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**AN EXPLORATION OF THE BEHAVIORAL
CHARACTERISTICS AND PERSONALITY
TRAITS OF A SMALL GROUP OF
MUSICALLY GIFTED CHILDREN**

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1994**

An Exploration of the Behavioral Characteristics
and Personality Traits of a Small Group of
Musically Gifted Children

A thesis presented in partial fulfilment of the requirements
for the degree of

Master of Education

at Massey University

Kadri Liho-Baumgardner
1994

Abstract

This thesis explored aspects of musically gifted children who were successfully learning an instrument. A brief look at available literature outlined the arguments on perceptions and explanations of musical talent, as well as genetic and environmental factors. Information on prodigies, the gifted and musically successful adults and adolescents was examined for material that would relate to the development of, or indicate the presence of, musical talent.

The musical development, personality traits, and behavioral characteristics of twenty musically gifted children between the ages of five and eight were investigated. Data was retrieved from the children themselves, their parents, and their private music teachers through self-administered questionnaires and recorded interviews. It was found that the children's musical development appeared to be different from normal musical development. Characteristics and some personality traits were found to be in common with those of the gifted, prodigies and successful musicians. Certain characteristics and personality traits appeared to be unique to the musically gifted. More research in New Zealand is recommended to see if these findings are valid for all musically gifted children.

A brief look at the New Zealand music education system followed emphasizing its possible impact on all children, especially the musically gifted. It was noted that a consistent music programme needs to be established in the primary school system. As primary teachers are each responsible for music education in their classroom, these teachers need to be sufficiently trained to be able to identify, support and challenge the musically gifted child. If the teaching and content of the music programme is of poor quality, then musical aptitude may be damaged resulting in the obstruction or cessation of musical talent development.

Acknowledgements

I wish to thank my supervisors, Don McAlpine and Roy Shuker, for their patience and guidance. I would also like to thank and acknowledge the help and support of my husband, Daniel Baumgardner.

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1. INTRODUCTION

"Human abilities, particularly exceptional ones, are vital resources for the well-being of all cultures" (Howe, 1990, p. 1)

The future depends on how well we nurture and develop these resources. As teachers, our contribution towards an individual's ability development begins in our classrooms.

The numerous educational research publications¹ demonstrate a concern about finding the best way to educate our students. Study results from gifted education investigations, indicate that their special educational needs must be met to achieve individual optimum development. This continues to challenge the policy makers, staff and administrators of our schools. If the home places little value on the talent area, or is incapable of providing a supportive environment, then the school assumes a crucial role in the development of that talent. Early identification, special programmes or curriculum adaptations, and environmental attitudes towards gifted children are critical because of their direct impact on the student. If student underachievement, and a negative attitude towards school and learning are to be avoided, teachers must be prepared to support and challenge these children in their classrooms.

At present in New Zealand, there is a great deal of research on the intellectually gifted, mathematically gifted and even some on the artistically gifted in general classrooms. A quick survey of the "Gifted and Talented Children Bibliography" (1992) showed fourteen articles on

¹Encyclopedia of Educational Research, Journal for the Education of the Gifted, Early Childhood Research Quarterly, Gifted Child Quarterly, Roeper Review, and Gifted Education International to name a few.

mathematics and seven on art. There were only four articles listed that touched on music. However, none dealt with the identification or educational needs of the musically gifted child. Are the musically gifted different from other gifted children? We do know that musical talent is a distinct manifestation of the special ability student. Do they have unique educational needs? What is the current music education situation in New Zealand schools and how does it affect the musically gifted child?

Hagen (1980) claims that we know very little about the early indicators or precursors of gifted performance in music, visual arts and the performing arts, because there are so many subareas. In music, these areas are performance, composition, improvisation, arrangement, conducting and so forth. Exceptional ability in any of these areas requires slightly differing skill combinations resulting from progressively diverging developmental experiences. Some of these skills develop early, and others later.

The specifics of gifted development in each specialty area are unknown. It seems that this is because researchers are attempting to travel backwards along the developmental path from successful adults. However, we all begin from the same place; that is we are all born with the capacity for music. Using this common point of origin, researchers should be able to follow the early development of performance skills by focusing on children's musical and gifted musical development.

There are two reasons for focusing on these particular skills. First, performance skills are the earliest recognizable behaviour (in terms of visibility and assessability) that musically gifted children display. Secondly, most musicians begin with some instrumental experience in their past (not always successfully) even if

they specialise in other musical forms later as adolescents or adults. Once performance development is understood, then the other specialist areas may be easier to unravel as they manifest later in the gifted individual's life.

It has been noted that currently, the best indicator of musical talent is the ability to perform on a chosen instrument. This ability is judged by the achievement level and the speed at which a child learns.

Unfortunately, this results in the requirement that a child be trained in performance before a musical gift can be recognised and acknowledged. What happens to the child who doesn't have the opportunity to take lessons as a result of a family which does not recognise or support musical talent development? How do we identify and educate the musically gifted child who has not yet developed performance skills? How do we educationally support the child who has already developed those skills?

Sosniak (1990) noted that the development of talent is a long-term process, and the time it takes for such development has important consequences for the ways we think about supportive educational theory and practice. How does gifted musical development progress? When does this developmental process begin so that the educational support can be in place to ensure optimum development? At present, the focus in schools is on the intellectually gifted. How does this impact on the musically gifted child? Does a musical gift appear in combination with other gifted areas or does it appear alone? Do we need to concentrate on differentiating the current music curriculum or do we need to include a musical portion in gifted curriculum? At what age is it critical for identification to occur?

There is a path to musical excellence. The home, the private teacher and the school are integral parts of the

individual's musical development. If one of these should be obstructed, what happens to the developing gift? Ability in any area must be recognised. Then skills and discipline should be honed in a supportive environment at home and at school. Although each child is an individual and their own talent is specific to themselves, there are general ways to encourage and nurture the developing talent.

2. LITERATURE REVIEW

Reading the research on the musically gifted, one is immediately surprised by the number of terms that are used indiscriminately. It is a commonly held belief that there is a standard definition of musically gifted (Flohr, 1987). This is not true as authors talk about musicality, musicianship, musical aptitudes, musical talent, musical ability, and musical achievement without defining or differentiating these terms.

Myths and Beliefs

There are many beliefs and myths that exist in relation to the public's view of musical giftedness (Howe, 1990; Flohr, 1987). It is not unusual to find that most people think musical talent refers only to the ability to play a musical instrument (Pendarvis, Howley & Howley, 1990) and that this performance ability alone is the index by which we judge the degree of talent (Feldman & Goldsmith, 1986). Gordon (1971) appears to support this view by saying that instruments are the medium through which one expresses musical aptitude. Although performance is the most visible and easily assessed form of musical talent, there are other means of expression. Hagen (1980) states that the ability to perform in a chosen area is at present the best indicator of musical talent. His comment that it is the 'best indicator' suggests that there are other areas outside performance where musical talent may manifest itself (composition or arranging music). However, these are more difficult to assess and require the development of more sophisticated skills before they can be manifest (sense of harmony, notation, musical experiences, etc.). Performance then is the most obvious indicator of musical talent but not the only one. Adults working with musical children need to be aware of this multiplicity of potential talent.

Another misconception commonly found is that a person needs to be born with an appropriate aptitude or natural gift. In other words, children need to be born musically gifted to become outstanding musicians. Musical ability and future achievement are not determined by birth alone, but by the interaction of self with the environment. The term ability, refers to the state of being capable of an activity. We are all born sensitive to and capable of musical activity. Fox (1991) found that premature babies were immediately responsive to music although they had no musical experience in the typical sense and their prematurity created many physical limitations in their development. The degree of achievement, the accomplishment of an activity, is not as universal. Neither ability nor achievement can develop without musical experiences in the environment.

There is also a belief about the gifted which is applicable to the musically gifted. It is that, 'talent' will out where ever it exists. This implies that intensive efforts by parents or others to encourage the development of the gift during a child's earliest years, are not needed. Studies of child prodigies who maintained distinguished careers into their adult lives revealed that this was not true. The musicians, with others, stated that their adult success was made possible by the unusual educational opportunities that were provided in early childhood (Howe, 1990). Parents, good role models and teachers play critical roles in maximizing musical talent development.

Other misconceptions are: a) if you are gifted musically, you are gifted in all areas of music, b) musical giftedness is a non-changing quality, and c) musical giftedness and intelligence are always present together. These are easily disproved. First, just because you are an excellent sprinter does not mean that you are an equally good long

distance runner, though both are running. Though both are performance, excellence in violin does not guarantee excellence in piano. Secondly, winning Sports Person of the Year once does not guarantee that you will win it every year. Excellence changes and develops as we change and develop, and as society's expectations of excellence change. Excellence is a term assigned by society and arises from the interaction of a person with specific events and situations rather than a stable trait (Sloboda, 1990). Finally, intelligence can make understanding and formal learning easier, but it does not guarantee the quality of the musical work (ie. idiot savants). Shuter-Dyson (1985) found that musical talent levels of outstanding musicians seemed to exceed their general intellectual capacity. In the Yehudi Menuhin School for gifted musicians, IQs varied from 93 to 166 with the average being 130 (Feldman, 1987). Genetics, environment, culture, and societal elements all work in conjunction in the expression or suppression of developing musical talent.

Researchers have attempted to be more specific about musical giftedness. Flohr (1987) attempted to look at its possible components and found that it was not a set quality but manifested itself in different ways ie. rhythmically, tonally, or instrumentally. Judd (1988), who uses musical capabilities and musical talent interchangeably, concurs when he states that musical talent is not a unitary trait but one that is made up of many forms having contributions from separate areas of the brain. Serafine (1988, as cited by Colwell, 1992) argues that musicality springs from mental operations that are common to creating, listening and performing. The individual trait, musicality, then does not exist. Therefore, performance and other manifestations of musical talent are made up of a conglomerate of varied, multiple sets of traits/skills.

Talent manifestation is not just performance nor is it a unitary entity. It is not something only some of us are born with. It requires careful development as it changes. It can be a very specific musical skill and its presence does not guarantee excellence in any other area. Working definitions of musical ability (as dealing with potential) and musical achievement (as dealing with actual accomplishment) have been identified.

What is Musical Talent?

Gifted or talented performance is different from technical competency. It would appear that competency uses learned skills predictably while the gifted can combine learned skills in an intuitive way that produces results beyond the competent performer. This argument of a technician versus a master or an artist is also part of the search for a definition of musical talent. A good technical ability does not necessarily correspond with a high musical ability (Gordon, 1971). This is true in all musical forms but is easiest to comprehend and explain in terms of instrumental performance. Fliegler (1961) compares musicianship to poetic composition;

"While a sensitive ear and facile technique are certainly important basic factors for musicianship, they do not embrace all of the hierarchy of interrelated musical capacities necessary for full musical expression, any more than the fluent application of syntax in grammar guarantees poetic expressions" (p. 314).

Musical talent is not only technique and a good ear for music but is something more. Gordon (1971) identifies that extra ingredient as musical aptitude. This is the basis for the performer's sensitivity to musical expression and musical meaning; the means by which the musician interprets the music through technical ability. Talent then has a close relationship with aptitude, while the potential level

of achievement is a result of that aptitude.

