than it was even a few years ago.

Ability grouping, especially in the form of full-time classes, was described by Renzulli (1995) as the biggest single issue in the education of gifted and talented students. It is also a very divisive one, but over the past two decades those opposed to the notion seem to have been more effective in persuading policy makers and practitioners of the shortcomings of the approach. This group generally claims the practice is ineffective, discriminatory and unfair (e.g., Goodlad & Oakes, 1988; Oakes, 1990, 1992). The research in this area, however, indicates that ability grouping has definite positive outcomes for gifted and talented students. In her review of the research in this area, Rogers (1991) noted that grouping by ability usually leads to significant academic gains for gifted and talented students, which she says occurs as a result of the higher ability of the

students, interested teachers, and the effect on learning of being in a class with interested students of high ability. These factors seem to articulate very closely with what the participants in this present study saw as the benefits of being taught with like-minded peers.

The participants in this study who attended single sex schools, generally gave more positive reports of their schooling, in terms of academic achievement but also in the development of their special interests and abilities. This of course, may not be related to the fact the school catered for a single gender, and may be more about the values of the school. The participants who attended these schools provided evidence of the schools' valuing of and commitment to high standards, first and foremost academically, but also in other areas. However, there is some evidence that gifted and talented girls may achieve more highly in a school that caters only for their gender. Kerr and Nicpon (2003) reported on research that indicated that gifted girls in co-educational schools are often judged by teachers as less able than boys of the same ability, receive less teacher attention than boys, evaluate themselves as less able than boys in mathematics and science, and are frequently subjected to sex-role stereotyping by both teachers and peers. More recently, there has been an upsurge of concern about the education of boys, with some research suggesting boys' achievement levels have slipped behind those of girls (Kerr & Nicpon, 2003). Compared to the literature on gifted girls, the research and writing focused on gifted and talented boys is still somewhat scant. However, there has long been a concern that levels of underachievement amongst gifted and talented boys is much higher than amongst gifted and talented girls, with one study reporting that it is nine times greater (Colangelo, Kerr, Christensen, & Maxey, 1993). However, there is less evidence to suggest that gifted and talented boys do better in boys' schools than there is to show girls' schools often work better for gifted and talented girls.

More than half of the participants in this present study continued formal education beyond secondary school, the majority going on to university. It is significant that the three oldest members of the research group did not receive a university education, yet arguably all were capable of study at this level. Two had achieved highly at secondary school and almost certainly would have gone on to university

had they been educated in a subsequent era and under different circumstances. One of these, a person now in her seventies, still regrets she did not receive a university education.

While a small number encountered some difficulties at university, only one experienced significant academic failure, and this was only a temporary impediment to her progress. The general impression was that the transition from school to university was relatively uneventful academically, and the most significant reflections were often related to activities outside the academic life of the university, but still within the student culture. The most frequently cited of these extra-curricular pursuits were social and political. Overall, those who had achieved the highest at school achieved the highest at university. This finding is consistent with findings from other studies and is not really surprising in that both educational sectors have as a primary goal academic achievement. In her study of high school valedictorians, Arnold (1995) found that her group of outstanding achievers continued their success at university.

In this present study, two of the four musicians completed university and one of the four artists. Two of the three writers went on to university but one left before graduating, and both said that university failed to live up to their expectations. In Ludwig's (1995) study "57% of investigative types completed their graduate studies compared to 27% of social types, 27% of enterprising types, and 10% of artistic types" (p. 51). He did not find a relationship between educational achievement and professional success for those in the creative arts. Simonton (1994) looked at educational qualifications and creative achievement and concluded that the optimal level of education for creative output was two years of undergraduate study. He proposed that a breadth of education "is probably conducive to achievement, whereas the increased specialization may impair the creative mind" (Simonton, 1994, p. 165).

3.3 Conclusion

The accounts of the educational experiences provided by the participants in this present study were generally more positive than negative. Overall, they were achieving students, succeeding both at school and at tertiary study. Some other studies have reported a much weaker link between educational achievement and career success. This discrepancy may be accounted for, at least to some extent, by when these different studies were undertaken. The research showing a more tenuous link between educational achievement and later success tends to come from earlier studies and this result is much less a feature of recent research in this area. Clearly, as tertiary study has become more accessible, as the subjects taught at universities and other tertiary institutions have expanded, and as entry into many careers now is contingent on a tertiary qualification, the examples of those who failed at school reaching the highest level in an endeavour may be few and far between.

However, it is definitely true that formal education offers a much more compatible incubator to some areas of talent than it does others. Schools, and particularly high schools, are still essentially academically-oriented institutions, and even though the curriculum has broadened over the past few decades, academic achievement is still the primary value in most schools. It is not surprising then, that academically able students usually find school an affirming environment, particularly where a strong culture of achievement is part of the school ethos. In this present study, this seemed to be more a characteristic of single sex schools. While there is some evidence that gifted and talented girls achieve more highly in girls' schools, there is very little research available that has investigated differences in achievement of gifted and talented boys in boys' schools:

Teachers play an important role in the development of talent and the participants in this study, consistent with other studies, appreciated teachers who knew their subjects, modeled passion and enthusiasm for an endeavour, and inspired their students to learn. These exemplary teachers allowed their talented students to pursue their areas of strength and took a personal interest in their abilities. Some

spoke positively of teachers who allowed them to challenge and question. A small number pointed to a single teacher who had a positive impact on their talent development.

There is evidence from this and other studies that grouping academically able students together can be academically advantageous and may even hold some social benefits for this group. It seems that the reluctance on the part of schools to adopt this practice has more to do with concerns about the impact it may have on less able students, and less about the efficacy of the approach for the gifted and talented.

The findings on advanced placement, or acceleration, are more equivocal. It is certainly true that the research evidence is overwhelmingly in favour of this practice for able students, yet this present study found that those who were accelerated were generally negative in their assessment of it. It is quite possible that these findings are not representative. However, it is also possible that the imperatives for and perception of acceleration are quite different from one country to another. In addition, how and when the practice is evaluated may yield quite different results.

It is clear from this and a number of similar studies, that the more creatively disposed can have difficulty in schools where conformity and homogeneity are valued over difference and diversity. For children and young people who are different, schools can represent a hostile environment. The world of adolescents seems a particularly difficult environment for creative boys, many of whom are emotionally sensitive and emotionally intense. Sometimes these males suppress their sensitivities and talents in order to fit.

In this present study, success at school was a reliable predictor of success at university. However, some of those with creative and artistic interests found university less rewarding than those with academic aspirations. Some of the participants that have achieved prominence in creative areas initially chose more conventional disciplines of study, such as teaching and law. It seems some individuals who have creative interests may capitulate to the pressure from

parents to make career choices on the basis of security rather than following their own interests. One can only wonder how many creative young people chose conservative careers and remain there and never fulfil their creative promise.

Creative individuals who continue formal education beyond school may place their creative productivity at risk if they remain in tertiary institutions for too long. There is certainly an indication from some studies that, as the university curriculum becomes more specialised, creativity can become increasingly constrained.

4. Marginality

It was not a childhood. What I mostly remember is feeling alone in crowds and always feeling like an outsider looking on ... I've always felt like an outsider looking on, because I always was an outsider. VL 1

A number of participants in this present study spoke of the experience of feeling an outsider at some time during their lives. The majority of this group saw the experience of 'marginalisation' as playing an important part in their development. For some, this feeling of being outside the mainstream persists. Their accounts of marginalisation focused on ethnic, national, tribal, religious, economic, geographic, familial, personal, and professional difference.

4.1 Results

In this present study six of the 28 participants identified ethnically as Maori, one as Samoan, one as Chinese, and the remainder European/Pakeha. Three of the European/Pakeha group emigrated to New Zealand from the United Kingdom, two as adults and one as an adolescent. Two participants identified their Jewish heritage as significant to their development, both as children and adults. All of those who identified themselves as non-European saw their ethnicity as a major contributor to their personal and professional identity and in the development of their talent. For some, it was being 'different' from the majority that was significant:

I am Maori but grew up in a Pakeha-dominated community. If I could have changed being brown in childhood I would have. I saw myself as inferior. In a sense, that caused me to work harder and to play harder to prove I was as good as, or better than everyone else. I didn't like that experience at the time, but from this I developed determination and resilience. I didn't just want to be accepted; I wanted to be respected. Then, over time, I became proud of being Maori. Then I was driven by a desire to show Maori could be at the top. It's probably a silly notion, but if I had been born Pakeha I doubt I would have achieved what I have. (M 3)

One person in the study who referred to himself as a 'Chinese kiwi' also drew a link between his ethnicity and his achievement, particularly at school.

Being Chinese I was different. I was reminded of my difference on a regular basis as a student. I saw other kids getting a hard time because they were doing well academically. Now I was getting picked on for being Chinese, so I had nothing to lose by working hard and doing well. I was on the outside anyway. So my work became my focus. I didn't have much of a social life, and that wasn't a priority for me anyway, so my energies went into my study. (BE 4)

BK 1, whose mother is Maori and whose father is Pakeha, spoke of the impact this had her as a child and adolescent. She talked of her parents debating and arguing about racial issues. "It was constantly in the air and there was always tension about which culture we would follow - my mother's or my father's. They would always clash." She said she was always aware of the two conflicting parts inside her and that this inner tension was very much part of her growing up. She remembers vacillating between the two cultures in her assessment of their relative merits. This inner conflict had an outward manifestation at school when students were asked publicly to indicate their ethnic group. "It caused me a real problem, not knowing whether I was Maori or Pakeha. So I put my hand up for both."

A Maori male talked of feeling an outsider within his own ethnic group during his school days because his tribal affiliation was not that of the majority:

I went from one tribal area to another when at primary school. Unlike the other kids, I was totally illiterate in Maori. So I got a few nudges. But it made me stronger. The irony of that time was that mum did me up in the flash cap, tie, shoes and socks from my previous primary school. I was stopping off at a rata tree on the way to school and taking them all off. (M 1)

He said he was an extrovert, who liked to be noticed, and the “knock-backs” he encountered being an outsider only made him more individualistic. When he moved on to a Maori boys’ school as a boarder, he thought his time outside the mainstream had ended, but he was to again find himself on the margins:

The school was actually mainly Ngati Porou. And I got a lot of stick there too. It just made me more determined. So I learned very early to stand up for myself. I over-corrected a lot. I’d pick myself up and I’d wag my finger in front of them in defiance and say, ‘One of these days, one of these days I’m going to be somebody. You wait, you wait, you wait.’

Now in his late 60s, he said he is still reminded by former schoolmates of his stated determination to make them take notice of him, something they freely acknowledge he has done.

Two people pointed to their Jewish heritage as important element of who they are today. One talked of the pride she has felt from a very young age, at being Jewish:

I actually feel terribly lucky and fortunate that I’m Jewish, because I think being Jewish has given me a tremendously strong sense of identity. I just love being Jewish. First of all I remember in the orphanage, we used to hear of the achievements of people [and] we used to think, ‘Oh, they’re Jewish’, and we took pride in their achievements. (VS 1)

However, upon coming to New Zealand as a young woman she experienced the impact of being different, and especially in terms of her forthrightness, which she sees as very characteristic of Jewish people but something not particularly welcomed by New Zealanders:

I've found in New Zealand ... you always have to be slightly on your guard in terms of disagreeing with another person or having a strong point of view, partly because New Zealanders take everything so personally. The times I've said, 'Look, it's an opinion. Please do not take it personally. It's not about you. If I criticise New Zealand I'm not criticising you.'

She also saw rejection as part of the process of high achievement. "You're not anything until you've been rejected, because it's by being rejected that the affirmative means a great deal more and that's when you actually make it."