It must be remembered that musical aptitude does not equal musical achievement, as a high musical aptitude does not guarantee a corresponding high level of achievement. Gordon (1971) states the relationship between musical aptitude and musical achievement is considerably less than the relationship between intellectual aptitude and academic achievement. This relationship is possibly a result of different levels of environmental support. The intellectually able are often supported and encouraged to achieve well by family and the school. This is not the same for the musically able. Musical achievement does not appear to be valued to the same extent as intellectual achievement as society is much more willing to accept musical illiteracy.

Aptitude is a product of innate potential and early experience but it is not affected by drill or practise (Dorhort, 1982; Gordon, 1971). However, Gordon (1971) cites studies (Fasha, 1960; Tarrell, 1965; Gordon, 1968) that found it can be influenced by early musical exposure until the age of nine or ten. Pendarvis, Howley and Howley (1990) concur by citing several studies that demonstrate aptitude can be increased if music instruction starts early. If it cannot be affected by drill or practise, how is it that aptitude can be altered? Shuter-Dyson (1985) speaks of something called fluid intelligence. This form manifests in tasks that call for new solutions and is developed through incidental learning and is measurable. It is through this incidental learning that aptitude can be altered.

Gordon (1971) identifies three main components of musical aptitude:

- 1) tonal imagery: to hear, recall, understand and anticipate musical sound through this imagery.

- 2) rhythmic imagery: senses of tempo, meter, tension, giving insight into different musical styles.
- 3) aesthetic expressive/interpretive imagery: the unifying element that combines tonal and rhythmic aptitudes, creating musical sensitivity.

Each of these components may develop to different degrees. They develop over a long period but may cease to improve beyond a certain level in spite of further training. (Colwell, 1970, as cited in Shuter-Dyson, 1982).

Fliegler's (1961) search for what differentiates the technician from the artist ignored the concept of aptitude and suggested that 'the something more' in talent (besides technique) was 'musical intelligence'. This was what moved the musician beyond the exhibition of accurate technique and added the interpretive or artistic quality to a performance. This theory was picked up again by other researchers, particularly Gardner, in the following decade.

Musical functioning is not just a matter of 'talent' with its implication that some people just happen to be born with this gift, but instead, it is a manifestation of the ability to know, to operate cognitively in the domain of musical knowledge. Gardner's (1983) "Theory of Multiple Intelligences" expanded on this idea by looking at these intelligences as relatively independent, with modular (rather than global) ways of knowing, and generalized intellectual power. He proposed at least seven relatively autonomous forms of 'intelligences': linguistic, musical, logical-mathematical, spatial, bodily-kinaesthetic, interpersonal and intra-personal. Each intelligence is based initially on a biological potential that is then expressed through an interaction between genetic and environmental factors. Most people are differing blends of these intelligences. A person considered musically talented would have a greater than average degree of musical intelligence. This line of reasoning continued

with O'Conner and Hermelin (1987, as cited by Radford, 1990a) who concluded that one has to conceive of some form of 'musical intelligence' which is at least partly independent of general intelligence.

The role of general intelligence itself in relation to musical giftedness is unclear especially when considering the cases of idiot savants. Radocy and Boyle (1979) claim that intelligence probably relates strongly to musical ability. This is not true. Gordon (1971) argues that the relationship between musical ability and academic intelligence (IQ) is positive but low. He quotes numerous studies to show that the relationship between intelligence and musical achievement is higher than the relationship of intelligence and musical aptitude (Colwell, 1964; Cooley, 1961; Moore, 1966). It is achievement that is related to intelligence, not ability.

It is possible that Gordon's definition of musical aptitude and Gardner's musical intelligence are describing the same phenomena: an innate ability that we all have to varying degrees, which determines the potential development of musical skills to a particular level. It is one ingredient towards exceptional performance in the musical field.

Musical talent then is aptitude, or a form of intelligence that is expressed or suppressed through the interaction of genetic and environmental factors. It is not just musical achievement. If musical talent is a form of intelligence, then it should be distributed throughout the population in the same way as we presently view general intelligence. It is not a question of having or not having musical talent, but of how much (Gordon, 1971). Blacking (1971, as cited by Shuter-Dyson, 1982) proposes that human beings possess musical competence similar to the linguistic competence

postulated by Chomsky¹ and that average musical ability is as universal as average linguistic competence.

Not all authors agree with this statement, as evidenced by Reimer (1989) who claims that musical talent is randomly distributed and found in a very small population. Reimer appears to be speaking of musical achievement and not musical talent. If Gardner's theory of multiple intelligences is accepted then Reimer's statement cannot be true, unless Reimer is dealing with the extreme top of the gifted range, the child prodigy. At this point the two can be reconciled.

Where does talent come from?

The argument of nature or nurture continues without any clear resolution in favour of one over the other. It is now generally accepted that both have influence on the emergence of exceptional ability. Genetics presents the potential while the environment (hopefully) nurtures and encourages optimum development.

Genetic Influences

Authors such as Howe (1990), Shuter-Dyson & Gabriel (1981), and Goldsmith (1990) recognise that genetics have some part to play in the emergence of musical ability. Ability is the capacity for music, which is not the same, but is related to aptitude.

The argument about the inheritability of musical talent began with Mjoen (1926, as cited by Shuter-Dyson & Gabriel, 1981) who claimed that the proportion of children who were musical corresponded with the number of grandparents with talent. Where three of the grandparents were musical, 90%

¹Chomsky argued that the human organism is biologically predisposed to excellence in a few specific cognitive skills and that there are special mechanisms for acquiring these skills that are not part of the general cognitive capacity (Sloboda, 1985).

of the children were likely to have musical aptitude. If only one grandparent had talent then only 50% of the children were musical. Another researcher, Scheinfeld (1956, as cited in Shuter-Dyson & Gabriel, 1981) found that an analysis of the incidence of talent in musical families showed that where both parents had musical talent, more than 70% of their children also had talent. When only one parent was talented, there was talent in 60% of the offspring and where neither parent was talented, only 15% of the children were talented.

Some genetic theories, explaining how or what this inheritance factor is, are quite simple. Noy's (1968, as cited by Shuter-Dyson & Gabriel, 1981) theory states that aptitude for music may be due to a biological oversensitivity to sound. The trait is directly passed along by parents to their children. Others, which are discussed below, get into more complicated gene inheritance theories.

To explain why one appears to be more musical than another, Scheinfeld (1956, as cited by Shuter-Dyson & Gabriel, 1981) puts forward the theory of a multiple-gene mechanism. This would involve two dominant genes resulting in a higher than normal musical aptitude, as neither a single dominant gene, nor two recessive genes could account for the ratios of musical children to musical parents. These could be passed on by only a single parent to a given child, or each parent could give the child one of the required genes. This would account for musical families. These genes would act either to intensify the effects of the more ordinary 'aptitude' genes or to produce some unusual supplementary effects. Children born into musical families who are not musical simply did not inherit the two dominant genes. This though does not explain the emergence of unusual talent (above average ability) in a non-musical family. Mozart and his sister are cited in such arguments as there was no great musician in their family before or after their appearance.

However, musical ability is not the only area where genetics may play a role. Howe (1990) states that it is quite possible that there are inherited biological differences between people that account for the fact that only a few individuals become outstandingly capable. He believes that these differences do not exert their influence until after the earliest years of life. They are likely to be psychological characteristics, some of which are inborn and possibly inherited.

From Korner (1973) we know that there are individual behavioral differences between infants at birth that are not determined by postnatal experience. These differences then are inborn and associated with the infant's temperament. Kauffman (1989), though speaking about the inheritability of behavioral disorders, argues that we inherit predispositions to certain behavioral characteristics. This argument does not suggest how we are born with a different amount of musical aptitude or intelligence, but rather explains the presence of those behavioral traits that allows us to maximize the development of musical aptitude.

There is difficulty in accepting these gene theories as the environment plays such a large role in the emergence of ability. It is not possible for researchers to tease out the purely genetic influences concerning non-visible characteristic manifestations. It is physically impossible to study an organism that is completely removed from any environmental influence. To exist is to exist in an environment and to be born involves genetic inheritance. They cannot be completely separated.

Environmental Influences

Social and physical environments play major roles in helping to determine musical success in later life (Doxey & Wright, 1990). Musical skills and achievement, and to some

degree aptitude, are developed through the child's interaction with his or her environment (Sloboda, 1985). A good musical environment (Gordon, 1971) and a supportive cultural environment (Goldsmith, 1990) are both necessary for the maximum realization of innate potential. Cultural values and priorities support or discourage the pursuit of particular areas of study. However, it must be remembered that environment and experience are not the same thing. The same situation environmentally experienced by two different people may produce two completely different reactions. We are also not just passive elements in the environment, but exert our own influence in moulding the environment to meet individual needs.

Radford (1990a) found that the home was of supreme importance for the musical child. This is not surprising as musical talent is one of the earliest manifesting abilities when the home is commonly the main environment. Parents play a critical role in the initial recognition and response to early expressions of talent. Exposure to the domain is necessary before any learning is possible and that child's early exposure is completely in the parents' hands. As the child enters school, that system also assumes responsibility for introducing various domains of learning. Active participation in the domain requires access to equipment and some instruction about the rules and what to do. If the environment supplies that exposure and opportunity for active participation, then, systematic practice and training will be taken up by the child (Ericsson, Tesch-Romer, & Krampe, 1990). If parents are unaware, insensitive, uninterested, or otherwise unable to respond to indications that their child is doing something quite unusual for his or her age, then the fledgling talent may remain neglected and relatively undeveloped (Goldsmith, 1990).

Martin (1976, as cited by Shuter-Dyson & Gabriel, 1981)

felt that factors associated with the home and social environment were more important than personality factors in the making of a musician. Radocy and Boyle (1979) agreed that environmental influences probably play a greater part in determining musical ability than do genetic influences. This would be especially true for the able child who was less adaptive or less resilient to negative environmental factors that repressed musical development. However it can be equally argued that a child lacking key personality traits will also not develop exceptional ability no matter how supportive the environment. It is probably safe to say that for most musical children the environment is critical in maximizing the level of achievement. While a supportive musical environment, rather than an indifferent or negative one, does not guarantee exceptional development, it is more likely to encourage optimal development of potential.

McCurdy (1983) describes a typical developmental pattern for exceptionally gifted students. He noted that there was a high degree of attention focused upon the child by parents and other adults, which was usually expressed in intensive educational measures and abundant love. Secondly, there was isolation from other children, especially outside the family and thirdly, there was a rich 'efflorescence of fantasy', as a reaction to the two preceding conditions. It is possible that these factors also are present for the exceptionally musically gifted child.

The environment is what determines musical achievement and has some affect upon aptitude, but it is potentially genetics that determines the initial level of musical aptitude. Both are necessary for the musician to develop. Neither nature nor nurture alone can make a musician (Farnsworth, 1968 as cited by Shuter-Dyson & Gabriel, 1981). Shuter-Dyson and Gabriel argue that optimizing the conditions for the expression of talent requires focus on

the family, the particular domain and psychological factors.

Development

Since everyone is born with potential musical ability, what is its normal developmental path?

Children's musical development starts at the foetal stage. Here, aural perceptions begin to develop with the initial awareness of sound qualities and the relationships between sounds (Buckton & Manins). After birth, infants continue this development by responding to various musical stimuli. The infant progresses through stages of pure listening, to motor response and finally vocalization (Moog, 1976, as cited in Shuter-Dyson & Gabriel, 1981). Shuter-Dyson and Gabriel quote Michel (1973) as describing the first six months of life as the period of 'learning to hear'.

At ages one through five, it appears that knowledge is incorporated into action before it can form the basis of judgement (Sloboda, 1985). There is an increasing propensity to imitate words, then melodic fragments, and then whole songs. Spontaneous music making (singing) is slowly replaced with culturally specific musical idioms, as the child moves towards exact imitation. Spontaneous musical experimentation will slowly cease by the age five if it is not encouraged. At age three, imaginative songs begin to appear. These will slowly become organised in accordance with tonal and metrical rules. Physical responses become more controlled and matched to the rhythm of the music. Short periods of accurate time keeping are possible. Significant concept development is possible with rhythm patterns, timbre, volume, tempo and duration changes. There is a slow increase in the desire for mastery and precision of learned material. These children are more likely to listen to music (cf Buckton & Manins).

Ages five through eight are the crucial ages where the child consolidates the vocal and motor skills gained during the previous two years. Now the average music student begins to sing correctly. Differentiation skills appear in the areas of timbre, volume, pitch, mode, harmony, melody and duration. A greater understanding of tonality emerges. An ear for harmony develops in terms of key structure and cadences. Active competence (intuitive doing) changes to reflective awareness (understanding the doing) of the structures and principles that underlie such competence (Buckton and Manins). By age nine, the child is capable of competent musical performance and basic composition.

If the above brief description is the typical development of musical skills in all children, then are there differences in the development of the musically gifted child?

Gordon (1980, as cited in Pendarvis, Howley & Howley, 1990) proposes that the developmental pattern of early skills (musical activity) probably does indicate talent by the ages of five to nine. However, musical aptitudes are often deeply latent in the individual and may initially fail to find the means of manifesting themselves. Musical instinct (referring to talent) does not always emerge of itself but requires to be brought out by training in association with musical ideas (Jaques-Dalcroze, 1967). This concept is supported by Howe (1990) and Feldman and Goldsmith (1986) who feel that early prodigious achievement does not occur without extensive and usually formal instruction.

However, Sloboda (1990) speaks of a myth that musical excellence depends on individuals receiving formal training or tuition from more experienced musicians. He uses examples of jazz musicians who achieved exceptional performance standards without 'lessons'. These lessons did take place though. They were not organised along the same

lines as those received by classically trained people. However, the behaviours of listening, analyzing, comparing, studying, and copying master musicians are exhibited by both the classical and jazz learner during their 'lessons'. A master musician (professional jazz musician) would act as a mentor and role model for the jazz learner. Jazz lessons would proceed along a discovery line rather than the more rigid formal classical lesson. This is a reflection of the nature of the style of music being performed, which in turn influences the lesson style. Excellent jazz performance skills do not suddenly appear in isolation and there are many years of work, practice, experimentation and lessons, just as there are for the classically trained musician. There are no shortcuts to musical greatness. Years of careful preparation are required to reach high levels of competence in any form of musical expression.

Fliegler (1961) said that musical talent revealed itself during early childhood by strong curiosity and sustained interest accompanied by the desire to create musical sounds through some particular means of expression. The expressive drive need not necessarily be evidenced through the actual performance of music on an instrument or in singing. It may be revealed by motor and bodily movements which are triggered by the music that the child hears. He or she may respond to the rhythms and tempi of the music, or to variations in volume, as well as to vocal and/or instrumental tone colours. These show only that music has a strong appeal to the child and do not necessarily indicate a high degree of talent. However, the intensity of the involvement and the age at which the behaviour becomes evident may suggest the presence of talent. One problem is that all children will exhibit these behaviours as part of their normal musical development and parents may not be capable of objective differentiations between what would indicate talent and what is normal development. If the development is the same (perhaps only faster) for

musically gifted children, then how are these children different from other children who do not develop their musical gifts?

Internal Characteristics

What characteristics are found in the musical child? First of all, what are the characteristics of the child prodigy. These children should strongly exhibit any characteristics that may be specific to their area of ability.

Feldman (198) and Feldman and Goldsmith (1986) define a prodigy as a child who has attained an adult level of performance in a cognitively demanding field before the age of ten (as cited in Goldsmith, 1990). They do not suddenly appear. They begin at the beginning and progress through the levels of mastery, much as anyone else, seeking to learn the content and techniques of a field (Goldsmith, 1990). It is likely that the developmental difference is the speed with which they travel through those levels and possibly the age at which they start their field exploration.

They are extreme specialists. Mastery and control over their field at an early age are achieved with relative ease. There are few start up problems (eagerness to learn, the presence of good teachers and the instrument is at hand) and few delays between first forays and real achievement in the field (Feldman & Goldsmith, 1986; as cited by Goldsmith, 1990). Goldsmith (1990) found that prodigies characteristically display intense, focused, and dedicated study of their chosen field. They possess an unusual confidence and sense of inner security about their special abilities. Through autobiographical reports, it is clear that most exceptionally successful individuals do not regard themselves as outstandingly intelligent but rather unusual in their doggedness, persistence, curiosity, attentiveness, strong-will, independence, self-direction,

enthusiasm, energy, self-confidence, assurance and/or determination (Howe, 1992). Gifted people are obsessively interested in their area(s) of special ability, have an unusual ability to resist the distractions of every day life, can ignore discouragement or ridicule, and can persist in working towards their goals in the face of repeated failures. They are more curious, more keenly interested, or more strongly driven to succeed. Although Howe is speaking of gifted intelligence, do these traits appear in the musically gifted? Why does one domain attract such intense interest in the child? Do musically gifted children also show an earnest interest but to a lesser intensity than the musical prodigy? Environment alone cannot account for these developmental differences, so these personality factors impact on field development as well.

Howe (1992) attempts to remove the aura of mystery from the prodigy. He argues that extraordinary people gain exceptional abilities in ways that are not totally different from those in which ordinary people can acquire exceptional skills (Howe, 1990). Therefore, anyone could achieve prodigious results. Practise though, is not enough in music. Large amounts of practise may produce an excellent technician but not a musical prodigy.

Ericsson and Crutcher (1990, as cited by Ericsson, Tesch-Romer & Krampe, 1990) showed that about ten or more years of practice and preparation are required to attain an international level of performance in the arts, sciences and sports. It is agreed that practice is necessary, but it is not the amount alone which yields results. Ericsson (as cited in Radford, 1990b) claims that there are three criteria that must be satisfied for practice to result in exceptional performance: sufficient time for practice, instruction, and access to an instrument. These three criteria are only the environmental factors that need to be

present and are not sufficient in themselves to produce exceptional performance. The children themselves add a factor in how effectively these elements are used.

Aspy and Aspy (1985, as cited by Radford, 1990) continue the discussion by linking great achievement with great personal involvement. The quantity and quality of the involvement are other factors that influences the degree of success, as skills require time and effort and thus commitment to develop, whatever the degree of talent. Other factors are the desire for mastery, and discipline, as both these also motivate the learner towards great achievement.

Talent and commitment are correlated. However, the resulting level of achievement is due to the degree of each that is present in the child. Any one standard of achievement can be due to high talent/low commitment blend or a low talent/high commitment combination.

Radford (1990) agrees that musically gifted children are typically ordinary in other respects but they do show the personal control and characteristics necessary for prolonged and steady practice. Feldman and Goldsmith (1986) concur that persistence is required.

On the other hand, the Yehudi Menuhin School looks for a talent indicator that is less obvious. For their future young student musicians, the school looks specifically for evidence of an appetite for music that is insatiable, and so strong, that without music, the child would feel deprived (Howe, 1990). Norris (1983) noted that during auditions, the children were observed for indications of their genuine love and need of music, and, their ability to communicate (to move and compel the listener). It would then appear that the prodigy expresses various personality traits that are unique to them as a group. Are these same

traits present in musically gifted children but to a lesser degree or are they only present in the prodigies?

Besides studying the prodigies' musical and personal characteristics, authors have tried to identify various skills that are critical for exceptional musical development. Shuter-Dyson and Gabriel (1982) argue that aural abilities are primary prerequisites for musical learning. Shuter (1968, as cited by Pendarvis, Howley & Howley, 1990) specifically narrows aural abilities to absolute pitch as helpful in exceptional musical achievement but not essential. If begun early enough, perfect pitch is a skill that can be learned (Shuter-Dyson & Gabriel, 1982). Judd (1988) states that musical memory is central to musical talent, as the capacity to remember musical material and to think musically appears to be a consistent companion to the successful development of many types of musical talent. Judd qualifies this with the recognition that musical memory is not a unitary skill but involves a rich set of associations of musical sounds with ideas and images in other modes and modalities of thoughts. This appears to be related to one part of Gordon's definition of aptitude. The association of musical sounds with ideas and images (Judd) matches tonal imagery and rhythmic imagery (Gordon) but recognises that these skills do exist in other domains. Musical talent therefore requires the successful integration of musical memory with many other skills from many brain areas to achieve a musical end.

External Factors

Shuter-Dyson and Gabriel (1982) believe that the greatest challenge to developing musical ability, is creating and maintaining the conditions that would support its development to high levels of competence over the long term. Howe (1990) claims that the majority of ordinary people can also gain exceptional skills if there are

opportunities for learning, sufficient support and encouragement, and enough time for training and practice. This is true if one accepts that musical ability is like linguistic ability and exists in differing degrees rather than a yes/no proposition. But what motivates the child into the commitment required to develop those skills to an exceptional level? This is the dividing line between great technique and mastery. Howe's conditions merely guarantee great technique. Are the great composers, performers, artists and scientists then merely one step further along the ability continuum and 'talented' an illusionary concept? Yet, there appears to be more to these people than just excellent technique.

Hagen (1980) stated that motivation is an important indicator of potential giftedness. Howe (1990) stated that motivational factors are always heavily involved with the most exceptionally successful intelligent individuals. To what degree is this valid for the musically gifted as well? What motivates the musically gifted child to begin and continue those many years of work?

Goldsmith (1990) and Feldman and Goldsmith (1986) stated that prodigious talent would only develop if three critical factors converged. First, the individual child had to possess a particular ability in combination with other talents, interests, and strategies for dealing with the world. Secondly, there had to be other individuals who would monitor, guide, and facilitate the child's development. Bloom (1982, as cited in Pendarvis, Howley & Howley, 1992) noted that students' achievement required a strong familial commitment (financial and emotional). Finally, the socio-cultural forces which would set the tone and allow for the opportunity for the development of unusual talent, had to be in place. Shuter-Dyson and Gabriel (1981) found that support of the people and communities was critical. The community had to value the

individual's activities and efforts in the pursuit of excellence. The communities provided repeated demonstrations that the students were engaged in learning which was relevant to their lives.