One of the most common forms of marginalisation reported by this group was economic. As was noted previously, a number of the participants described their childhood family circumstances as poor and some saw this as something that distinguished them from their peers. For example, BK 1 talked of becoming aware as a child of class differences, of feeling embarrassed and self-conscious about the condition of her family home. "My mother never had anyone coming back to our house. I was very social but I always went to my friends' places ... they never came to our house ... I was very private about where I lived." She identified herself as very competitive and as a young person believed that she could better her situation. "I wanted to beat the odds. To me, having material things was proof that I'd beaten the odds ... Being competitive, I wanted something different."

A detailed description of VL 2's family is contained in Case Study 1, which contains a detailed picture of a family, which he saw as different from a very young age. He described his family as large, poor and chaotic:

We always felt that we were somehow dirty and inferior ... but at the same time there was a feeling that we were special because we were

bright. So it meant that, mixed in with the feelings of being different were also feelings of shame - we felt that we were somehow dirty and inferior ... and then there was me, who was even more of an outsider.

Il's parents separated when he was two years old and this, he said, marked him out as different:

I was brought up by a solo mother, and at a time when it was relatively uncommon. That experience ... with all the insecurities and the implications of a lack of self worth that go with that, probably made me someone who is determined to do well ... and someone who wanted to impress other people.

He contended that such an environment, which was quite atypical at the time, led to feelings of a lack of self worth, which resulted in him seeking affirmation elsewhere. He achieved this he said, by choosing to become an entertainer.

VL 3 saw her childhood family as distinctively different from the majority. She described her family as "a kind of a gang." Her father died when she was 11 years old and she said this feeling of being a gang solidified. "We were known [at school] as 'the fatherless ones on the corner'. This meant that a lot of tantrums and things that I threw were kindly overlooked."

Three female participants, talked about the challenge of moving from their local school to a boarding school in another location. Two of these women went from small rural primary schools to large city boarding schools where they initially experienced feelings of isolation and loneliness. On reflection, both felt that the experience was influential in developing independence and resilience, traits that they believed have been important to the development of their careers, one in business and the other in politics.

The third woman in this group described her five years at boarding school in England as probably the worst time in her life, being so unhappy at one point that she ran away. She said she was not accepted from day one and remained an

outsider who was constantly picked on and teased. “From day one I was labelled because I was from the south. I did not belong” (BE 2). However, she too believed that she became much more resilient through this experience. “I also expected much more of life from within myself, or thought that things should be much better than this.”

Some of those who have subsequently achieved success in the arts, and in particular the men, said that they felt different to their peers during their childhood and adolescence. Most realised from a very young age that their interests and attitudes were at odds with the traditional New Zealand male. They talked of being much more sensitive to situations than their peers:

When I look back in time and look at how I was as a child, compared to my brothers for example, I was the one that kind of responded emotionally to family crises, where they were staunch, almost chauvinistic, and they stood up. And whenever we were going to be punished by my father, I would bawl my eyes out, whereas they would stand up to him, so they had this very macho attitude. And I think it was in the sensitivity, like responding to aunts when they were nicely dressed, ‘Oh, you do look lovely’. (VS 2)

A number of other participants also felt their emotional sensitivity and intensity, and their heightened sense of social justice, marked them as different and this often saw them at odds with others:

If I felt someone was being treated unfairly at school I would wade in. I found myself on the wrong side of many a confrontation, purely and simple because I hated injustice. I still do. I used to berate my peers for not stepping in. To me they just didn’t seem to care. I also used to worry a lot. Worry about the suffering of others. I used to talk about this with my friends but they seemed unaffected by others’ pain. In time I learned to keep it to myself. (M 4)

Their interests were also often different and VS 2, a male, talked of cooking and making clothes from an early age. “By the time I went to secondary school I was actually making clothes. For a while there I used to be the best dressed young man around town.” Being different in this way did not trouble him and he said he took it all in his stride, even the teasing:

They looked upon me as a bit of a sissy. When you’ve got brothers that are pretty macho, they look at you sideways ... but you don’t worry about that. After a while they became used to me doing that. I mean, they’d never wear my clothes of course, but they kind of accepted that I was different from them.

Another person did not find it that easy to shrug off. VS 4 talked of feeling things much more deeply than his friends and other family members seemed to, and of finding ‘kindred spirits’ amongst his aunties and his mother’s female friends. “I would get upset much more easily than other boys. I would hear things and see things that would bring me to tears, whereas others didn’t seem to care.” He said his empathetic and compassionate disposition was constantly the target of peer ridicule when he was at primary school, and this became quite vicious at high school:

I was constantly called a faggot. My escape became my art. This became the outlet for my rejection and here I could express my feelings in a way that attracted only a positive response. It may not have helped me psychologically but it probably helped me creatively.

VL 3 was the only person who said her physical appearance marked her as different. She said that she was “a very big little girl” and because she was short-sighted she wore very thick glasses and suffered from “nervous eczema”. “Four eyes and professor were the obvious nicknames that got hurled around and the compensation for that was if anybody remarked on it I’d fight them.” She remembered being extremely poor at physical activities and this lack of ability, accompanied by her aggressive behaviour, meant that participation in sport “generally consisted of running through people, which is quite a lot of fun, but not

really to be encouraged.” However, she recalled she was good at anything that required words and that this seemed to balance out her inability in physical activities.

As would be expected, as their particular abilities developed, many felt that this set them apart from others. In most cases this did not result in marginalisation but more often than not made them more acceptable amongst their peers during childhood and adolescence, and certainly in adulthood.

Probably what distinguished this group most from their peers was their level of drive. This topic was explored in detail previously in this chapter, and although many saw their motivation, determination and persistence as atypical, only a few said that others perceived this negatively or that it saw them marginalised. However, some did report that their dedication to their careers did result in a more limited social life than many of their peers, either generally, or for periods of time. As adults, a small number of those in the arts had deliberately chosen a secluded life. Others mentioned the importance of seeking seclusion at regular intervals, and many identified a special place they said they retreated to, to write, paint, compose, meditate, contemplate, reflect or plan.

4.2 Discussion

It is almost impossible to ascertain the extent to which these accounts of being or feeling an outsider are different from any group of adults reflecting on their lives. Many of this group’s stories of feeling marginalised focus on their childhoods and adolescence, and there is certainly evidence that adolescence in particular is a stage where many young people are preoccupied with issues to do with acceptance, and where peers readily identify and make mention of any point of perceived difference, particularly if it can be negatively construed.

However, there is clearly evidence in some of the literature on talent development of a relationship between high achievement, particularly creative achievement, and the experience of marginalisation. In his book, *Creating Minds*, Gardner (1993) provided in-depth profiles of Einstein, Picasso, Stravinsky, Eliot, Graham,

and Gandhi. He said that the theme of marginality pervaded this work. Some of his group was marginalised “by accident of their birth.” For others marginality was the result of where they had come to live, either by choice or by necessity.

As noted previously Park (1960) proposed a connection between national and ethnic marginalisation and creative productivity, and stated that people who had been uprooted from the traditional culture or who had been exposed to another culture or cultures, had the ability to think more laterally. Simonton (1994) pointed to the achievement of the Jews as a possible example of this relationship in action. He noted that although Jews made up only between one and three percent of the population of Europe and the United States, they occurred on lists of the eminent in excess of 10 times that incidence. In addition, almost 20 percent of Nobel Prize recipients came from Jewish backgrounds. While he acknowledged that there were numerous other factors that could account for this ‘edge’ he concluded that the marginal position of Jews in Western culture had enabled them to bring the novel insights of an ethnic outsider.

The Jews are not unique in this regard. For example, Simonton (1994) also reported that a significant proportion of notable mathematicians in the United States came from immigrant backgrounds. These newcomers to the United States, he found, were significantly overrepresented in the lists of eminent individuals across a diverse range of fields.

Sometimes being an outsider and experiencing the discomfort of not being accepted, provides the individual with the impetus towards change. Gardner (1997) suggested the experience of marginality often motivates a person towards the creation of more perfect world, resulting in a life of creativity or leadership. According to Piirto (1998), the view from the ‘outside’, from the ‘threshold’ is different, and she maintained that it is from this perspective that the inspiration for making things new and changing the commonplace emanates. Terman’s gifted individuals represented the mainstream of American society, with few who could be considered marginal. Most were white, native-born and grew up in middle class, protestant families and “... this hegemony of the majority seems to run

counter to the often-expressed view that creativity may be nurtured by the experience of being a ‘marginal’ person” (Simonton, 1999a, p. 121).

However, the connection between ethnic marginalisation and achievement is very much a conditional connection. Murray (2003) used the over-representation of Jews in the narratives of human accomplishment to demonstrate some of the caveats to the relationship. He noted that the contribution of the Jews to European accomplishment in the arts and sciences is a relatively recent phenomenon. Up until the 19th century Jews were not only excluded from entering universities and the professions, they were often forbidden by law from doing so. Over a 70-year period in the 1800s, the legal exclusions were lifted and the social exclusions eased. Patai (1977) described this as the unleashing of a huge reservoir of Jewish talent and said that the Jews began to appear with a suddenness that was astounding. However, he also pointed to other aspects of Jewish life that he believed were salient to high achievement, such as devotion to learning, high expectations, and close-knit and supportive families. Being an ethnic outsider is not necessarily a positive position to be in, and any potential advantage of ethnic marginality may be more than cancelled out by oppression of the minority by the majority. Suppressed minorities are unlikely to contribute significantly to human civilization (Simonton, 1994).

There are of course numerous explanations for why outsiders might do better than those who are comfortably positioned in the mainstream. As one person of Asian descent in this present study pointed out, he was already an outsider because of his ethnicity, so there was limited cost to behaving in a manner that was different. It could also be that the person who is feeling marginalised finds some solace in their work or possibly it offers him or her a distraction to some of the negativity they are experiencing from feelings of rejection. This compensatory factor was evident in the person in this present study who said as a child she was overweight, shortsighted, with a skin condition, and extremely poor at physical activities. She said that as a result, she concentrated even more on her linguistic abilities.

Experiencing the marginality associated with growing in poverty may also generate a drive for change. As noted in the first section of this chapter, some of

those who grew up in poor family circumstances as children were determined not to repeat those conditions in their own families. One person in this present study saw the escape from poverty as a primary motivation for her later success. The childhood experience of being economically marginalised may also act as a catalyst to individuals striving for social change well beyond their own family context.

For many talented individuals, especially those with creative abilities, their own attitudes, beliefs, and actions set them apart. Some in this present study identified themselves as being different from their peers from when they were quite young, and for a small number, this was something that has continued into adulthood. For most of those who spoke of difference of this type, the experience did not seem to represent a major impediment to a happy and fulfilling childhood. Some, such as the male artist whose childhood interests were anything but typically male, seemed philosophical about the attention this attracted. To others, their clash with the dominant context was much more traumatic.

Silverman (1993) considered that many creatively gifted young people find themselves on the margins and as such school can be a very unpleasant place:

Divergent thinkers ... have to deal with being different. Although they do not accept the status quo, conform well, or fit in with peers and are often subjected to teasing, they do not know why they feel different, or why they upset other people. Often they feel entirely alone, with no one to understand them, even their own families. (p. 33)

She points out that the divergent thinker is often the high achieving adult who uses his or her abilities to enhance their own emotional wellbeing.

Ludwig (1995, p. 47,48) reports that five percent of his eminent adults were described by others as, “decidedly odd, peculiar, weird, offbeat, or eccentric as children, and another 13% of them as equivocally so.” He also notes that the greatest proportion of these were later to make a name for themselves in artistic domains.

From his study of eminent creators Csikszentmihalyi (1996) concluded that, while biological inheritance played a part, early background had a significant effect on their levels of achievement. He identifies two key elements in the developmental pathways of creative people: interest and curiosity, and perseverance. Interest and curiosity he contends, are, “stimulated by positive experiences with family, by a supportive emotional environment, by a rich cultural heritage, by exposure to many opportunities, and by high expectations” (Csikszentmihalyi, 1996, p. 327). However, perseverance he says, seems to develop in response to a more, “Precarious emotional environment, a dysfunctional family, solitude, a feeling of rejection and marginality” (p. 327). While many people grow up with one of these, Csikszentmihalyi notes that creative individuals seem more likely to have experienced both circumstances.

This mix is certainly evident in the early experiences of a number of those included in this present study and, consistent with Csikszentmihalyi’s notion, more common amongst the more creative individuals. Csikszentmihalyi draws a connection between a positive family environment and the development of interest and curiosity. However, while the childhoods of some of the more creative individuals in this present study included many other elements in Csikszentmihalyi’s mix of factors, some reported quite negative family environments. The distinction Csikszentmihalyi makes between the antecedents of interest and curiosity, and of perseverance, could be criticised for ignoring the way these experiences interact with each other. It seems just a little too simplistic to suggest one set of circumstances aids curiosity and interest, and another set contributes to perseverance.

In contrast, others, such as Simonton (1999a) believe experiences such as marginalisation are more directly related to divergent thinking and creativity, than they are to the development of perseverance. However, the combination of positive and negative influences, what is sometimes referred to as the ‘wound and the bow’ after Philoctetus the archer, is evident in the life stories of many eminent individuals. Gardner (1997) believes the achiever exploits these asynchronies. His advice to those who want to become extraordinary is to, “Discover your

difference ... and make the most of it. Make your asynchronies fruitful, blissful. Take stock of your experiences – those that you cherish and those that make you quake – and try to frame them in positive ways” (Gardner, 1997, p. 154).

4.3 Conclusion

The relationship between marginality and achievement is clearly a complex one and there remain in this area more questions than answers. It is possible that for some people the impact of marginalisation is similar to the impact of adversity, in that it contributes to an ability to cope with setbacks and strengthen traits of persistence and perseverance. It may also lead to some individuals immersing themselves more fully in endeavour as a distraction to the negative feelings of being an outsider. Those who are positioned on the margins sometimes seem to have a different view of the world, and in particular are more conscious of social injustices. As a consequence some of these outsiders become agents of change. There is support in this and other studies that some gifted individuals, particularly the highly creative, are distinctive from others in their levels of emotional intensity and sensitivity. This is often evident from a very early age and appears to continue through their lives. Some individuals experience professional isolation because their ways of approaching a field may be completely at odds with traditional methods or thinking. The very behaviour that causes them to be ostracised may lead to accomplishments that later see them honoured.

Is the experience of marginalisation any greater for outstanding achievers than it is for other groups of people within a society? At this point we can only speculate that it might be, but what does seem to hold is that, as Gardner (1997) points out, the gifted may exploit this experience and turn something that others may regard as negative into something positive.

Two Case Studies

1. Introduction

In the previous chapter there was an emphasis on exploring some of the commonalities of experience across the stories told by those interviewed in this present study. In the pursuit of this goal there was a deliberate effort to preserve individual accounts. However, when the findings are presented by themes or topic, the overall context of an individual's story is compromised, especially in a group as large as this. A thematic approach to present findings can over-represent similarities and under-represent differences. Yet what emerges very clearly from reading each story individually, is that the participants' differences outnumber their similarities. In an attempt to capture this uniqueness of individuals' stories, the following two case studies have been included. In the preceding chapter 'themes' were used to synthesise participants' responses, and while this is a pragmatic way of dealing with the data, it does lead to a 'fragmentation' of individual stories. The case studies are intended to illustrate the 'wholeness' of the life experiences of the participants.

Any two of the 28 individuals interviewed could have been presented here as case studies, and the selection of these two was relatively arbitrary, and they certainly should not be seen as 'representative'. However, these two case studies articulate clearly and coherently with the themes identified and discussed in the previous chapter, while still illustrating the individuality of each participant's story. This meant that these case studies could be included without interpretation, preserving the voice of the participants and allowing the reader to make connections with the preceding material. It seemed inappropriate and unnecessarily repetitive to add interpretive comment in this context.

2. Case Study 1

I'm a writer who wants to always push harder and harder, more and more subtly, intelligently, intuitively, ardently, against the boundaries of language which confine our minds.

S describes himself as novelist, essayist and historian. Others have described him as one of the most widely known, critically acclaimed, and controversial writers of his generation in New Zealand. He was born in the back seat of a speeding taxi in Christchurch, New Zealand in the early 1950s. His father, he comments, was a very intelligent man, “in a kind of mathematical way” but who dropped out of university to marry “this chaotic, needy, flamboyant, very intelligent, but very ignorant woman - a factory worker.” His mother came from a family of “highly garrulous, imaginative people who had to fight very hard to stay alive and use their tongues to do it.” He recalls that she was also very intelligent but her abilities were more in the creative domains. His own verbal dexterity he believes, comes from his mother’s side of the family and he doubts he inherited much of his father’s more rational tendencies.

His family was bright, and knew they were bright he says, but:

We were very ordinary, in fact a little less than ordinary in a sense and there was something screwy in the family. At a time when the average Pakeha woman was having two and a half babies, and the average working class woman was having three and a half, my mum had 11 pregnancies, nine of which she brought to full term and two of which she aborted.

He finds it somewhat paradoxical that his mother married a middle class man, who supposedly knew how to “organise life”, yet she lived a life that he describes as chaotic. He contends that she came from a “big, chaotic and messy clan” and then reproduced the chaos in her own family. This large chaotic family were at the heart of his, and most of his brothers’ and sisters’ feelings of being different and their, “feelings of shame that we were somehow dirty and inferior ... but at the

same time there was a feeling that somehow we were special because we were bright.”

His father earned good money and, “if we’d had the statutory two and half children we would have been relatively well to do.” However, he remembers them being “very hard up” to the degree that at times there was not enough food for the family.

S was the fourth child in this family of nine children and says that very early in his life his mother identified him as “the cuckoo in the nest.” This term came from his mother’s mother, who had used it to describe his Aunt B in exactly the same. Aunt B he says, “is quite a lot like me and could have become a writer too if she had had the resources that were available a generation later.” He remembers his mother as a person who had a tendency to identify particular people as scapegoats, such as Aunt B and himself, and “because she was so clever with words, she would identify your weaknesses and go straight for them – preferably in front of an audience.” He thinks she did this because she had been the victim of this type of behaviour herself when she was a child.

He recalls that there was a definite hierarchy in the family and that his mother had no idea that she should love all her children equally and give them equal attention. He considers this typical of working class mothers of the time. The eldest child in his family was a boy, and he “was number one and the boy they loved the most. Number two was kind of the deputy to number one.” The third child was a girl, and he says that she was victimised by her mother, simply because she was a girl, and this “stropky rebel” of a sister became something of a role model for S. His sister, he thinks, is the reason why he was able to get space and a degree of autonomy. So much attention was directed by his mother to her that he was often overlooked or ignored.

These family dynamics, he contends, were critical to him becoming a writer stating that if he had been born the fifth child then, “Maybe I would have become what number five became – a computer analyst, because he wasn’t able to fight for some reason.” However, he also acknowledges that it might well have been

due to other factors because, “Everybody in my family is bright [and] almost everyone can use language [so] why was I the one who carried it? I don’t know.”

When asked about his childhood he responds, “It was not a childhood. What I mostly remember is feeling alone in crowds and always feeling like an outsider looking on.” On looking back on his childhood he says he now realises that he was depressed from the age of four. Having undergone psychotherapy as an adult he considers that he had always been depressed and exhibited all the patterns of a depressed person since early childhood. When he started writing he came to the realisation that he felt like an outsider looking on, because he actually was an outsider.

He describes the household where he grew up as “an emotionally chaotic and cold and slightly scary environment” dominated by a mother who, “when she was good she was very, very good ... full of vitality - she sang and danced with the broom in the kitchen. When she was with other adults she would charm them. When she was alone she’d be angry.” His mother had experienced a “bad childhood” herself and S believes she was aware that she should be doing differently for her children. One of her most significant gestures towards making a difference for her own children was to read to them. From a very early age, and very regularly, he remembers his mother sitting all the children down at the kitchen and reading them stories. On Sunday mornings there was a family ritual where both parents and the children would sit down and read. “My parents were the first people I saw reading. So, although there was chaos and relative poverty, and certainly lots of emotional deprivation, there was that strong role model of a love of reading and of taking books seriously.” While he says the system of family reading fell away in time, he firmly believes it had a significant impact on shaping his attitudes and behaviour, and in particular in fostering a love of words. “And so I always read.”

Most adults saw him as a charming child who was “sweet, polite and respectful.” “I was also very adult; tidy, clean and bookish. They would say, ‘You never have to worry about him, because he can always look after himself.’” However, not all adults saw him this way, and some men referred to him as a “pansy” or as “girlie.” “Women tended to think I was great ... men tended to look at me a bit

askance.” There were men who did accept him and took an interest in him, and one of the most significant of these was his paternal grandfather, who he remembers loved history and who identified S as the one who was going to carry on the family tradition. However, he also sees his mother as an important adult in shaping what he himself became as an adult:

And then there was my own mother, another important adult. The perception of me was that when I was a little boy she had a mixture of hatred and pride. Like she hated me because I was different. She was proud of my precocity and my language, especially since she could then wave it in front of other people. But by the time I was entering my teens, she called me preppy, because I was so smart.

His interest in writing started at a very early age, and he says it pre-dated his ability to read:

I started writing in a sense before I even started reading ... I remember how, before I could read or write, I would spend hours arranging little wooden blocks in patterns and making what I thought were little cities. So I'd arrange the blocks in streets and I'd tell the story of the people who lived in them. And this would be when I was two. And I kept doing that until I learned how to read, and then I wrote the stories.

When he learned to read he wrote “little stories about ordinary people” but he would also write non-fiction. He remembers becoming obsessed with things such as dinosaurs and then later ocean liners, and of writing endless stories on these subjects. He also loved drawing maps, often of fantasy places. Then he would write each fantasyland's history.

His first teacher made a big impression on him and he says that he will remember, to his dying day, this “phenomenon, who was an intelligent, educated woman ... whose [manner] seemed to suggest she could take control of the room, that she could take control of your life. You could aim for something and get it.” This teacher represented a contrast to what he had experienced at home, and the praise

and reinforcement were a new experience. To S, being called a 'good boy' was something very new because, "Nobody ever said good boy to me ... but rather said 'get out of my way' or 'shut up' but never 'good boy'." Primary school, he says was "his salvation" and although there were teachers who were "shockers" there were enough who took an interest in him as a person to make it a very positive part of his growing up. He was accelerated a class in primary school and he saw this as an example of teachers taking an interest in his education and recognising his abilities. However, he is not altogether convinced that being accelerated a year was an appropriate choice. "By the time I got to do my PhD I was grateful to have a year up my sleeve, but other than that I am not sure that being placed ahead a year was beneficial for me. I was probably a motley adolescent anyway, but my emotional life was so screwed up it may not have been a good thing."

He was not, he recounts, above challenging his teachers, and he identifies two male teachers whom he stood up to. However, being in these men's classes was not entirely negative, as both possessed some ability in teaching that provided intellectual stimulation. "They were real people, who were directly engaging with me." Of one he says:

He was a bad tempered man. He would throw chalk at you and things like that. We were terrified of him. However, when he was in a good mood he was wonderful. We hung on his words. He would spin his yarns in the classroom. Then he would read books ... and I just thought it was magic. I just couldn't wait to start reading stories.

The difficulties he was to experience in high school, he believes, were because his intermediate school experience was "brilliant." At the time he started intermediate school the students were "ruthlessly streamed" and he was placed in the top stream class and was taught by the same teacher for two consecutive years. The memory he has of this teacher is of someone who was determined to "make us in her image", something he said she succeeded in doing. She was he recalls, "a Miss Jean Brodie", who repeatedly reminded her prodigies that they were the best in the school and that she expected the best of them. He found security in this

class. It was a setting where things could be done “that we would have been shamed by normally.” He sees this class as very significant. “The class trusted each other. There was no thuggery. Everyone was seen as a bit different, some as eccentric, but they were entitled to be. There was a very civil tone between us.”