3. METHODOLOGY

Research Questions

All musicians have a stable, common core of personality traits and behaviour characteristics. This is supported by Kemp (1982b, as cited by Shuter-Dyson, 1985) who claims that all musicians have a pattern of traits (behaviours) that could be interpreted as facilitating the process of developing the motor, perceptive and cognitive skills necessary for musical performance. Hargreaves (1986) suggests that there exists a common core of personality traits that characterise the musician. He quotes a study by Kemp (1981) that shows that this central trait profile is stable throughout the course of development from childhood through to professional life. If musicians have these traits and characteristics from their childhoods, can they be used as indicators for potential musically gifted children?

As indicated earlier, research has established that there are characteristics associated with the gifted, prodigies and musically successful adults. The New Zealand Department of Education in 1986 indicated in their definition of gifted and talented children that an individual was also deemed to be gifted if they displayed high ability in the performing arts. Therefore, musical giftedness is a separate manifestation of exceptional ability. What then is the relationship between the characteristics of the musically gifted and those gifted in other areas? If musical prodigies are the extreme of ability manifestation, what characteristics do they share with the musically gifted? Which of the traits found in the musically successful adult are found in the musically gifted child?

To explore these trait relationships with musically gifted children, the area of performance will be studied. It has

been noted that performance is only one specific manifestation in the field of music. It is also the most visible and easiest to assess in terms of exceptional ability.

This thesis will explore the common core of personality traits and characteristics associated with twenty musically gifted children who are successfully studying performance. They will be investigated with respect to the following:

- 1) Are the characteristics and personality traits of the prodigy similar to those of the musically gifted child?
- 2) Are the characteristics and personality traits of the gifted child similar to those of the musically gifted child?
- 3) Are there any characteristics or personality traits that are unique to the musically gifted child?

Researchers have established how musical skills emerge for the majority of the population, but not for those who are musically gifted. What is the developmental path for their skills? The answer will influence how we deal with the musically gifted, as we know that talent development is a long range process. A good musical and nurturing environment is critical for maximum talent realization. We do not know if the musically gifted have special educational needs that are different from other children (gifted and non-gifted)?

As we are concerned with the best way of educating children, two further questions about musically gifted children will be examined:

- 1) Is there a difference in the development of the musically gifted child from that of normal musical development found in most children?
- 2) If there is a developmental difference, then how does the music education program that exists in today's primary schools, impact on the musically gifted child?

Methodology

The purpose of this study was to attempt to identify those characteristics and personality traits that were potentially specific to young musically talented children around the ages of five and eight. A brief look at their musical development and the possible impact of their school environments would also be probed. This view of the able young musician would be interpreted through their own perceptions, as well as those of their parents and their private music teachers.

Study Format

A case study format was decided upon as this best suited the exploratory nature of trying to determine if there are characteristics specific to musically gifted children. Pendarvis, Howley and Howley (1992) found that case studies in the USA are typically used for instances where its difficult to obtain a sufficiently large sample to permit quantitative analysis. That is applicable to this study.

Survey methods were the easiest form of data retrieval to deal with the posed questions. The parents and teachers were given self-administered questionnaires while the children had a recorded interview. Isaac and Michael (1972) state that interview techniques are especially appropriate for young children. These interviews were organised along a semi-structured format (with its moderate levels of reliability and flexibility) allowing the researcher more scope in putting the subjects at ease and

pursuing promising lines of questioning. The interview protocol and a sample interview are given in Appendix E. All interviews were conducted by the researcher, so any inherent bias is consistent throughout.

There were concerns that the potential population pool of musically talented children would be small and prove difficult to locate. It was decided to use music teachers (field experts) as the source of potential subjects and have them nominate those children whom they perceived as musically gifted for study inclusion. Accidental quota sampling (Dixon, Bouma & Atkinson, 1987) was used to determine which twenty of these nominated children were included. The selection criteria were: an age restriction of five to eight years old and the presence of musical talent. Random sampling techniques were not used as only the one small group would be studied.

Why children?

The adult cannot be a simple extrapolation from the child, because many adult qualities do not exist at an earlier age (Radford, 1990a). The corollary then should also be true. The child cannot be a simple extrapolation from the memories of the adult. Memories are not concrete but fluid allowing most to alter with time and other influences. Major studies which touch upon the personality characteristics of gifted musicians have worked from the memories and experiences of successful adolescent or adult musicians and/or composers. Cox (1926) looked at the historical evidence of adult composers. Bloom (1985) studied subjects between the ages of seventeen to thirty-five. Sosniak (1985) talks about successful pianists who worked for a minimum average of seventeen years.¹ Only

¹Sosniak speaks of a five year study noting that the pianists worked on average for 17 years before their first international recognition. The fastest was 12 years. If this pianist started lessons at age 3, the youngest member of the study could only then be 15.

Terman's (1926) study of genius touched upon the musically gifted child.

There are two questions here. Are these valid memories, or are they romanticizations of what should or could have been? Secondly, those who do succeed on the world stage are extremes, what about those other musically gifted people who choose to successfully carry their gift into their adult lives as professionals but not necessarily as concert soloists? By using children as the focus of the study, we have gone back to the beginning, the original source. Dalton and Smith (1989) express the opinion that self-evaluation is generally an accurate source of information. Then, the first hand perceptions of these musically gifted children should provide valuable data about those qualities that may identify their talent or affect its development.

Why the age group?

Davidson and Scripp (1988) stated that five to seven years of age is a period of considerable change in most children's learning and perception modes. This is the same for music cognition. Michel (1973, as cited in Shuter-Dyson & Gabriel, 1981) has suggested that the ages between five and six are particularly important for the development of musical reproductive abilities. Petzold (1969 as cited by Buckton, 1981) stated that the most significant changes occur between grades one and two (ages six to eight). However, Shuter-Dyson and Gabriel themselves suggest that there are many significant changes taking place in all of the middle years of childhood. By age nine, the child has the cognitive and physical capability to be a competent musical performer and composer. It appears then that a critical amount of learning is going on before the age of nine, with the greatest amount of change beginning to occur around the age when children enter school.

Gardner (1983) argues that a child proceeds on the basis of sheer talent and energy until the age of eight or nine. He basis this on Bamberger's (1986) studies which showed that there were two contrasting ways of processing music, the figural approach and the formal mode. Children use the figural approach, which is global and intuitive. Bamberger (1986) also suggests that there is a cognitive crisis in how the musically gifted adolescent processes music. Therefore, any musical traits exhibited by the children using this figural approach would be more closely associated with their degree of talent rather than their degree of intellect.

Revesz (1953) stated that 50% of musically gifted children show their aptitude between the ages of two and six. Haecker and Ziehen (1922, as cited by Fliegler, 1961) found in their study of 441 subjects that talent emerged in 83.4% of the boys and 90.4% of the girls before ten years of age. Scott and Moffett (1978) argue that most performers have shown their talent before puberty. Therefore, talent generally manifests itself around the primary and/or intermediate school years. This agrees with Murphy (1990) who suggested that a high level of ability frequently becomes apparent in the middle and late years of a child's primary schooling.

It was decided to focus only on the primary school years as this was where: musical talent generally manifested, music learning was intuitive, musical reproductive abilities established, and school started to play a major environmental role in the child's life. The role of the school and the private music teacher are particularly important as Gordon (1980 cited in Doxey & Wright, 1990) found that musical aptitude is flexible, and therefore can be increased until the age of nine.

The final point that helped to established the age

parameters of the study was the availability of an appropriate musical aptitude tests. There were two tests available for use with primary school students. Bentley's (1966) "Measures of Musical Abilities" is one that appears to be commonly used in New Zealand. It is appropriate in that it tests the seven to fourteen year age group, but the third test of chord analysis was deemed to be difficult for the younger children (Buros, 1972 as cited by Shuter-Dyson & Gabriel, 1981). Another problem with the test was that it omitted the five and six year old children. These children were to be included because they are at important ages for learning and for the manifestation of talent. This was also the beginning years where the school starts to assume a role in the identification and nurturing of that talent. Instead, the "Gordon Primary Measures of Musical Audiation", which tests the five to eight year old, was examined. Since its target age group was smaller, there was no need to cater to the more sophisticated older student, and its tests were much shorter and simpler to administer. The age parameters were set then to match those primary students who could be administered the PMMA.

Colwell (1992) quotes research as finding no difference in musical aptitude between trained and untrained students after the age of seven, while others after the age of ten². He feels that most changes in musical ability come from maturation and not specifically instruction. He also states that there was no relationship of achievement to instructional method in 84% of two thousand students studied. Though training does have influence on musical aptitude on the five to eight year old age group, the style of instruction has little influence. All children used in this study had received some early form of formal training or lessons.

²Specific research was not given to support this statement by the author.

Why parents and teachers?

To support the data retrieved from the children, parents and five music teachers were given questionnaires. Dalton and Smith (1989) state that parents are generally an accurate source of information. Hagen (1980) voices the opinion that children, parents and teachers are good sources of information about giftedness in general, which is also applicable when dealing with musical giftedness. The parents were included to verify interview data given by the children and to give an overview of their child's development and his or her personality. The teachers were included to give an objective viewpoint of musically gifted children and to give personal data of their own development as examples of successful musical development. Hagen presents a few concerns with this data source group that must be considered. The children themselves are not objective observers, and may not be willing or able to reveal relevant information. Teachers do have direct observation of students in specific learning settings, and through that can give general impressions of all their students but they do not have an overview of any other learning situation. They also tend not to maintain systematic records of their pupils, so detailed development is not available. Parents have the advantage of observing their children in a variety of settings but they may not be objective in their observations. They may also have missed observations due to time constraints or lack of awareness. However, by using all three points of reference, the child's own impressions can be verified or balanced by the parent's observations and memory with objectivity supplied by the teacher. By combining all three sources and locating common data, a more comprehensive picture is formulated and the reliability of the resulting statements is improved.

How the study began.

The Education Advisory Service's music advisor for

Wellington District, was approached for the names of directors of various Saturday Morning Music Schools. He was also asked to recommend the names of prominent private music teachers who worked with the children's age groups needed for the study.

The Saturday Morning Music Schools were chosen for three reasons. The first was that they offer a large number of lessons in a variety of instruments. Secondly, as these lessons are reasonably priced, it was thought to minimize the effect of economics (cost of lessons) as a variable. For a small rental fee, these schools would also supply the instrument. Thirdly, it was believed that these schools would supply a large pool of talented children playing a variety of instruments from whom the sample could be drawn. The two private teachers recommended for contact were both Suzuki piano teachers.

The two nearest schools' directors were contacted and appointments were arranged to discuss the study. The directors then nominated various instrumental teachers who worked in the Saturday Morning Schools, for contact. These teachers and the two Suzuki teachers were subsequently contacted by mail and were invited to participate in the study themselves and to nominate a list of students that they felt were musically talented (see Appendix A for a copy of the contact letter). Of the eight responses from the thirteen teachers approached from the Saturday Morning Schools, only two answered positively with a nomination list of students' names. This was due mostly to the fact that the rest did not work with the five to eight year old age group. As a result, most of the children were nominated by the two private Suzuki teachers, with the rest supplied by the two Saturday Morning teachers, of which one was a Suzuki violin teacher. This meant that the study was restricted to two instruments, piano and violin.

The parents of each of the nominated children who met the age requirement were then invited by letter to participate in the study (see Appendix B for a sample of the parent letter). A sample size of twenty children was decided upon as ten to thirty cases are considered adequate for an exploratory study (Isaac & Michael, 1972). Each letter requested parental permission, contact phone numbers and reassured parents of the subject's anonymity and of their right to withdraw any time. Once these permission slips were returned, each parent was contacted by phone to arrange testing and interview dates. There was close to a 100% return rate from those parents invited to participate.

Each child was administered a Primary Measures of Music Audiation test (Gordon, 1979) to validate the teacher's perception of the child's level of musical talent. Pendarvis, Howley and Howley (1992) stated that Gordon's 1979 PMMA test was the best available aptitude test. It is one of the few tests that is designed specifically to work with young children rather than high school students and is designed to measure a child's basic music aptitude at a given point in their development.

The PMMA was specifically designed for children between five and eight years old. Children are asked to differentiate between two examples of patterns, one pitch based and the other rhythmic. They listen to two examples of a sound pattern and then decide if they were the same or different. If the same, they circled the two happy faces, if they were different they circled the sad and the happy faces. Reading ability was not required for this paper and pencil test, and as the child controlled the speed of the test, stress was reduced. There were also four practise questions at the beginning to familiarise the subject with the sounds, questions and speed of the tape.

The specific test results are tabulated to give a

percentile ranking according to the level (age) of the subject. The composite percentile rank of approximately 80% is used to identify musically gifted children.

The format requires two tests to be administered within a two week time line. Each test lasted between eighteen and twenty-eight minutes depending on the child. Most of the children were tested individually even though the test was designed to be administered to a class group. In two cases, siblings were tested simultaneously. As the tape could be stopped any time, all the children were invited to choose predetermined stopping places. If an answer was slow, the tape was stopped and started again when the child was ready. Questions were only played once. If a child missed the question, they were encouraged to guess. Again, it must be remembered that this test, like IQ tests, is an indicator only and deals with potential, not achievement³. Gordon (1971) himself states that aptitude tests do not evaluate a student's musical aptitude but offer a description of it.

Murphy (1990) said that several variables (time of day, individual difference and maturity) would affect the accuracy of aptitude tests. As a result of this, over 80% of the tests were administered to the children in their own homes immediately after they arrived from school. The specific design of the PMMA and the differentiated ranking levels addressed Murphy's other concerns of maturity and individual differences.

Once the tests were completed, the children chose whether

³Aptitude does not equal achievement though the two are related. Achievement is influenced by many things, ie. motivation, resources, teacher quality, interest levels etc. (Terman, 1981). High achievement must possess at least equally high aptitude, but high aptitude will not necessarily display high achievement (Gordon, 1979, as cited in Shuter-Dyson & Gabriel, 1981)

to be either interviewed immediately following the second test or at another time. This was a way of checking that the child was still interested and willing to participate. Interviews were taped on a small system with the children hooked to a microphone. A session of play with the microphone and tape recorder was held before the interviewing of the young children. The older children were actively involved with the recording (holding the recorder, pushing the buttons, deciding the placement of the microphone, etc.). All the children had the opportunity to hear themselves after the recording sessions.

Parental questionnaires were given out during the second testing of the children. Some parents elected to fill out the questionnaire immediately, leaving the child and myself alone to do the interview. Others elected to stay with the child, but out of the child's sight line, and returned the questionnaire through the mail, using the stamped addressed return envelope. 95% of the parental questionnaires were returned without any follow-up. Teacher questionnaires were sent out at a much later date (two months later). Samples of the parent's (Appendix C) and teacher's (Appendix D) questionnaire are given in the appendices.

Questionnaire

Questionnaires were specifically designed by the researcher for the purpose of this study. Each questionnaire was organised into three parts. The first part was a series of open ended, fill in the blank questions. This was followed by a Likert section giving a five part response scale. The final section dealt with a ranking question and two closing open format questions.

The open-ended section dealt with the biographical data, and general perceptions of talent. Here parents were asked specific developmental questions, their own definition of

talent, their perceptions of musically talented and non-talented children and whether they thought their own child was talented. The purpose was to allow parents to present their personal opinions, theories, or observations, and to establish the value of music in the family. The teachers were asked similar questions but about all of their students.

The Likert portion contained sixty-three questions for parents and twenty-seven questions for teachers, both with a five point response scale. These questions dealt with the child's specific development, practice habits, performances, school experiences and some personal characteristics and behaviour. These questions were seeking behaviours or specific traits that had been indicated by previous research as indicative of gifted children in general or of the prodigy. These same questions were asked the teachers but the focus had changed to their own development.

The final section gave a series of traits selected for ease of identification from research about the intellectually gifted, musically gifted and prodigies. Parents were asked to indicate (circle) and rank order the traits that were 'strongly typical' of their child. The last two questions asked parents to indicate any strong personality traits that were not represented on the list and to present anything that they had noticed about the developing musicality of their child that had not been touched upon previously in the questionnaire. The teacher's questionnaire asked them to perform the same exercise but they were to assess the characteristics that were typical of their childhood.

The actual questions for the interviews and the questionnaires were developed from gifted checklists discussed by Dalton and Smith (1989), Reid (1978), Hagen,

(1980), and, Kitano and Kirby (1986). Not all the traits listed or discussed by those authors were used. Special attention was paid to those traits that were identified in Kitano and Kirby (1986) as potentially indicating a gift in music. In support, they presented studies done by Bloom (1982), Chetelat (1981), Karnes & Associates (1978b), Luca & Allen (1974), Renzuli et al. (1976), and Szekely (1981). According to these authors, the potentially gifted in music tend to demonstrate the ability to perform certain musically specific behaviours. Characteristics of the gifted, prodigies and musically gifted that were used in the study are presented in Table 1.

Besides characteristics, personality traits were also examined to see where they matched other indications. These were developed from Terman's (1926) and Cox's (1926, as cited in Scott & Moffett, 1978) studies. A good working list, as presented in Table 2, was produced by teasing out those variables that related only to musicians.

The interview format and the questionnaires were all field tested. The taped interviews were practised singly with children in a local primary school who were the same ages as the study subjects. Reactions and responses to the questions, as well as reactions to the taping procedure were checked. Questionnaires were given to parent groups and music teachers. The wording of a small number of questions in the two written formats was reworked and resubmitted. The interview appeared to work well due in part to its semi-structured nature, allowing the interviewer to adapt the core questions and pursue points of interest (see Appendix E).

Limitations

The results of the questionnaires need to be considered against the degree of subject interpretation of the questions and of the scaling used in the Likert portion. The subjective responses of deciding on the frequency of a

TABLE 1. CHARACTERISTICS USED IN THIS STUDY

Gifted Characteristics	Prodigy Characteristics	Musical Characteristics
marked field commitment	enthusiastic	enjoys & seeks out musical activities
willingness to work	unusual ability confidence	willingness to work
field enjoyment	intense	responds sensitively to music
direct energy & effort towards field accomplishment	focused & dedicated study	desire to excel
rapid & easy learning	obsessively interested	rapid learning
curious	curious	picks out and discusses musical sounds
superior academic ability	sense of inner security	intellectual ability
works effectively on own	able to resist distraction	eager for crowd admiration
shows initiative & originality	self-directed	originality of ideas
has long interest span	unusually dogged	great strength of character
desirable personality traits	self-confident	tendency to be cheerful
sense of modesty	assured & determined	confidence in their abilities
prefers complicated games requiring thought or imagination	more strongly driven to succeed	emotional behaviour
unusual skills for age	ignore discouragement	play by ear
innovative use of common material		makes original tunes
breadth & depth of information	strong-willed	excitable
persistence	persistence	persistence
task absorption	attentive	
extensive exploratory behaviour		moves body in accord with music
preference for complex, novel or difficult tasks	persist in working towards their goals	early responsiveness to music
easy recall		easily remembers and reproduces melodies and rhythms
bored or frustrated with slow learning		
wide general knowledge		perfect pitch
reasons analytically & critically		competitive
prefers individual work	independent	fondness for large social gatherings

Gifted Characteristics	Prodigy Characteristics	Musical Characteristics
likes to invent design and create things		sensitivity and awareness of sounds
unusual imagination		
perceptive and sensitive to others		aesthetic feeling
concentrates for extended periods		self-control
physically active	energetic	hyperkinetic
		sensitive to criticism

Gifted Characteristic: Pendarvis, Howley & Howley (1990)
 Reid (1978)
 Hagen (1980)
 Dalton & Smith (1989)

Prodigy Characteristics: Goldsmith (1990)
 Howe (1992)

Musical Characteristics: Terman (1926)
 Cox (1926)
 Kitano & Kirby (1985)
 Bloom (1982)
 Radford (1990)
 Shuter-Dyson (1985)

TABLE 2 TERMAN'S & COX'S PERSONALITY TRAITS OF MUSICIANS

Terman's (1926) Study	
Musicians were above the group average in; (numbers indicate the differential between the musicians and the other studied geniuses)	
1.1	degree of sense of humour
	degree of excitability
	eager for crowd admiration
0.8	general tendency to be cheerful
0.7	fondness for large social gatherings
	originality of ideas
	tendency not to oscillate quickly between cheerfulness and depression.
	belief in own powers
0.6	degree to which works with distant objects in view
	tendency not to abandon tasks in the face of obstacles
0.5	sensitivity to criticism
	more action than thought
0.4	tendency not to abandon tasks from mere changeability
	degree of strength of will, perseverance
0.3	desire to excel at performance
	not strong on convention
Cox's (1926) Study	
Composers were different from the other eminent people in the study by being;	
lower than the group in:	intellectual activity
	physical activity
	social traits
higher than the group in:	emotional behaviour
	aesthetic feeling
	desire to excel
	belief in own powers
	originality of ideas
	youthful eminence

behaviour depend on familial environment and parent awareness. For example, in a highly musical family, the child's behaviour of instrument experimentation may not match parental expectations; so that behaviour is marked lower than it would be in a non-musical family environment. Also, the interpretation of behaviour is very subjective. A highly musical family may view early creativity as normal development while a non-musical family would view it as exceptional. The dependence on memory caused some problems with certain questions.

As this paper was exploratory in nature a less rigorous format was deemed acceptable. The focus was in people's perceptions of musical talent, so it was decided a first impression response would be a better indicator than a formal scrutinized response with numerically defined parameters. There was also a fear of making the questionnaires too weighty in terms of the demand on the parent's time and memory, thereby lessening the participant's good will. The parents and teachers were left to interpret what Almost Always, Frequently, Usually, Rarely and Almost Never meant.

A second concern arises in the interpretation of the results. It must be remembered that musical talent is not an isolated variable. The results could suggest several influences or reflect the participants' other talent areas. This means that this data does not and cannot reflect the precise reason for the behaviour that is thought to be related to musical giftedness.

Finally, the research design and the small sample size do not allow for generalizations to be made. The results reported in this study are only applicable to this small group of children.