The teacher also played an important part in recognising and reinforcing his writing ability:

I walked to school at that time and quite a long distance - about 2km from our house. I'd leave early because I was always in a hurry to get out of the house. And I'd walk those two kilometres and invent a story in my head. And I'd have it word perfect by the time I arrived. And I'd just write it down. There was a certain day when I was writing something and she was reading over my shoulder and she said, 'I see you are a writer'. And that gave me my certificate.

However, he had started writing at primary school and recounts an experience when he was in standard two that provides an insight into his ability as a writer:

I wrote a play ... about my family's lack of money, and its problem with mortgages. And I called it the 'Brown's Money Worries'. And my teacher rewarded me by saying, 'Oh this is clever. This is good', and was showing it around. I got a sense that people were interested, that the staff room was abuzz with my play. I'm sure it wasn't, but that was the feeling I had. And so my friends and I were going to perform it, to put it on, to stage it. So we staged it in my friend's garage. And mum and some of the neighbourhood mothers got sort of caught up in it all, so there was lots of endorsement. And one of the girls - who was my friend and who was going to be in the play - and I went around to the shops asking if they would give us cakes and things to sell to the people at the performance and so on.

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His experience of high school was markedly different. After his first day he remembers returning home in tears, feeling trapped, and mortified at the prospect of having to spend the next four or five years of his life in there. “It seemed so

violent, so huge. It was scary and it seemed nobody was going to look out for me. I thought I would have to fight to survive, and that's how it proved." At intermediate school his teacher of two years "had been supremely responsible for us." At high school he could not see anyone filling that role, and he saw himself going from:

A state of security [to] a bigger and more ashen version of my home life, without even a mum kind of somewhere in the centre who supposedly just sorted and controlled. In high school nobody was in control. There was this remote principal, the headmaster, and then all these masters in their flea-bitten black gowns – many of them I later learned were rehab. teachers. They'd come back from the war with no vocation to teach, and they'd just done it. And you could tell. There were some people there who were teachers by vocation, but not many. While in primary school I seemed to have a lot of teachers who actually believed in teaching and in the good of it. To me they [primary schools] seemed like communities; while high school seemed like a military occupation. It seemed to be a state under a fascist dictatorship. And the appalling uniforms; gross, uncomfortable and ugly. Everything was ugly in high school. Ugly, totally male and only one teacher smiled and took an interest in my ability.

The library he describes as his one haven at high school. He remembers his fellow student librarians as "poofy, bookish, miscellaneous boys [who] ended up drifting into the library, and hiding there basically." The library became the place where he and his best friends "hid". To S this was a kind of alternative society watched over by the librarian who he saw as a "sort of benign goddess." He describes her as a bohemian, intellectual woman with a love of learning and a love of books. To a boy from a poor family, possessing any of the books that he was handling every day was not going to happen by honest means. The only way of owning any of these books was to steal them, something he admits to doing on a number of occasions.

He recalls a high school English teacher who recognised he was a "bright" student, showed some interest in him and offered some encouragement. To S that

was the extent of the support he was accorded at high school. “Everything else was enmity, hostility, danger, discouragement. My grades dropped and dropped and dropped. I arrived there a bright achiever and I ended up a sullen depressed underachiever.” An overriding feeling was one of boredom: “Oh and deep boredom - deep, deep boredom. Oh God. Oh, those days, they were so long and nothing happening. Sitting there and a teacher droning away, scrawling stuff on the board and saying copy this down and memorise it.”

Books provided the access to a different world:

I discovered the public library system. The school library was excellent actually. This school always had a good library and there was lots of stuff there. I explored and ransacked that, and the librarian put me onto the National Library Service. And then I began to learn about the public library. Friends would use the public library. So I trotted along to the public library and signed up.

Along with reading, S says he spent hours writing and drawing. Some of this writing was for an audience, but other writing was “confessional diary-like stuff” where he was trying to make sense of where he was:

By my teenage years my writing was becoming much more interesting because I wrote an exhaustive diary every day. I agonised onto paper, hoping like hell that one day somebody might read it so that there might be some communication with somebody real.

He also started writing novels but he says he would never submit anything for a school publication because he considered that medium to be:

A sham, a fake, just a sort of facade erected by the establishment that controlled the school to make it seem as though there was democracy and culture, when I knew it was naked, brutal, autocracy. I knew that if you wrote anything that was real it wouldn't get published.

Although he was potentially a target for peer bullying his verbal ability often saw him being able to talk his way out of trouble. He would challenge teachers, but only indirectly and never overtly. Instead of standing up to teachers “in a manly way” he “sort of sneered and jeered and giggled and grumped.”

He remembers feeling very angry towards school, and feeling that he was consistently bullied and picked on. He also talked about identifying with others who were being bullied, unaccepted and unloved:

If I saw anybody bullying anybody else, I'd see red and I would go and try to beat up the person who was bullying. I found this with my own children later on – if anybody laid a finger on them, I would be ropable. I came from a leftish sort of family anyway, so I've always hated anything like injustice. I remember in primary school on a cold day in mid-winter in Christchurch, we were outside on a bleak asphalt block, a windswept block, in our shorts in mid-winter. And I was looking inside at the glowing golden lights of the staffroom where all the staff were sipping their tea and I thought, 'Huh, we're just kids.' And I felt that all the time at high school too. It seemed a totally corrupt unjust system. I ended up feeling that the whole world was amoral, that everybody was crooked and nobody could be trusted. The teachers were just charlatans; you knew they were charlatans.

He sees this high school experience as “destructive” and says, “Not only did it kind of freeze me in this bleak never-never land, this bleak no-man's land, it actually set me back.” In fact, he talks of becoming suicidal at this time and attempting to kill himself, claiming that, “The school almost killed me.”

Home offered little in the way of sanctuary from school. He sees the two environments in a very similar light. “It was boring and cold and awful at school and it was boring and cold and awful at home.” His father showed “indirect and impersonal” interest in his son's schooling. There was praise from his father, but it was offered in a “backhanded way”. However, this he says was more than that proffered by his mother, “Who didn't even notice.”

His three closest friends at school he describes as academic, none of whom had girl friends, and who all later turned out to be Gay. He says that they did not do the things considered “normal” for adolescent boys of that era, such as playing rugby. Clearly, though, this sense of being different was a common bond that saw them develop into a close-knit group.

His main aim at high school was to escape it, and although he considered leaving when he turned 15, he decided he would stay at school and go to university. However, university he said failed to live up to his expectations and what he thought would be “a wonderful breakthrough” was in fact a “deep disappointment.” On reflection he believes the disappointment was because it was so impersonal. In his case he says he was not looking for intellectual stimulation, because he could obtain that from books. He found some of the people at university interesting, but the large classes and the lack of anyone taking an interest in him as an individual, were at the heart of his feelings of disappointment.

His university studies were funded by way of a teaching studentship and although he confesses he had already decided he did not want to be a teacher before he signed up for this scheme, and although he knew he would be required to repay some of the grant, he also knew that society would still benefit from the education he would obtain:

I did my sums. At that time it was runaway inflation, so I knew that if I studied all the way through until at least a five year BA/MA, the amount of money I would get from the studentship would be three or four times what I would have to pay back. So it seemed reasonable – and also the part of me that believed in social justice and so forth said, ‘And society will be getting its money back. I will have been improved as an asset to society. And I may not give it back in the form of teaching, but I’ll give it back in some form, you can be sure that.’

He has a strong belief that writing would have found him, whatever his early experiences had been like. He says he used to think that his writing had developed from an unhappy childhood and he worried that if he became happy he would lose the drive to write. However, he does not see it that way now and believes it would have been better, “If I’d been nurtured – not brilliantly, just adequate nurturing, a bit of encouragement earlier on.”

He underscores the importance in developing the talent of children, of adults, particularly teachers, not tying expectations to class, culture or physical appearance:

I had a really interesting experience about five years ago. One thing we used to do as kids was we would always have an old banger of a car and mum loved to treat us ... so we’d go driving out in the country to some beauty spot in Canterbury. We’d all pile out and wander around. And mum would say, ‘Oh, look at the trees,’ and then we’d go back into the smoggy old town. Now one day I was out in the country with a friend at a beauty spot, and this old banger came juddering up and this big proletarian white trash family kind of came shambling out - the mother in sort of broken down slippers, overweight and fagging. And she sloped across the bridge to the middle of the bridge and looked down. And then she sloped back to the car. And all the others were sloping around looking scruffy, and I was thinking, the middle class observer would be thinking, ‘Ooh, what are these people doing here? Why did that woman go over there? She obviously doesn’t understand this place. She obviously has no sense for it.’ But I know it’s like my family back then. That woman who sloped across that bridge in a quest for beauty and that’s what we would have looked like.

3. Case Study 2

From a very young age, I couldn’t bear the notion of living and dying and of not having made some impact.

M is widely regarded as one of this country's leading photographers, a status she has enjoyed for several decades. Now in her 70s, she is clearly still passionate about her work:

You feel there are things you just have to do. You just know – it's a sort of intuitive thing really. Sometimes I wake up with a feeling that I must do that, even though I'm tired, I've just got to do that because it needs to be done ... You've got to have energy. You've got to have commitment. You've got to have passion. So that in actual fact it really almost dominates your whole life, you feel so strongly about it.

Her childhood would not generally be considered the most positive of experiences but M believes "it was a very fortuitous childhood". She talks little about her parents but says they died as the result of poverty when she was very young. She believes that one day she will write about this part of her life but at the moment she chooses not to talk a great deal about it. At three years of age she was "placed in a council home" in London, which she describes as "awful, absolutely awful". However, life was to change for the better when at five years of age she and her sister were taken to a Jewish orphanage. This, she considers, "Was the best thing that ever happened to us." It was, "A very affirming place where I received a tremendous amount of love." This attention, she thinks, was probably due in part to the fact she was a very sick child, and therefore, received a higher degree of attention and love than some of her peers. She says she felt safe and secure in this environment, a safety and security she contends is lacking for many children who may grow up in the context of a family. The orphanage also taught "sound values". The children, she recalls, were taught about "the sanctity of life" and while they were nurtured by staff, they were also expected and encouraged to nurture each other. M remembers being particularly compassionate as a young child and of being drawn towards those that might be considered "less endearing".

From a very young age she has held the view that "no one owes anyone else anything" and "whatever one receives one does so with a sense of privilege." While she believes that it would have been easy to grow up in an orphanage with a sense of feeling "disadvantaged", that was never her perception. "While you're

in the orphanage you have no awareness of being disadvantaged because it's your life. The feeling of being disadvantaged only comes if you're making a comparison." There is no doubt in her mind that the experience of growing up in an orphanage was made much easier by the presence of her sister. "If I hadn't had a sister I think it would have been very hard. We loved each other, so we were very supportive of each other."

At a young age she had "a tremendous sense of awareness" and when she was about six or seven years of age she declared that she wanted to make her mark on the world. She recalls not being able to "bear the notion of living and dying and of not having made some impact."

She has fond memories of school and says she loved it but regrets that it did not lead her to higher education. She is sure that not having parents involved in her education was critical in this regard. "I regret not going to university. This probably doesn't happen when you have parents, who maybe recognise you have talents and encourage these to be developed."

She recounts how her teachers nurtured their students' curiosity and encouraged them to question:

The teachers loved it. They never said, 'Put your hand down'. We always had our hands up asking questions ... we were never afraid to put our hands up. We were also rebellious like all children are, and it seemed to me from my recollection that we were allowed to be. You know, the teachers were fantastic. They encouraged us to be contentious. They encouraged us to ask questions. We were never afraid to disagree. We knew we wouldn't be punished if we did and no one was. We were disciplined, we had to be, but the teacher never felt that he wasn't going to be put out of his schedule because we were asking questions.