4. RESULTS AND DISCUSSION

Twenty five children were nominated for this study by four teachers. Four children did not meet the age requirements and their parents were not approached for permission. Twenty-one parents were contacted by mail, resulting in twenty children being given aptitude tests. All twenty children were interviewed, but only data from nineteen were used for the study. This was because the gifted requirement for one was not supported by the aptitude result and she chose not to retest. There were eighteen out of nineteen parent questionnaires returned with one follow up call. There were four out of five teacher questionnaires returned after two follow up calls. The complete results for the second and third parts of the parent and teacher questionnaires are given in the appendices. The parent questionnaire, Likert result, can be found in Table F.1, and the teacher result in Table F.2. The results from the parent and teacher personality ranking questions can be found in Table F.3. Not all questions were answered by all parents, so parent totals may vary from question to question. Also, not all children were asked the same questions. A line of questioning would be abandoned if it was non-productive in favour of a more favourable area. The children also were not always able to answer all the questions.

The data presented below omits the Usually response column unless otherwise indicated. It was felt that the stronger responses on the five point scale gave a clearer indication of the presence or lack of presence concerning a characteristic. In accord with that, the Almost Always and Frequently responses are usually joined under the Almost Always heading. The Rarely and Almost Never responses are joined under the Almost Never heading.

Biographical Data

There were ten girls, and ten boys in the original number of twenty. Nineteen of the children were learning the Suzuki method of instruction (piano and violin). European, Polynesian, Asian (both New Zealand born), and Indian cultures were represented in the population. Language problems arose in one case where English language skills were still developing and only those questions on the parent questionnaire which were clearly understood were answered. There were no language concerns with the children. One child's development had been delayed and another child was receiving assistance with a speech impediment.

The original twenty children fell into the following levels for aptitude testing;

level K = 7 (5 girls, 2 boys, ages 4:10 to 6:8)

level 1 = 7 (2 girls, 5 boys, ages 6:9 to 7:8)

level 2 = 3 (1 girl, 2 boys, ages 7:9 to 8:8)

level 3 = 3 (2 girls, 1 boy, ages 8:9 to 8:11)

The age variance is due to this test being designed for the North American school system¹. The level divisions are based on the requirement that a child be five years old, on or before December 31 of the year they wish to enter Kindergarten. Using the children's birth dates, their potential placement in the American system was estimated (K=1987 birth date, 1=1986, 2=1985 and 3=1984). The four year old was one month short of meeting the initial age requirement and was initially included because of her teacher's insistence concerning her significant level of talent. Her ability to do the aptitude test and interview, plus her resulting score, confirmed her inclusion into the population even though she had not yet begun Kindergarten

¹Tests have been moving towards a model which is independent of culture, attainment, past musical experience, value judgement and the sound source. Gordon's test is one of those (Murphy, 1990).

in New Zealand.

Seven children were studying more than one instrument. There were fourteen children studying the piano as their primary instrument. The remaining five were learning the violin. Of those five, four were learning the piano as their second instrument, while only one pianist was learning the violin. Three children were also learning the recorder.

Doxey and Wright (1990) speak about how critical early experiences are to future talent development and in support, cite studies by Gordon (1979) and Shuter-Dyson (1985). The average age for starting lessons in this group of children was 3.25 years. The youngest was nine months and the oldest was five years of age.² Only five of the children correctly identified the age at which they started lessons. Parents indicated a number of reasons for beginning lesson, such as: for the child to gain the benefits derived from the Suzuki method, learning to play an instrument, to increase music appreciation and because music is a part of life. Teachers' answers supported these responses.

As presented in Table 3, nineteen of the children in this study were found to be musically gifted. The aptitude scores of the children did not appear to correlate with the parents' Likert scores³, nor with the strength of their musical environment. At the beginning of this study, it

²Nine months is not that unusual. The Suzuki method encourages early audience attendance of their pre-school music groups to ensure a musical environment is established and to encourage early learning through observation. Physical participation at lessons begins approximately at age three or four (Mills, 1973).

³Parent Likert scores are based on the sum of the strength of the answers (Almost Always=5, Frequently=4, Usually=3, Rarely=2 and Almost Never=1) divided by the number of questions answered.

TABLE 3. APTITUDE SCORES & POTENTIALLY RELATED COMPONENTS
IN THIS STUDY

Subject	Gender	Ap score	Likert Score	Birth Order	Indicator of Family's Level of Musicality
Kindergarten					
1	M	Off	74.28	2	mother = grade VI
2	F	Off	56.19	1	non-musical family
3	F	98	75.87	3	older sister
4	F	98	72.25	1	father
5	F	Off	84.44	1	mother = grade VIII
6	M	Off	63.80	1	exceptionally musical family
7	F	91	77.46	1	distant
Level 1					
1	M	99	86.22	1	exceptionally musical family
2	M	99	70.18	4	exceptionally musical family
3	M	Off	76.82	1	mother = grade VI
4	M	92	73.01	1	father
5	M	92	64.76	1	non-musical family
6	F	Off	73.77	2	non-musical family
7	F	95	72.33	2	mother = grade VII
Level 2					
1	M	99	68.19	1	father = opera singer
2	M	93	54.83	1	professionally musical aunt & uncle
3	F	98	71.33	1	mother = grade IV
Level 3					
1	F	90	75.89	2	older sister
2 *	M	93	0.00	-	-

F Female

M Male

* Parent Questionnaire not returned

Off Off the scale

Ap Score Child's Aptitude Score (percentile rank)

Likert Score = Total parental Likert Score (according to weighting) divided by the number of questions answered.

Parental Answer Weighting is

Almost Always=5, Frequently=4, Usually=3, Rarely=2, Almost Never=1.

had been thought that the higher the child's musical aptitude, the higher the display of musical behaviour, resulting in a correspondingly high parent Likert score. This was not the case. There also appeared to be no relationship between the aptitude score and the number of years the instrument was studied in this group of musically talented children. This is in contrast to Zdzinski (1992), who noted in his study of ten to fourteen year olds, that music aptitude was significantly related to both the subject's age and the number of years played. This is not surprising as the majority of those musically gifted children studied by Zdzinski (having a high musical aptitude) would have begun lessons much earlier and hence would have been studying longer. Also, the children would have self-sorted to a degree, so that those with a lower aptitude (who also had started lessons at an earlier age) would probably have quit by Zdzinski's age group.

Twelve children studied in this paper were eldest or only children. Freeman's (1984) study of musically and artistically talented British school children also had a predominance of first borns and only children. This also relates to McCurdy's (1983) comment that exceptionally gifted students receive a high degree of parental attention. Only children and first borns do receive a high degree of parental attention and encouragement. However, it is more likely that the predominance of these children in gifted studies is a reflection of parental levels of awareness and willingness to invest (emotionally and financially) in their child's talent development rather than these children having a greater degree of potential talent. Birth order is an environmental factor.

Of the other eight subjects, all had older siblings involved in music currently, or in the near past. It would appear that the older siblings have taken on some of the parental role of nurturing talent seen with the first born

and only children. In two cases, the older sibling had direct influence on the choice of instrument for the subject (in response to a question about why they started violin lessons);

"because I had heard my sister and I always wanted to play it then, cause I kept on singing the tunes" (M. age 8)

"I picked the violin because my sister was playing it, I thought it sounded nice." (A. age 8)

In Mills' (1985) 1982 study, it was noted that only 26% of successful musicians were influenced by family members in their choice of instrument. It was the same percentage for those who expressed a personal wish to learn that specific instrument⁴. The children in this study recognised that they had little input into which instrument was going to be studied. Input would have been unusual considering the ages at which the study group began lessons. Also, no one strongly objected to their instrument. It cannot be predicted at this stage if these children will achieve their long range success with the current instrument or one picked up at a later date.

The future making of a musician was under way in one family. Howe and Sloboda (1991) noted that the experience of living with an older sibling who was learning to play an instrument could do much to create awareness of music and provide opportunities for a younger child to become aware of the possibility of gaining musical expertise. The subject (C. age 5) was discussing his creative behaviour;

Int; Do you sing your songs to anyone?

C.; Sometimes to my sister.

Int; Does she sing along?

⁴the largest percentage (22%) of instrumental students had their choice of instrument influenced by an educational institute.

C.; No, sometimes she makes them up with me.

Int; So you do them together?

C.; Yes."

In this case, it was a younger sister who was being encouraged in her musical behaviour.

Aptitude Results

The test used to assess the children's musical aptitude was Gordon's (1978) Primary Measures of Music Audiation (PMMA). Six of the children (three boys and three girls) scored off the top of the measurement scale. All were in level K or 1, and the ages ranged from 4:10 to 6:11. Thirteen of the other children scored above 90%, while only one child scored slightly above the mean. Therefore, nineteen of the children scored in the top of the gifted range (see Table 3 for individual results). The child who did not score in the gifted range was offered a retest on the chance of an incorrect result. She declined, so her data was removed from the population grouping. However, some of her information and parental comments are included in the general discussion where appropriate.

The means for each level from this present research, as compared with the means given for each level in Gordon's Primary Audiation (PMMA) were:

Level	Means		PMMA S.D.
	Present Study	PMMA	
K	98.142	47.0	7.65
1	96.710	55.6	8.25
2	96.660	59.7	8.35
3	92.000	64.0	6.29

The PMMA reliability coefficients for the composite of both the tonal and the rhythmic parts are .90 for the split halves and .74 for test-retest reliability (Gordon, 1979). The wide range between the two means are acceptable. Gordon's means are based on mass testing of all children.

The means in this study are the result of testing only those children judged to be musically gifted by their private music teachers. The apparent drop in scores by age found in this research is immaterial as: 1) the numbers are not sufficient to support such a conclusion and 2) there is no corresponding drop in the mean results published with Gordon's PMMA. There was no score differential between the genders (male average was 95.2 and the female was 95.0).

Perception of Talent

Robinson (1987) noted in his study that parents do recognize precocity. Ten of the parents indicated that they thought their children were musically talented. What they meant by that statement became clearer when their definitions of talent were analyzed. Teachers' answers varied. They indicated that 20% to 100% of their students were talented depending on their definitions of talent.

Talent, according to parents, was something that all children were born with. The majority of parents stated that musical talent was displayed by the child's good ear (8 parents), ease of learning (5 parents) and a good musical memory (3 parents). Teachers also echoed the idea that all children are born musical and that the degree of talent developed is entirely dependent on a supportive environment. They looked for the ease of learning, a use of inner feelings resulting in natural expression and enjoyment. One teacher went so far as to state that there was no such thing as talent. The idea that all children are born musical is a reflection of the Suzuki philosophy.

It was interesting to note that, although ten parents indicated that their child was talented, none gave the suspected presence of talent as a reason for starting lessons. This matches Bloom's (1982) findings that the label of talent was applied to his pianists after they had been involved with lessons for a period of time. Although

parents may not have stated that their child was musically talented, a higher proportion were willing to indicate that their child was talented in other areas (13 of 18 parents gave Almost Always responses⁵). This concept was supported by their response that the child was generally good at school (16 of 17 parents) implying academic ability. Some of the children themselves also stated that they were good students:

"... and I'm smart so I know quite a lot of the answers" (R. age 6)

"My teacher calls me, S..... the brain.... She checks the work, she goes tick, tick, tick [sound and action of marking]" (S. age 6).