She believes this more liberal approach to education was very much connected to the place of education and learning in Jewish Society:

I think that Jewish people have a tremendous regard for education, whether you're an orphan or not. I think partly because Jews have always known that the one portable thing that came with them when they were expelled from every country was education. No one could take that from you. Education is portable. And it's so important because of that. It's terribly important that one gets knowledge. It gives you a stepping-stone into all the opportunities if you're knowledgeable. I mean, I remember as a child knowing and wanting a mentor. Always. I used to think, 'Oh, if only I could sit at the foot of a mentor' – I just knew it ... intuitively.

Growing up in a Jewish orphanage helped her understand and appreciate her Jewish heritage. To M, being Jewish has always been a very important part of her identity and something she feels very positive about:

I actually feel terribly lucky and fortunate that I'm Jewish, because I think being Jewish has given me a tremendously strong sense of identity. I just love being Jewish. First of all I remember in the orphanage, we used to hear of people's achievements and think, 'Oh, they're Jewish' and we a sort of took a pride in their achievements. You can't be proud because you're of certain race or religion because that's accidental ... I think we had every reason to be incredibly proud. Pleased, rather than proud I think. I have a very strong sense of my own identity and always have had.

She was, she says, good at most things at school and considers she was "very bright" and although she spent much of her school life in the infirmary, because of her ill health, she still came top of her class.

When asked about her recollections of what interested her as a child she is unhesitating in saying it was people:

What interested me were people, actually. How people developed. My sister always laughs when she tells me how she remembers the way I used to stand up for everybody if there was any cause to be stood up for. I think in a situation like that you have a very strong sense of social justice and

fairness, although quite honestly, at a very early age, I knew that life wasn't fair. So consequently I had no expectations of it. And if you don't have expectations of life being fair then I don't think you get a chip on your shoulder. I've never had a chip on my shoulder. I used to really sort of nurture all the children who weren't particularly attractive because I was even aware as a child that if you have a parent they're going to love you anyway, but in an orphanage ... there are some children who don't have a very winning personality, and I have this tremendous sense of compassion and befriended them all. But I had a certain kind of personality. Don't ask me why.

Her interest in people, she contends, is a combination of personality trait and early experience. Growing up in an orphanage, according to M, where you are in close proximity to many other children all day and every day, "Makes your terribly aware of the differences, which stays with you, and you get this sort of tolerance and an understanding of the complexities of human nature." While she says she admires strengths in people, it is their weaknesses not their strengths that touch her.

At the age of 15, a time when most of the children in the orphanage left to find a job, M went to a technical college, having won a trade scholarship as a 14 year old:

I would never have become a photographer if at the age of 14 I hadn't won the trade scholarship. I missed the 11 plus [exam] because I was sick, but I was encouraged to take the trade scholarship and won it. I actually wanted to be a dressmaker, a dress designer, and someone said, no, you're very artistic, why don't you do photography? And I said, what's that, because of course being in an orphanage I hadn't photographs of myself.

At the technical college she learned all the basics of photography but never took photographs. While there someone, and she is unable to recall who it was, suggested she submit some of her charcoal portraits in support of an application for a scholarship to art school. The winning of this scholarship was the realisation

of a dream for a young woman who “loved art and loved artists”. She is not quite sure where this interest in art originated but she does remember as a child, going on regular school visits to museums and art galleries.

After graduating from art school her first paid employment was as an assistant to two well-known photographers, where she was a ‘spotter’ and printer of photographs. There is little doubt that this early work experience was extremely significant in what was later to become a life-long career in photography:

I worked in a studio of two photographers. One was ... an ex-patriot New Zealander, and he was the Sunday Times portrait photographer, so that was wonderful because I used to print his negatives ... I loved printing, it was an artistic thing. I loved printing and enlarging his prints. The other person in the studio was a fashion photographer ... I actually retouched and spotted the actual prints. So I had a marvellous job. I mean, I was so lucky. And I actually stayed in that studio until I [got] married. I was so lucky and I say it to students that I talk to, and I talk to students quite a lot, I would wake up every morning and think, ‘Oh, I’m going to work.’ I’d get up with tremendous excitement and think, ‘Oh, I’m going to work. Oh, I just can’t wait.’ Isn’t that lucky?

At the age of 27 M married a New Zealander who was living in England, and a year later moved with her husband to New Zealand. Adjusting to life in New Zealand was not something she found easy:

When I first came here I found it very hard. I had lots of friends in London, both men and women. We used to meet at the weekends and have coffees together and have tremendous discussions. And I missed that when I came here. I missed meeting people who could talk easily, discuss issues, remain friends and get heated. I missed that emotional depth. It’s not that New Zealanders weren’t, it was just that they weren’t able to express it. So I found that very, very difficult when I first came here.

Her first job in New Zealand was working for her husband. She maintained her interest in photography by taking photographs of children but soon realised that, while she could have made a profession of this work, she was constrained by having to “accede” to the demands of children’s parents. A chance meeting with a photographer at a party, a person who was seeking a photographer to undertake some work for him, led to her becoming a freelance photographer.

Photography helped her adapt to her new country and a turning point for her was a visit to Parihaka in 1965. To M this was a very moving experience and she says there was something very familiar to her about what she saw:

And there was this first kuia that I met [who] was sitting there. And I looked at her and there was something familiar. She reminded me, as I’ve said before many times, of the matriarchs of my Jewish youth. You see, those old Jewish women that I occasionally would meet when we went on outings to the East End of London and they were just the most remarkable women. They were so poor, physically poor, but so rich spiritually. Such wisdom. It was the first time I felt at home in New Zealand. With this woman I felt totally at home. I then realized that if I learned something about the history of New Zealand I was going to adapt very much more.

She says she then began to see New Zealand through the lens of a camera, something she continued to do for the next 40 years. Her photographs of the country and its people she remembers, were not always well-received by New Zealanders, because, “They felt I was seeing things that they really did not want recognise.”

She believes her success as an artist is very much about integrity, passion and motive:

I think the difference is what’s going on with you. I think it’s about integrity. I don’t mind that people pick up cameras and use them and take photographs. That’s okay. It’s like artists, isn’t it? We can see masses of people who have painting as a weekend hobby, but only a few will succeed.

It depends on, I think, what's going on really with you. What makes you – what motivates you to do something. See, when I talk to students, I say to them, 'Look, it's not enough that you just use a camera. You've got to know why you're photographing. You've got to have a passion and a motive about it. You have to say I can't do anything else but take photographs because there is something I want to say. And this is the way I'm going to say what I need to say.' You also need knowledge what makes me photograph is that I have a tremendous compassion for the human race. We're all in it together. You know, I have this feeling that - I never survive it really – that life's hard for most people. I'm never in awe of anybody I have to photograph because I realise we're all human. And even the most famous people have doubts. In fact the most famous people probably have more doubts than people who think they're not.

She also acknowledges that success is about taking personal responsibility for your decisions and direction but that luck also plays a part. She also maintains that hard work is essential to the realisation of talent but believes that this factor is possibly less about conscious decision-making and more about inner motivation:

It's an absolute feeling of a necessity. You feel there are things you just have to do. You just know, it's a sort of intuitive thing really. Sometimes I wake up with a feeling that I must do that, even though I'm tired, I've just got to do that because it needs to be done.

M admits that the "so-called fame" that she enjoys is "nice" but she maintains that this is of relative unimportance to her, and certainly is not what drives her. She insists that she does it for herself:

There are so many people who have died and not had that acknowledgement and that recognition. I just don't understand it, but I have been very fortunate. I've been able to be around and have a big 'retrospective' of my work. I just did it for myself. It was hidden. I was photographing because I just knew that this all had to be recorded. Nobody was telling me to do it. A lot of the work was at my own volition. But you

can do that and then just leave it in a drawer and after you die someone discovers it. But aren't I lucky that someone has discovered it before? I just feel I'm so lucky. I keep telling you I'm lucky. I think I've been one of the luckiest people in the world, actually, in all sorts of ways.

She says that luck is a "very Jewish thing. But you can't have good luck unless you also have enterprise and the commitment. It's got to combine. The two have to combine."

She continues to be "intrigued" by people, by their relationships and their diversity. "I am always thinking – thinking and reflecting about the meaning of life. I wish I wasn't, but that's me. Constantly."

M is sure that the present generation of children could benefit from some of the experiences she had as a child, and in particular, exposure to the arts. She laments the fact that many people she speaks to cannot remember any teacher being particularly significant. Her teachers, she maintains, were extremely influential in her development because "they were good 'teachers' and they cared about us." According to M her teachers were very knowledgeable, but they were never beyond being questioned and challenged. When she came to New Zealand she took an art history course at Auckland University and says she was the only one in the class who ever asked questions. This was something she could not understand because she had always been encouraged to ask questions. To M this emphasis on 'questioning' should be a cornerstone of teaching and learning. However, she is not sure whether it is seen as a high priority in schools and classrooms in New Zealand. She notes that many adult New Zealanders are uncomfortable with questioning, debate and disagreement:

What I've found in New Zealand is that you always have to be slightly on your guard in terms of disagreeing with another person or having a strong point of view, partly because New Zealanders take everything so personally. The times I've said, 'Look, it's an opinion. Please don't take it personally. It's not about you. If I criticise New Zealand I'm not criticising you.' When I'm in England I can criticise England and nobody takes it personally, so

one should be allowed in New Zealand to be critical of what's going on in New Zealand. Don't take it personally. I hate nationalism. I hate it.

In a similar vein she finds it hard to understand why those in this country who achieve highly, are esteemed, more for the fact that they are New Zealanders than for what they have accomplished:

You ask yourself why people aren't applauded just because of whatever it is they're achieving, not just because they're New Zealanders. In a way, if there was a culture of acknowledging and appreciating excellence regardless, then maybe there wouldn't be so many difficulties for creative children.

In reflecting on the development of her talent she believes it has been a combination of luck, upbringing and a number of inherent personality traits. She believes she was lucky to have been raised in a Jewish orphanage and educated for most of her childhood in the orphanage's school. The experiences she had there fostered questioning and inquiry. She considers that this was an excellent environment for the development of what was to become a life-long interest in and fascination with people, something critical to achieving success as a photographer of people. She also showed early signs of ability generally but of artistic ability in particular. There is no doubt that she has always been strongly intrinsically motivated and with the capacity for hard work. M also has a very optimistic view of 'life' and is appreciative of every day and says, "I had to be because I wasn't expected to live beyond the age of 14, so I had a very positive appreciation of still being alive ... I just loved life and it was very precious."

Conclusions and Implications

In this final chapter, the major findings from this study are summarised and a range of related implications are presented. The major focus here, consistent with the aim of this research, is on the school and the family. Finally, the limitations of this study are identified and some suggestions made for further research.

1. Birth Order

Many studies that have focused on high achievers have reported a relationship between birth order and achievement. The findings in this area are relatively consistent and suggest that birth order exerts an influence over the degree of achievement, as well as the domain of achievement. This particular issue characterises one of the dilemmas faced by the life history researcher. On the one hand, there is obviously some desire to pursue topics that other studies have included, especially when a finding is widely reported as significant. With broad topics, such as those that this present study focused on, the researcher is less concerned about exerting an inappropriate level of ‘control’ over the direction of the interview, or of ‘leading’ the interviewee. However, this situation alters when the specificity of questions or topics increases. Birth order is an example of a specific focus, which, if asked directly, could have been interpreted by some participants as implying something of significance. As was detailed in Chapter 5, this research sought to use more open-ended inquiry. What is interesting is that only a few participants mentioned their family position in relation to any of the areas discussed, and no participant raised it in connection with their achievements. In general, siblings were not identified as playing a particularly significant role in the participants’ achievements. The various explanations for the impact of birth order over achievement, both in determining the level and the direction of attainment, generally refer to unconscious forces playing out in the individual (e.g., Simonton, 1999a), which might explain why no participant saw this as particularly influential. However, given the age of most of the participants in this

present study and thus the period of time they had had to reflect on their lives, it could be argued that at least one of the 28 would have seen this as an influential part of their development, if in fact, it was. It may also be that the impact of birth order upon achievement has diminished over time. The birth order effect was more a feature of the findings of early research studies in this field. It is possible that changes in family life, such as smaller families, have weakened the influence of birth order over achievement.

2. How Different? How Similar?

Gardner (1997) defends the inquiry into extraordinary talent and points out that such a 'science' must pursue the 'apartness' of extraordinary lives, yet at the same time embrace their 'non-distinctiveness'. This task is enormous, and from the findings of this present study what remains are many uncertainties, numerous possibilities and a small number of probabilities. The life history approach employed in this present study, more than most other methods of inquiry, illustrates the individuality of the talent development process. While the aim was to better understand the process and to identify factors that might predict with greater certainty how potential is realised as achievement, it never sought to provide a model of achievement. The stories told by the participants in this study are unique, and as has been noted previously, their differences are more a feature than their similarities, even though some commonalities do exist. The two individual case studies included in Chapter 7 provide a good example of the individuality of the talent development process.

The differences found relate to every aspect of the participants' development. Outstanding achievers are born different and each possesses a distinctly unique genetic makeup. How these heredity factors impact on their subsequent development seems best explained by the notion of 'emergence' (Lykken, 1982), which is an 'interactive' rather than an 'additive' model of genetic influence. If the influence of our genes is interactive, as is proposed here, it is little wonder that individuals born to the same parents and raised in similar environments turn out to be so different. This explanation of the relationship between nature and nurture helps to explain why none of the parents or siblings of

these participants appeared to reach the heights of the family's most acclaimed member. With the possible exception of monozygotic twins, even our prenatal environments are different, and when we consider differences in family, education, culture, and numerous other influences and experiences, it is not surprising that most researchers in this area stop well short of offering any definitive guidelines for success.

While there is the facility from the findings of this present study to offer some suggestions about talent development, there is a concern that these might be misinterpreted and viewed as specific suggestions for improving the likelihood of a child achieving great things. This was the experience of Goertzel & Goertzel (1962) following the publication of their research in *Cradles of Eminence*. In public meetings, these researchers proposed that there was possibly a higher incidence of adversity in the childhood lives of luminaries and they also offered some explanations for this relationship. They reported that some members of their audiences falsely assumed that they were advocating the mistreatment of children as a way of stimulating creativity (Goertzel & Goertzel, 1962).

The inability to be able to explain the talent development process with any precision means that the capacity to predict who might be destined to succeed is extremely limited. The converse is equally true, and any teacher or parent who thinks or claims that a child will never amount to anything great, needs to read the life stories of some of history's most eminent individuals. Numerous stereotypical attitudes about success exist, which see one 'type' of child viewed as a potential success and another 'type' as a potential failure. These views are persistent and pervasive and probably held unconsciously by many parents and teachers. While some children rise above the low expectations of others, and achieve in spite of these (and sometimes even in response to them), one can only speculate how many others succumb to what influential adults have perceived as their destiny. Few of those who shared their stories in this present study achieved to a level in childhood or adolescence that might have predicted the degree of success they were to achieve as adults. Many more believed that they were probably expected to become successful, but not outstanding adults. Very low expectations were held for a small group of participants. Some did talk about adults who identified and

encouraged a talent, those who saw their gifts as unique. This recognition and support was more likely to come from a parent or family member than a teacher. On the other hand, the child expected to do well, and sometimes expected to achieve in a predetermined area, can be subjected to unrealistic expectations and the effects of such misplaced pressure can be detrimental to accomplishment.

A question that is frequently debated in the context of gifted and talented education, is whether or not the gifted and talented child actually exists. There are those who would argue that all children are gifted and talented and who would oppose any dedicated provisions for a small percentage of children seen as having special needs related to special abilities. Some also contend, that what is good for the gifted and talented child is good for every child, and may question the need for any significant educational differentiation on the basis of ability. There are certainly findings from this present study, which have implications for providing for the abilities of exceptionally able children and young people. However, in translating the findings from this and other similar studies into recommended approaches or practices, it is apparent that there is little, if anything, that would not benefit all children. That does not diminish the efficacy of these ideas for developing talent to the highest levels or for supporting the most brilliant of our young people. However, providing an enriched early environment, modelling a love of learning, supporting special interests, and other recommended approaches, undoubtedly benefit all children. This principle holds for both the school and home environment.

The findings from this present study do suggest that educators in particular need to take a very flexible approach to deciding who is and who is not gifted and talented. What has emerged from this research, and is supported in the findings of other retrospective studies, is that our methods of identifying potential talent frequently overlook many future high achievers. There are a number of reasons for this. First, talent emerges at different times and under different conditions, and some of the participants in this present study, by their own admission, gave few cues in childhood that they might be outstanding adult achievers. Some members of the group did not discover an area that they were passionate about until they reached adulthood. Second, there was often no relationship between what schools

offered and the domains that some of these adults achieved in. Third, the way some of these participants, particularly the more creative amongst them, exhibited their potential at school, was not recognised or valued as an expression of a special ability.

An implication here is that teachers and schools need to start from a position where all students are seen as *potentially* gifted and talented. This is not to advocate a lessening of provisions for those readily identified as exceptionally able. What is important, is that schools offer multiple opportunities across multiple contexts for children and young people to discover and evidence their special abilities. The gifted and talented group should be seen as fluid rather than fixed. This is a challenge to schools and teachers, as there is a tendency that when ‘a’ group has been identified as gifted and talented, that it is then perceived as ‘the’ group within the school. Teachers should view those outside this group as potentially gifted and talented.

Parents can offer insights into the special talents of their children that may not be as readily observable to teachers. There is little doubt from the findings of this present study, that many of the participants’ parents had a far greater appreciation of their children’s abilities than had most of their teachers. Many schools do provide formal opportunities for parents to share information about their children’s special interests and abilities, and such a practice is to be recommended.

3. The Gifted Personality

In Chapter 6 primacy was given to ‘drive’ because of the strength of this factor in the accounts provided in the participants’ conversations about what they had accomplished. This finding is not new, and researchers from Galton (1869) to Bloom (1985) have demonstrated that motivation, persistence, perseverance and hard work characterise extraordinary achievers. Many of the participants in this present study evidenced these traits from a young age, and saw their drive as a pervasive part of their personality. Most ascribed their successes to these attributes. What is very clear from this and other studies is that there is no

substitute for effort. As Cox (1926) concluded, less than the highest levels of intelligence may be compensated for by a high degree of persistence and perseverance. However, the reverse does not hold true, and there is no substitute for drive and determination. This may help explain why some gifted and talented students fail to reach the heights expected of them and why those whose early abilities were more modest surprise many with what they achieve. What is much less clear from any of the studies in the field, including this present study, is first, the source of this tendency to strive, and second, how it might be encouraged and developed.

This present study confirmed that found in some other studies (e.g., Goertzel & Goertzel, 1962; Streznewski, 1999) that many outstanding achievers were raised in homes where at least one parent exhibited high levels of drive. These parents not only espoused hard work, persistence and perseverance as virtues, even more importantly, they modelled these in their own attitudes and actions. There is also evidence that teachers who model these behaviours have a positive influence on achievement (e.g., Csiksentmihalyi et al., 1993). Of course, no one can be certain that these traits are learned. It could be that children who possess such attributes have inherited them from their parents. However, in the absence of any empirical evidence to claim such traits are innate, the logical and sensible response would be to assume that they are learned, at least partially.

Almost all of the participants in this present study grew up during the 1950s and 1960s. Many people of that generation, including myself, would claim that our parents placed a greater emphasis on persistence, perseverance and dedication to tasks than we did as parents of school age children. Some people would go further, and claim that the current generation of parents of young children seem to accord even less attention to these than we did. Schools and teachers are often criticised for a lowering of standards and a lessening of challenge, and placing a greater emphasis on participating, and protecting students from experiencing failure. As many of the participants in this present study claimed, their successes resulted from learning to persevere in the face of disappointment and failure. It may be that parents and teachers have become so concerned about harming children's self esteem that they have, with the best intentions, removed from

children's experiences the very elements that may improve their levels of achievement. However, any suggested cause and effect relationship here is tentative. It does seem that early adversity and hardship may contribute to the development of persistence and perseverance. However, it would be grossly irresponsible to imply that parents and teachers should introduce into their child rearing or educational practices, some deprivation or hardship in order to strengthen these qualities. What does seem legitimate to suggest though, is that children should not be protected from the types of challenges and demands that build the qualities conducive to realising potential. This is particularly true for our most able students, whose abilities can mean that schoolwork offers few challenges and that the experience of failure is extremely rare. Some of these gifted and talented students will continue to strive, but this lack of challenge does appear to cause others to underachieve (Butler-Por, 1993; Davis & Rimm, 1998; Gross, 1993; Moltzen, 2004; Richert, 1991; Rimm, 1995, 2003).

Across the longitudinal studies in particular, there are many examples of extremely promising young people who seemed to fail to realise their early potential. Terman's study has been referred to repeatedly in this thesis to cast doubt on the claim that gifted children become gifted adults. Some researchers (e.g., Arnold, 1995) were convinced that the adult accomplishments of their youthful prodigies were much less spectacular than would have been anticipated from earlier evidence. Dylan Thomas believed that, "There's only one thing that's worse than having an unhappy childhood, and that's having a too-happy childhood" (Thomas cited in Ferris, 1977, p. 49). Some recent commentators suggest that this can account for the fact that children brought up in a very stable, supportive and affirming environment are very good at running the world, but are unlikely to change it. However, there may be another explanation for this apparent under-representation of some groups of gifted and talented children amongst the greats of history. Feldman (2000) suggested that those identified as being talented at a young age have early experience of success and therefore, exposure to the rewards that accompany it. She reported that many of the group of gifted adults that she studied deliberately rejected the widely accepted 'symbols of success' and 'status seeking' and were more attracted to the pursuit of autonomy and self-actualisation.

An issue that has not been explored to any great extent in this thesis involves notions of success. Any conclusions drawn from the findings from this and other studies of talent development need to be tested against multiple interpretations of success. In most studies, the indices of success in adulthood involve acknowledged accomplishment. The gifted child who has devoted his or her life in service to others and is doing this in relative obscurity, is likely to be counted by most researchers amongst the gifted who did not deliver on their early promise. In the opinions of some, however, such an individual may represent the very highest level of accomplishment.

What is also relevant to consider in this context, is the extent to which the personality traits associated with achievement may be timeless, and as such, will continue to predict high accomplishment in the future. It is difficult to imagine that such qualities would ever become redundant. However, researchers such as Goleman (1995) have proposed that those who succeed in many areas in today's world are those with well-developed interpersonal skills, as well as discipline expertise and a work ethic. Goleman (1995) has argued that an individual working in isolation and achieving a notable breakthrough is largely a former phenomenon. In recent times, he contended, achieving the highest level of success demands the ability to work effectively with others. It is not enough, he claimed, to be capable and committed. In today's world, and even more so in the future, the highest achievers will also be effective team members. It may be as common in the future to talk about gifted and talented groups, as it now is to talk about gifted and talented individuals. This notion has implications for practice in gifted education. It could well be that an emphasis on collaboration and cooperation, which is very compatible with a Maori approach to defining and developing special abilities, becomes more widely accepted in the future.

4. Nurturing Talent in the Family

This present study found that the childhood families of achieving adults shared some common characteristics. These characteristics are not peculiar to this study, and have been reported by many other researchers. Most previous studies have

found that eminent individuals are more likely to be the products of middle and upper class families. What this present study points to, which was also concluded by Roe (1952), is that the critical element is not related to socio-economic position, but rather to the provision of an enriched home environment. The reason why the homes of the middle and upper classes offer an environment that may be more conducive to the development of special abilities is likely to be connected with tradition, education, and to a lesser degree resources. Middle class parents are arguably more likely to have grown up in more enriched early environments themselves. Their parents were probably more highly educated and more familiar with the conditions that promote achievement than those from lower socio-economic groups. This educational 'edge' has probably resulted in a better understanding of children's development and of the longer-term benefits of some specific approaches to child rearing. These parents possess, in large measure, the cultural capital important to success. They may also have greater access to the resources to provide their offspring with an enriched environment.