This result coincides with the suggestion that general intelligence and musical achievement are interconnected (Gordon, 1971; Radocy & Boyle, 1979). One teacher indicated that intelligence and academic ability was one way of differentiating between musical and non-musical children. It is interesting to note that the only child who did not show talent in any other area was the one who was considered to be the most musically gifted. This opinion was held by his mother, his private music teacher and he was mentioned by one other child (peer nomination) in the study. Is his high degree of musical ability related to the lack of distractions from other talent areas? What percentage of children are only musically talented, as opposed to multi-talented? It would also be interesting to examine what these other talent areas are and see if certain talent areas cluster together? These answers could impact on how we educate the gifted and musically gifted.

Related to parental definitions of talent, were their responses about their child's ease of learning. Bloom (1982, as cited in Kitano & Kirby, 1986) and Reid (1978)

⁵The Almost Always represents the combined Almost Always and Frequently responses.

both indicated that the gifted child learns easily and rapidly. Nine children during their interviews indicated that they did learn things easily, while three said that learning was a combination of hard and easy (a total of 66%). The parents indicated that their children (15 Almost Always cases) learned things easily in the Likert portion of the questionnaire. In fact, sixteen parents chose 'learns easily' as the single strongest characteristic for their child. Three out of four teachers also indicated that as children, they learned things easily.

Nine parents, who indicated that their child learned easily, also stated that their child was talented. The other seven indicated that their child learned easily but was not musically talented. Five of those seven however did indicate that their child was talented in other areas. The one child who did not score into the gifted range, may have reached her technical performance level due to her level of intellect and hard work. Her mother identified her as talented in other areas (Almost Always) and that she was always a good student and learned things very easily. It is interesting that the student herself felt that her music learning was hard, possibly implying the amount of internal effort (hard work) required for her to accomplish things. This could be one area that differentiates the musically talented from the less talented.

The children themselves were reluctant to state if they felt they were talented. Twelve answered by saying that they did not know. Of those children, nine later stated that they were good pianists or violinists. Five children answered that they were talented but three of the five qualified their answers. One stated that they were half talented. Another, that they were talented and interested. One child stated that they were not talented but they were very, very good at playing. This reluctance toward self-labelling could be due either to a lack of understanding of

the concept of talent or a sense of modesty (an identified gifted trait by Reid, 1978). Talent was explained to those children uncertain of its meaning as being, the best, or being very, very good. Comprehension could not be guaranteed.

A second approach to the children's concept of talent came later during the interview. Some of the children were asked to identify the causes of differing performance levels while others (younger ones) were asked how one became a great musician. Talent was mentioned by only one child. The interview question concerning performance was based around a story about two people (the researcher and an invisible lady). They both practised the same piece, the exact same amount of time (both in time per day and practise days), but their performances were very different, why?

"Because you might be more interested, you concentrate more and you're more talented in music, you enjoy it more and you make it [performance] more interesting" (M. age 8)

"She practises sloppily and her mother doesn't care about it, she can't be bothered to fix it up where it's wrong, and she doesn't have an interest in music and her mother forced her into it, or she, or she, is one of those people who I don't like, she's not sensitive." (Z. age 8)

More experience, longer lessons, harder work, greater concentration and greater care were typically given as the explanations as to why some people performed better than others or learned things more easily. Davis and Rimm (1989) noted that the internally controlled child (confident children who feel in control) attributed failure to lack of effort and not lack of ability. The children in this study appear to be internally controlled.

Research has noted that music appears to be more acceptable

for one gender than the other. The responses in this study gave very weak support to gender preference. Of the eleven positive parental responses, five identified their sons as talented (out of the total male group of ten), and six thought their daughters were musically talented (out of the total female group of nine). This ties into the study results of Doxey and Wright (1990) who found that daughters were rated more musical than sons. They also noted that the parents were more supportive of a musical career for daughters. This study had only three parents state that musical careers were not a viable option for their child, of which two of those responses were for sons.

Dedication and Commitment

The degree of dedication and commitment to music showed up in the children's personal musical involvement and their commitment to practise. Seven of the children were studying more than one instrument, while twelve indicated a desire to learn another instrument without quitting the current one.

"I'm going to play my piano, violin, guitar, flute, um... and that big one like guitar, then when I'm grown up a bit, when it's my birthday again, I'll do the violin and then I'm going to play guitar" (G. age 5)

This enthusiasm for music was still strong after a year and a half of formal lessons. One does not increase an activity one does not enjoy. The degree of effort these children are willing to expend in musical activity reflects a high interest level which in turn could be indicative of musical talent.

Due to the children following the Suzuki method, the amount of parental involvement needs to be understood. It is the philosophy of this specific method that the mother attend the lessons with her child and then instruct him or her during the other six days. This is considered crucial to

the child's musical development.⁶ The parental involvement for these children was completely opposite to the parental involvement experienced by the teachers in their own childhoods.

As indicated in Table 4, all of the children in this study practised daily with few exceptions. It appears that the girls were more conscientious about practising than the boys (67% for the girls and 33% for the boys). The eight year old children had progressed to the point where supervised practise was no longer necessary. Some of the younger ones, were also moving towards unsupervised practice. Six parents (1= level K, 2= level 1 and 3= level 2) indicated a Usually response implying that the children were starting to practise occasionally on their own volition. These children were beginning to move towards Reid's (1978) gifted trait of individual effective work. This appears to contradict the Suzuki parental expectation. Is this lack of supervision, especially in the case of the five year old, because the child has outstripped the effective parental supervisory role or a sign of the parent's disenchantment with this style of musical learning? Eighteen of the parents indicated that their children usually enjoyed practising with ten indicating that their child almost always or frequently enjoyed it.

However, children also needed to be reminded to practise in eight cases. The girls were much more conscientious in remembering to practise. Of the five Almost Never answers, all were pertaining to girls. There appeared to be a correlation between the high degree of practice enjoyment

⁶The abbreviated eleven steps for Suzuki violin parents; a) attend lessons, b) help recall the lesson, c) handle the violin yourself, d) play the current record daily, e) become accustomed to repetition, f) see that the violin and bow are in good condition, g) attend all recitals, classes and special events, h) keep growing musically, i) give serious attention to Suzuki's concepts, j) avoid discouragement, k) practise with your child until he can work effectively on his own. (Mills, 1973)

TABLE 4. PRACTICE BEHAVIOURS FOUND IN THIS STUDY

Subject	Gender	Practice					Years Of Study
		Frequency	Reminder	Speed	Enjoys	Time (Min)	
Kindergarten							
1	M	U	F	Tired	U	15	1.5
2	F	F	AA	S	R	30	2.0
3	F	AA	R	Fa	F	15	1.0
4	F	AA	R	S	F	30	2.5
5	F	AA	R	Fa	AA	30	0.7
6	M	AA	AA	S	U	60	2.0
7	F	AA	AN	-	AA	30	1.0
Level 1							
1	M	AA	U	Fa	F	30	3.0
2	M	F	U	-	F	30	4.0
3	M	U	U	Fa	F	15	3.5
4	M	F	F	Fa	F	30	2.0
5	M	F	U	Fa/S	U	>60	2.5
6	F	F	F	S	U	30	0.8
7	F	AA	U	-	AA	30	2.0
Level 2							
1	M	AA	R	-	R	60	5.0
2	M	U	R	S	U	30	2.5
3	F	F	R	S	U	30	4.5
Level 3							
1	F	AA	R	Fa	AA	60	5.0
2 *	M	-	-	-	-	-	-

M Male
 F Female
 AN Almost Never
 R Rarely
 U Usually
 F Frequently
 AA Almost Always
 S Slow
 Fa Fast
 - No Answer

*Parent Questionnaire not returned

indicated by the parent, and the indication from the child that practice time went quickly (5 Almost Always responses matched quick, 4 Usually responses and 1 Rarely response matched slow). Three teachers indicated that they usually lost track of time during their childhood practise sessions. The ability to concentrate for long periods of time and the tendency to be absorbed into the task are characteristics of the gifted (Hagen, 1980). Absorption into music also characterizes great musicians (Shuter-Dyson, 1985). All four teachers indicated that they could be absorbed into the music they were listening to but not always into music they were performing. The children gave no indication of this happening other than during practice.

The amount of time dedicated towards practising varied. It was expected at the beginning of the study that the amounts of time would reflect the child's age, but this was not the case. Eleven of the children practised thirty minutes (ages five through seven), while only three practised fifteen minutes (ages five through seven). The number of years study did not correlate with the practice time length. With this commitment, it was interesting to note that only eight parents selected 'self-discipline' and seven selected 'focused' as characteristics that were strongly typical of their child. The most surprising point was that there were four children who were practising an hour or more a day (one at each age level). It is difficult to understand how a five year old can practise for that length of time. Tannenbaum (1983, as cited in Pendarvis, Howley & Howley, 1990) in speaking about giftedness in general, stated that the willingness to direct energy and effort towards accomplishment in the field area is a highly significant variable. An hour to a young child is a formidable time commitment and to usually enjoy that practice (as indicated by the parents) is surely an indication of musical talent.

Attitude Towards Music

All of the children interviewed stated that they liked music. They spoke about how it feels nice, gives nice feelings, and that it was fun.

"...because it sounds nice." (K. age 5)

"You get to play in concerts and orchestras and sometimes you get to be famous." (P. age 5)

"I learn with the best teacher in Wellington" and then towards the end of the interview in response to why he thought music was special "Cause it makes me feel warm inside and it doesn't make me feel grumpy and it doesn't ... it doesn't ... it doesn't hurt my feelings." (S. age 6.).

The child who is considered to be the most musically gifted by the teachers answered this question by stating that he liked music because it was his gift from Jesus. This enjoyment of music is obviously important. This is not surprising considering the amount of time these children invest in musical activity. It is possible that the degree of enjoyment is an indicator of musical talent.

The interview question about the importance of music was not so easily answered. Eleven of the children said that music was important. The older children could universalize their reasons, while the younger ones personalized it.

"... because music is everywhere,um, everything makes music." (M. age 8)

"Take my other friends who don't learn music, I think that if they did they wouldn't be so rough." (Z. age 8)

"It is [important] to me " (J. age 6)

Z.'s response is particularly interesting as this reflects ancient Greek beliefs in the power of music (Storr, 1992). The Greeks believed that the right type of music could alter the characters of those listening towards order and harmony with their surroundings.

For these children, their belief in the importance of music is probably more an indication or reflection of parental viewpoints rather than their own opinion. Some of the children could not give explanations as to why they thought music was important (four out of thirteen positive responses and two unknown). The younger children seemed uncertain as to its value;

"No [its not important], its just ordinary" (G. age 5)

"No, playing music nicely is important" (C. age 5)

"Yes, but not really" (D. age 6)

For these three children, music is an ordinary aspect of their lives and the daily thirty minute commitment for two of them is not unusual. It is interesting that to C., it is the correctness of performance that is important. This could point in two directions, either, a desire to excel or an indication of a perfectionist streak.