However, one of the most positive aspects to emerge from this present study is that the provision of an enriched early environment is not the preserve of the more affluent, and only a small number of the participants in this present study were raised in what might be considered resource-rich, middle and upper class families. Nonetheless, their home environments were rich in many other ways. Their childhood households were characterised by a love of learning and a love of books. There was a free flow of ideas, and the children in many of these families were exposed to these exchanges and were encouraged to participate in them. In spite of the fact that many of their parents had not received a higher education themselves, they placed a high value on education. Although they lacked educational qualifications, their love of learning meant that they were well educated. As has been detailed previously, they valued and modelled a strong work ethic and expected the same of their children. Their children were not shielded from difficult experiences and with high expectations often came high demands. Most parents were less concerned about their offspring being 'well rounded' and encouraged and supported the development of specialised interests and abilities. The parents' views generally were more liberal than conservative, and some accorded their children high levels of freedom. Many adult achievers

enjoyed a childhood where they were encouraged to challenge and to question, to explore and to inquire. Some were even encouraged to be contentious.

The implications here are fairly obvious, and all the environmental elements tabled above are generally held to benefit all children. An early environment of this type is clearly no guarantee of a high level of success in childhood, adolescence or adulthood, any more than the exclusion of any or all these elements precludes the emergence of talent. It must also be pointed out, that children interact with their environments and from a very young age shape their parents' responses (Gottfried, et al., 1994; Simonton, 1999a). The traits typical of many young gifted and talented children will invariably demand a home environment that is different from their less able peers (Porter, 2004). According to Porter, young gifted and talented children achieve developmental milestones early, learn quickly, show advanced preferences for books and films, have a quick and accurate recall, are imaginative and creative, and understand abstract concepts early. She confirmed that these children are active in eliciting stimulation from the environment.

For children to achieve highly nowadays, however, generally requires much more input than simply modelling and reinforcing a desire to excel and providing an enriched and stimulating early environment. As Bloom (1985) illustrated, to reach the very highest level in many disciplines in recent times requires many years of training and expert mentoring. In the initial stages of talent development, children's parents play a vital facilitative and supportive role. Children who are born into families where parents are not willing or not able to make this level of commitment, will be precluded from reaching the top echelons in many fields of endeavour. This present study and many other previous studies, provided examples of people who had emerged from relative obscurity to a level of outstanding success, and at times a lack of background in a field seemed to act as an advantage. While history will always offer examples of individuals achieving meteoric success from limited experience or training in a field, this phenomenon will almost certainly become much more of a rarity.

5. Nurturing Talent at School

The conclusion drawn from this present study is that the relationship between school experience and adult success is a complex one. On the one hand, there was a group of participants in this study who achieved highly at school and who reflected positively on this part of their lives. On the other hand some others achieved to a much lower level, and a minority reported their overall school experience as much more negative than positive. Consistent with the findings from studies, such as Csikszentmihalyi's (1996), those in this present study who later achieved success in the logical-mathematical domain achieved better at school and were more inclined to recall the experience positively, than those with abilities in the arts. The latter group was less likely to view schools and teachers as a source of inspiration. What seems to mediate the school experience across many areas of accomplishment is the *quality* of that experience. Where there is a goodness-of-fit between the interests and abilities of the able student and what school encourages and provides for, the experience is much more likely to be viewed positively. In this present study, academically able students who attended academically-oriented schools reported that they were accepted by both their teachers and their peers, and that they felt no pressure to mask their abilities to fit in. It may not be inconsequential that many in this group attended single sex schools.

It is the highly creative child who seems to have the greatest difficulty fitting into the school system; or that the school finds the greatest difficulty accommodating. Traditionally, schools have placed a high value on and rewarded convergent thinking and convergent ways of behaving. A good example of this is the value placed on results from standardised tests, such as IQ tests. Torrance (1981) maintained that the abilities of the majority of creative children are completely missed when using such a measure of ability. Often creative students display behaviours that are less acceptable to their teachers, parents and peers, behaviours that may be viewed as inappropriate. The behaviours that can result in creative students conflicting with teachers and others include questioning and challenging of authority, resistance to routine and repetition, indifference to social

conventions, limited interest in things perceived as unimportant, uncooperativeness, stubbornness and cynicism (Torrance, 1981).

It is important to remember that the majority of the participants in this present study attended schools some decades ago, when diversity was much less evident and much less valued in our schools than it is today. It would be hoped that, were the more creative participants in this present study to attend school now, their creative abilities, and any differences generally, would be appreciated rather than ignored or discouraged. However, given the very size of many schools, and the range and complexity of their roles and responsibilities, the pressure on students to 'conform' must continue to exist. Many creative students must continue to feel out of place at school and the pressure to conform is played out in many ways. Some may 'drop out', if not physically, then certainly academically and psychologically. Others may resist the pressure to conform and find themselves in conflict with school staff. Some may turn to alternatives, which may or may not be positive in nature.

Karen Arnold's (1995) research provides a good example of the limitations of placing such a high value on conformity. This is comparatively recent research, and although undertaken in the United States, it undoubtedly has implications for New Zealand educators. Her group of valedictorians, the best and brightest students in their respective schools, had high grades, continued to do well at university, but in their post-education lives Arnold found that they were best suited to running the world, but not to changing it. In other words, these leading lights were more imitators than innovators and more disposed towards reproduction than transformation. The question has to be asked as to whether or not schools are rewarding the right people as its highest achievers.

This question is not just applicable to schools, and two of the participants in this present study who have succeeded in creative domains reported that university fell short of their expectations and tended to reflect similar values and approaches to that of their high schools. It could be that, like many schools, universities are better at nurturing convergent thinkers and less successful at providing for divergent thinkers or creatively oriented students. This criticism is almost

certainly less applicable at the postgraduate level, and is a generalisation that would not hold true for all disciplines.

As noted previously in this chapter, there are good reasons for schools to consider identifying and supporting talent across a wide range of ability areas. The findings from this study provide support for liberal approaches to conceptualising giftedness and talent. The Multiple Intelligences (MI) model (Gardner, 1983) used in this study is an example of such an approach and it is encouraging to see this model, and similar approaches being used in New Zealand schools (Riley, Bevan-Brown, Bicknell, Carroll-Lind & Kearney, 2004). Inclusive approaches such as the MI model, not only accommodate a wider range of talents areas they are also more responsive to different cultural interpretations and expressions of special ability. Most importantly in the New Zealand context, these are reported as compatible with a Maori view of special ability (Bevan-Brown, 2004).

Amongst the stories the participants in this present study told about their schooling, were accounts of teachers who did make a difference. These teachers knew their subject matter, were enthusiastic about it, offered challenge, and inspired their students to learn. They took a personal interest in their gifted and talented students and provided opportunities for them to pursue areas of special interest and ability. There is evidence that gifted and talented students are less interested in an interpersonal relationship with their teachers and more interested in an intellectual relationship (Czikszentmihalyi et al., 1993). That these outstanding adults could readily identify a teacher who made a difference, underscores the vital role teachers play in supporting exceptional ability. What it is also important to note, is how few could recall a teacher of significance.

This present study sheds some light on the practices schools use to provide for their more able students. Acceleration in the form of whole class level skipping was not endorsed by any of the participants who experienced it. This is a small group from which to make any broad generalisations, and it is important to point out that this finding is in direct contrast to the very positive accounts reported elsewhere (e.g., Gross, 1994, 1998, 2001; Hoekman, McCormick, & Gross, 1999; Proctor, Black & Feldhusen, 1986; Richardson & Benbow, 1990; Swiatek &

Benbow, 1991). On the other hand, the responses made by these New Zealand adults should not be discounted and some of the reasons for these discrepant findings have been explored earlier. Most writers on this topic, including those who support this provision, advise schools to proceed with caution when considering accelerating students. The findings from this study support this conservative approach to the practice. However, what needs to be strongly emphasised, is that this present study found strong support for other forms of acceleration. It certainly raised issues connected to class-level acceleration, but not the principle of acceleration per se. In fact, the participants who were given the opportunity to extend and to accelerate their learning, generally found it a positive experience. As Townsend (2004) reported, acceleration can take many forms and in essence it should be a non-negotiable aspect of all programme provisions for gifted and talented learners. This study expressed reservations with only one form of acceleration.

The participants in this present study who were academically able high school students and who were taught in classes that 'streamed' for ability spoke positively of this approach. The one student who was taught in a class for more able students for his two years at intermediate school was extremely enthusiastic about this means of catering for gifted and talented students. Both the research (e.g., Rogers, 1991) and these participants point to significant gains academically, and some gains socially, from being taught with like-minded peers.

The implications here are anything but straightforward. What is clear is that students with different abilities respond differently to different school and classroom environments. The challenge to schools is to provide a safe and supportive environment for all students, as well as one that maximises the opportunities for abilities to be fully expressed and developed. In a small number of cases, this may be best realised in class-level acceleration. Some schools will choose to establish separate classes for their most able. While there is certainly some evidence that gifted and talented students themselves feel positive about this provision, this practice does tend to be in opposition to the principle advocated earlier in this chapter of viewing the 'gifted and talented group' as flexible and fluid. The practice of ability grouping or streaming, which used to be widely

practiced in New Zealand secondary schools, is an issue that is likely to divide any group of teachers. There is little doubt that this way of organising classes finds favour with gifted and talented students, and the opponents are usually more concerned with the impact on other students. These practices that ‘segregate’, are widely considered to run counter to our egalitarian tradition and invariably attract charges of elitism. As some commentators have pointed out, most schools practice ability grouping in sport, and this is rarely perceived as elitist.

What will continue to exist in New Zealand schools, is for most gifted and talented students to be taught in regular classrooms by regular class teachers. The challenge is for schools and teachers to incorporate some of the advantages that might be associated with acceleration and segregation into the regular classroom. The regular classroom should not be viewed as an inferior setting for gifted and talented students, as it does hold some advantages over other provisions. One of these is that there is no imperative to make definitive decisions about who is, and who is not gifted and talented. This allows teachers to view all the students in their classes as potentially gifted and to provide opportunities for a much wider group to participate in activities and experiences that may evidence exceptional ability.

6. Marginalisation and the Development of Talent

The experience of being an outsider seems common to many extraordinary achievers. This marginalisation can take many forms, including ethnic, economic, religious, gender, sexual orientation and professional. Many of the participants in this present study talked of being an outsider. The more creative spoke of an emotional sensitivity and intensity that set them apart, something numerous writers have claimed is consistent with the gifted and talented personality. Feist (1999), for example, in a comprehensive review of studies in this area, claimed that those in the artistic professions are indeed more emotional and sensitive than non-artists. He concluded that, “The creative personality does exist and personality dispositions regularly and predictably relate to creative achievement in art and science” (Feist, 1999, p. 290). However, he also pointed out that how these dispositions develop and exert an influence over each other is little understood.

We can speculate on the basis of this and other studies that achievement generally, and creative productivity in particular, might be enhanced by the experience of marginality. Some, like Gardner (1997) and Simonton (1999a) have suggested that feeling totally comfortable, secure and part of the mainstream of society tends to constrain achievement and creative productivity. There are a number of explanations for how being an outsider may benefit an individual in terms of achievement and creativity. It is clear that the perspective from 'outside' the mainstream of society is somewhat different and this unique view may be necessary to produce something distinctive and original. The experience of being on the outside may raise an individual's consciousness to issues of exclusion, bigotry, disparity, inequity and prejudice. This may act as a catalyst to action that speaks against social injustice. Another possibility is that a lack of acceptance or rejection or simply feeling different may result in increased resolve, determination and drive, in the same way that early adversity is thought to influence achievement. Finally, the marginalised person may feel so apart from others that any rejection that could occur as a result of their intense interest or exceptional abilities are of little consequence, as they are already an outsider. It is commonly claimed that gifted and talented children underachieve because the cost of being different is rejection by their peers, something that is probably not an issue for those who are rejected on other grounds.

It is difficult to make any significant implications here because, as has been pointed out, the relationship between marginalisation and achievement is largely speculative. It is possible that for every child who is marginalised and who succeeds there are many more whose progress is negatively affected by being on the outer. Gardner (1997) maintained that those who have been marginalised and who achieve great things have made the most of their differences. They have seen this as a strength and have exploited it. This would seem to have implications for parents and teachers of gifted and talented individuals, and for gifted and talented children and adults themselves. Rather than putting energy into trying to help the gifted and talented fit in, it may be far more appropriate and advantageous to help them to appreciate their differences and use these to their advantage. Silverman (1993) takes this approach to counselling the gifted and talented who are

experiencing difficulties fitting in. She reported effective outcomes from assisting these people, both children and adults, to understand how and why they are different, and to see how these differences might be viewed as strengths and not vulnerabilities.

7. Implications for Further Research

Although numerous studies have been undertaken in the area of talent development over a period of nearly 140 years, it is still considered an emerging science. This present study is methodologically unique in the field and although most of the general findings are supported in the results of other studies, the first hand accounts provided by this group of participants reflected some different emphases to those contained in other studies. Moreover, it is the first of its kind in this country and therefore adds to the New Zealand literature in the field. It is clear that more research of this type will shed even greater light on how ability develops across the life span.

This research drew on information from a single interview with each participant, and as the information was transcribed and analysed it became clear that the opportunity to engage in follow-up interviews would have given greater insights in many areas. In addition, the opportunity to incorporate material from other sources would have added a valuable dimension to this research. The study undertaken by Bloom (1985) and his associates was unique in that they interviewed the participants' parents. It may not be inconsequential that Bloom's study reported findings that were quite different from many others. In this present study it would have been impossible to speak to parents, as many were deceased. However, in future research of this type it would be interesting to include the perspectives of other family members, teachers, peers, coaches and mentors.

Although this study included a range of endeavours across seven domains of ability, because each domain was limited to four participants, the ability to report domain-specific findings was extremely limited. To better understand how to identify and support a broader range of talents requires more knowledge about how ability is manifest, develops and can be encouraged in these areas. The major

focus of research in this field has been on intellectual and academic abilities, and more recently there has been a greater interest in creativity. In the broad area of creativity we still have limited understanding of how talent develops in specific areas of creative expression. There is also a dearth of research into intrapersonal and interpersonal abilities, practical intelligence, wisdom and spirituality.

There was little facility in this present study to offer any significant insights into how culture may impact on how talent is perceived, evidenced and best supported. In the New Zealand context, writers such as Bevan-Brown (2004) have demonstrated how a Maori view of special abilities differs to the approach taken by most Pakeha. It would seem that a research study similar to this present one, but limited to adult Maori achievers, would add significantly to our knowledge here, and have the potential to enhance achievement for talented Maori young people.

A theme that permeates some of the research in the field is that gifted and talented children often fail to reach their potential. Yet few studies have followed up on gifted children and sought to hear their stories of their post-school experiences. As an increasing number of schools in New Zealand are formally identifying gifted and talented students, the task of locating a group of former gifted and talented students and having them participate in research should not present a great difficulty.

8. Conclusion

The findings from this present study make a contribution to the relatively small pool of existing knowledge in the area of talent development across the lifespan. In New Zealand, very little research has been undertaken in the area of giftedness and talent generally (Riley et al., 2004). A possible reason for this situation, and what is often considered to constrain educational efforts in this area, is a perception that the needs of this group are much less deserving of our attention than those of many other sectors of society. This perception persists, and must be challenged wherever possible. Unfortunately, in an environment where there is competition for resources, giving to those who it is perceived have the most, is

often seen as taking from those who have the least. In reality, the needs of the most able amongst us are no less deserving of attention, and the perception that ‘they will make it anyway’ has been repeatedly demonstrated to be erroneous. A better understanding of how talent develops must translate into a greater percentage of talented children and young people achieving great things. This knowledge is invariably of benefit to all children.

The primary motivation for improving the conditions that realise achievement is the fulfillment of the individual but the cost to society of not attending to this is immeasurable. As a country we must cease to be suspicious of excellence and rid ourselves of the spurious notion that nurturing excellence undermines our commitment to equity. Both can comfortably co-exist and in fact, a commitment to identifying and nurturing the talent of our most able is not just a commitment to excellence, it is a commitment to equity.

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Appendices

Appendix A

Dear _____

I am in the initial stages of study towards a Doctor of Philosophy and am seeking assistance in the selection of participants who may be included in the research investigation. The study is entitled *Realising Potential: An investigation into the Life Stories of Gifted New Zealand Adults*. This is an attempt to better understand the development of high potential through studying the life stories of New Zealanders who have achieved to an exceptionally high level in a particular domain of human endeavour.

The scope of the study closely mirrors the areas of ability proposed by Gardner (1983) in his theory of Multiple Intelligences (MI). These intelligences include, logical-mathematical, visual-spatial, verbal-linguistic, musical, bodily-kinesthetic, and interpersonal. In this present study business-entrepreneurial ability has been added to Gardner's original intelligences.

In this first phase of the study I am endeavouring to identify gifted New Zealand adults within each of these seven categories. To this end, I am approaching people such as yourself, with recognised experience and knowledge in a field within a category, to nominate New Zealanders who may be considered for inclusion in this study. Self-nomination is perfectly acceptable. Nominations are being sought from a number of 'experts' within each domain.

Attached to this letter is a more detailed explanation of the process, and a nomination form. Also enclosed, is a pre-paid return envelope. All information will be treated as confidential and there is no intention to disclose individual nominators or whom they nominated.

If you are able to assist by providing a contact address that may assist in communicating with a nominated person, this would be greatly appreciated. This request only relates to information that is publicly available, and any information provided beyond that should only be done so with the prior consent of the individual concerned. Clearly, nomination does not constitute any commitment to be involved in the study, and that is something that will have to be negotiated between the researcher and those nominated.

The study is being supervised by Professor David Mitchell and Professor Sue Middleton of the School of Education at the University of Waikato. This aspect of the

research has been approved by the University of Waikato School of Education Ethics Committee.

If you require further information, please do not hesitate to contact me.

Yours sincerely

Roger Moltzen

Appendix B

The Nomination Process

The aim of this study is to include high achieving adults from each of the categories outlined below. These categories closely reflect those used by Gardner (1983) in his theory of Multiple Intelligences (MI), with the key differences being that interpersonal and intrapersonal intelligences have been combined into a single category of *interpersonal intelligence*, and *business-entrepreneurial intelligence* has been added.

An individual does not have to fit neatly into one of these categories to be considered appropriate for inclusion in this study. While some high achievers display exceptional ability in one or two domains, others may demonstrate abilities across several domains.

Domains of Ability Explained

Linguistic Intelligence: A mastery and a love of language and words with a desire to explore them (e.g., poets, writers, orators, linguists).

Logical-Mathematical Intelligence: Ability in confronting and assessing objects and abstractions and discerning their relationships and underlying principles (e.g., mathematicians, scientists, philosophers).

Musical Intelligence: Competence in composing and performing with pitch, rhythm and timbre, as well as ability in listening and discerning (e.g., composers, musicians, music critics).

Visual-Spatial Intelligence: The ability to perceive the visual world accurately, to transform and modify perceptions, and to recreate visual experiences (e.g., artists, sculptors, architects).

Bodily-Kinesthetic Intelligence: Skill in controlling and orchestrating body movements and handling objects skilfully (e.g., dancers, athletes, actors).

Interpersonal Intelligence: Accurately discerning moods, feelings and mental states in oneself and others and using the information as a guide to understanding behaviour (e.g., psychologists, counsellors, politicians).

Business-Entrepreneurial Intelligence: Skill in the world of business, commerce, marketing, inventing, etc. An ability to anticipate and predict trends, and to be innovative and enterprising (e.g., business leaders, financiers, inventors).

A more difficult task is determining what constitutes giftedness in these domains, and it is accepted that any criteria offered will involve a degree of subjective judgement. However, I am seeking participants whose ability is *rare*, who have demonstrated *excellence* in a field as *judged by their peers*, and whose *ideas, activities or products* have *value to society*.

Appendix C

Nomination Form

You are invited to nominate four living New Zealand adults whom you consider meet the criteria for giftedness as outlined on the previous page.

General Ability Domain: _____

Specific Category of Achievement: _____

Name of Nominee	A Brief Description of Their Achievements	Contact Address
1		
2		
3		
4		

Name of Nominator _____

Appendix D

Dear

I am currently undertaking a study investigating the life experiences of high achieving New Zealanders. The purpose of this study is to better understand how talent develops by talking to those who have achieved to an exceptional level in a particular field. This study is unique in New Zealand in terms of its approach and scope. Twenty-eight individuals are being approached for inclusion in the study and are representative of the following seven areas of ability: *logical-mathematical, linguistic, musical, visual-spatial, bodily-kinesthetic, interpersonal and business-entrepreneurial*.

A pre-selection process has already been completed, which involved contacting acknowledged 'experts' within each of the above categories and asking them to nominate individuals whom they considered would be appropriate to include in a study of exceptionally talented New Zealanders. From these nominations a group of 28 individuals was identified, of which you are one.

My proposal is to undertake a single 60 - 90 minute interview with each of the participants, focussing specifically on their perceptions of the events, experiences and circumstances that have been influential in the development of their ability or abilities, including: *specific talents and interests, education and schooling, the influence of teachers, role models and mentors, the role of family and friends, childhood and adolescence experiences; social development and peer relationships, and career choices*. The transcript from each interview will be returned to participants for any editing and amending and will only be used once approval is obtained.

I am particularly interested in how we might better nurture talent in our young people and I believe the findings of this study will significantly inform this process. I am a senior lecturer at the University of Waikato School of Education, a position I have held for 12 years. My primary teaching and research interest is in gifted and talented young people. I have published and presented widely in this area. My most recent project was working with a team of three writers, under contract to the Ministry of Education, to produce *Gifted and Talented Students: Meeting Their Needs in New Zealand Schools*. This Handbook was distributed to every New Zealand school in April 2000. I am a New Zealand delegate to the World Council for Gifted and Talented Children. Last year I chaired a Ministerial Working Party on Gifted Education.

I trust you see this study as worthwhile and will agree to participate. I have attached a response slip to this letter, together with a stamped return envelope. (Please feel free to email, 'phone or fax me. Contact details are on the header of this letter.) Once a

positive response is received I would like to contact you and arrange a mutually convenient time to conduct the interview.

I appreciate that all those I am asking to be involved in this study are extremely busy people, but I am open to any proposal with respect to the time and location of the interview that may help to minimise inconvenience.

If you require further information please do not hesitate to contact me.

Yours sincerely

Roger Moltzen

Appendix E

Participant Consent Form

I consent to be involved in this research project and understand that this commitment means I will participate in a 60 – 90 minute interview. I have read the content areas it is proposed to cover in the interview and I am agreeable to discussing these. I understand that the interview will be tape-recorded, then transcribed, and that I will receive a copy of this transcript, which I am free to edit and amend. I consent to the use of anonymous extracts in the written thesis and for these to also be used in associated publications and presentations. I understand that, should the researcher desire at a later stage to refer to me by name, I will be asked for written consent.

This approval is given on the understanding that I am free to withdraw at any stage.

Signed: _____

Date: ____/____/____

Name: _____

Address _____

Email: _____

Telephone _____