Doxey and Wright (1990) state that both, positive parental attitudes towards music and a belief that music is important, are major aspects of a supportive social environment for the development of musical talent. In four out of six cases, a negative or uncertain response to the questions about music careers on the part of the parent, was mirrored by the child. This was especially true of the older children (three cases). It would appear that the case presented by Doxey and Wright is particularly relevant for the children in this age group.

Ten children could see music as part of their adult lives. There were six children who spoke of future concert careers and three children who expressed career goals of becoming music teachers. Some of the children knew what they had to do to accomplish concert career goals:

"You would have to practise every day and you get... and you... and you.. have to practise for a long time and then you can do lots of practise the next day and the next day, and then when you

grow up and you think that... if you are still through book 2 you'll have to keep playing to get through all the others and then when I'm through Book Six I might get to be in an orchestra." (S. age 7)

"practise and practise and practise and practise, and practise for about sixteen or sixty years and not let out a day. Then someone should come round to your house, and listen to you play. If they like it a lot, then they might say, 'Hey come around here to this boy's place, I think he should be famous, he can play the piano. He is so good at it. Let's hear him and get him on a CD'..... We take it to all the famous people around the world and um.. ask them if they think that person should be famous, put it to a vote or something." (J. age 6)

Three others could not see music careers but still thought that they would continue to play.

It is interesting to note that there were three children who wanted to quit. All three commented on the practise commitment (thirty minutes per day) as being the cause, but all three also stated that they enjoyed music and one even indicated a career choice of becoming a concert performer. Personality factors seem to out-weigh the influence of aptitude and environment in these situations and future talent development is at stake. This would appear to contradict the argument from the literature that environment plays a more important role than personality and genetics. It was noted that thirteen of the parents indicated that they felt that music offered a viable career, implying a supportive environment for talent development. There were only three negative parental responses and in only one case did a parental negative response (music career was not viable) match the child's negative response (wanting to quit). However, the exact

role that environment played in these three children's desires was not possible to determine.

Some of the children indicated that there was a difference between 'Music' and doing musical things. Ten of the sixteen children attending school responded they did not do music in school, yet seven of them said they were involved with singing or choir. To their minds, this was not real music, as only the learning of an instrument was Music. Of the five children who recognised that they were doing a music program at school, only three spoke of regular weekly or twice weekly activities on top of choral or orchestral rehearsals. Only two indicated that they worked with specialist teachers (Music Directors) and both were enrolled in private schools.

Self-created Environment

It was interesting to note the degree to which the children created their own musical environment. Kitano and Kirby (1986) stated that one of the talented musical traits was that the child enjoys and seeks out musical activities and opportunities. This was clearly evident with this group of musically gifted children. The parents often chose the instrument and the lessons, but the child continued to search out musical activities in other areas. In many cases, as indicated earlier, they had expanded or wished to expand into learning other instruments.

Sixteen of the children indicated they enjoyed listening to music and fourteen of them had music usually playing in the background. The only negative response to listening was not surprising;

"... cause listening is boring and playing is better.... I like watching people play things but not having to have to listen" (D. age 6).

Storr (1992) noted in his research that, musicians tended to want to see performances rather than listen to recorded

sounds. The viewing of the technique was important to their enjoyment of the sound.

Seven of the children noted that they preferred to listen to the tapes of the pieces that they were currently playing. Others indicated a wide range of musical taste (jazz, rock, classical, instrumental, etc.). Most children had their own tape collections well started. Howe and Sloboda (1992) stated that the child's enjoyment of listening to music is very limited until the child has been learning an instrument for many years. In their study, they found that older children enjoyed more and had a wider interest in music. In this study, children who had been learning on average 1.49 years (ages five and six) preferred listening to their current pieces, while children who had been learning on average 2.72 years (ages six through eight) indicated a wider range of styles. This results could be interpreted two ways: 1) the longer period of lessons results in a wider interest range, or, 2) as the child matures, their musical tastes become more varied. A varied musical taste could be more a reflection of maturity rather than a specific result of musical development. All of the parents indicated that their children usually showed interest in various kinds of music (Almost Always responses=58%).

Related to listening was the degree of sound awareness that these children expressed. Shuter-Dyson (1985) found that musical children seem to show greater sensitivity to sounds and that highly talented children seem to pay great attention to the sounds in their environment. When asked the question, "Do you have a favourite sound?", thirteen said yes. These sounds were from nature: birds singing, water running or their parents' voices. Other sources for these sounds were self-created ones which were quickly and in some cases suddenly demonstrated. Two children mentioned that their favourite sounds were their own

instruments. This was supported by the parents, with only two indicating that their children were not highly aware of sounds (Rarely and Almost Never responses). Concerning their children's unusual sensitivity to sounds, only three gave negative responses for the present and four gave negative responses for when their child was younger. All the teachers indicated a childhood sensitivity to sounds and musical sounds. Unfortunately, from this research it was impossible to tell if the children's responses indicated unusual awareness in relation to the peer group. It was also not possible to determine if the unusual sensitivity was a result of or preceded the lessons.

The children also seemed to seek out other forms of musical expression. All of them had attended and participated in concerts. These were not only the organised yearly recitals of their private music teachers but also other performances in the community (old age homes, malls, churches and for various clubs). Thirteen of the children indicated that they enjoyed performing. All of the parents indicated that their children usually enjoyed performing (79% Almost Always responses). Two of the teachers indicated that childhood performances were difficult because of shyness. This was also true for two of the children who indicated that they did not enjoy performing particularly because of stage fright.

"I feel a little bit shy..... I've done it once [perform solo] but I didn't think I should be doing it but I did it anyway because I felt embarrassed in case I should do anything wrong."

(A. age 8)

The children usually performed at the teacher's request (79% Almost Always responses) but not as frequently at the parent's request (58% Almost Always). One child rarely performed at the parent's request. No explanation was offered.

Performance is a serious thing for some of these children: [in response to the question, "How do you feel at concerts?"]

"I don't feel anything at the concerts.... I feel proud.. Well, um, you should see me at a concert, I was going like this, I was smiling, everybody was talking about me. I did [make mistakes]. I wish those babies would calm down but they never did, I just had to play the piece again. I went right back to the beginning." (M. age 6)

"I normally play in R's concerts, and in piano and instrumental groups..... [enjoy?].... yes, you can get awards. I've got a whole book of paper awards." (G. age 7)

The above child then presented two scrap books full of various performance awards, participation and achievement certificates. She was quite proud of them and spent time explaining what some of them acknowledged. The extrinsic motivation of a physical reward (certificates and the focus of adult attention) as well as the enjoyment of performing appears to be important at these ages. Sosniak (1990) noted in her study that the musically successful were playing small recitals within a year or so of starting lessons, but her sample had started lessons on average by six years of age. Although the children in this study started lessons much earlier, they also were playing recitals by the end of their first year of formal lessons. A very slight preference was indicated for performing for adults (53% Almost Always responses) rather than peers (42%). The boys were more willing to perform in both cases (70% and 75%).

Bloom (1982) indicated that the peer group could have an influential role in talent development. There was no evidence of that with this age group. These children seemed totally unaware of the other musical children. When asked to name someone who was 'talented in music', only one

named a performing peer, one named an older sister and one named their private music teacher. The competition between performers that Bloom indicated as critical for future success in adolescence, was not yet evident. However, there did appear one case of non-musical peer support for being a musician:

"If the teacher is late, they call Z.... Z.....
because I play a rock piece they really like that
they want me to play all the time" (Z. age 8)

The degree to which music has been internalized by this age is surprising. Sounds and music are parts of their imaginative play and a release for their creative energies.

"[the made up songs] just part of the game
that I'm playing, and I felt that the piano was
a cure, like.... It's just in a game but if
someone is dead or something, the piano can bring
them back to life" (J. age 6)

Eleven (Almost Always responses) of these children hummed at play when they were younger, while four did not. This was found more among the girls (67%) than the boys (33%). Nine (Almost Always responses) still hum when they are playing, while three do not (but the results did not show any differentiation between the genders). This indicates that music is part of their relaxed mode of operation and associated with pleasant things for boys and girls. Eight children (out of thirteen positive responses) frequently hum when they are working and nine usually hum when they are feeling fidgety. This behaviour was also indicated by the teachers. They hummed at play but the results were unclear concerning singing or humming while working. So, for the musical child, music can be part of their play, their work and a source of release from boredom.

Another form of internalizing music, was to be able to hear it inside. Ten of the children indicated that they heard

music in their heads:

"It's just like I'm inside my head and I'm still playing, I'm in a dream. I'm in two places, I'm outside in the playground and in my head I'm practising my piano. It's like the sound goes out here and in my ears and into my head playing the piano." (J. age 6)

"... if I sing say something like today, I hear it a wee bit later. Not inside, through my ears. So my brain told my ears and they brung (sic) it back." (R. age 7)

"yeah, it is magic when I make up my own songs, I've got lots of music in my head" (M. age 6)

"...every day I listen to a tune and one of those tunes gets picked up and stays in my mind and then I hear it all the day and when I'm doing something hard I sing that tune in my head. It relaxes me." (Z. age 7)

Of the seven children who said that they did not hear music in their heads, only three did no humming. These three who did not show any internalization of music were all boys (ages five, six and seven).

Hagen (1980) indicated that a general gifted characteristic is the innovative use of common material. Reid (1978) speaks about initiative and originality as gifted characteristics. In musical terms these would be composition or improvisation. Doxey and Wright (1990) stated that creativity is an important characteristic related to musical aptitude. This was clearly evident in this study, as seen in Table 5. Sixteen (95%) of the children indicated that they created their own music in some form. The same number of parents indicated that their children usually invented their own tunes currently, while seventeen indicated that their child made up songs on their instrument. However, in the personality section, only seven of the parents indicated a trait of originality.

TABLE 5. INSTRUMENTAL EXPERIMENTATION & CREATIVITY STUDY RESULTS

Subject	Gender	Improv	Imagin	Creativity				Exp
				Age 1	Age 2	After 2	Now	
Kindergarten								
1	M	Y	AA	R	U	F	R	F
2	F	Once	U	AN	AN	AN	AN	U
3	F	Y	F	F	F	F	F	F
4	F	Y	F	R	F	AA	R	U
5	F	Y	AA	-	F	AA	-	AA
6	M	Y	F	AN	U	F	AN	F
7	F	Y	AA	AN	AN	U	AN	F
Level 1								
1	M	Y	F	F	F	F	F	U
2	M	Y	F	F	AN	U	AN	F
3	M	Y	F	F	U	F	R	F
4	M	Y	F	F	R	U	AN	F
5	M	YY	AA	U	U	U	-	F
6	F	Y	U	U	R	U	R	R
7	F	Y	U	AA	-	U	-	R
Level 2								
1	M	Y	AA	R	U	U	R	AA
2	M	Y	U	U	AN	U	AN	U
3	F	N	R	U	R	R	R	U
Level 3								
1	F	Y	-	-	-	-	-	F
2 *	M	S	-	-	-	-	-	-

M Male

F Female

AN Almost Never

R Rarely

U Usually

F Frequently

AA Almost Always

* Parent questionnaire not returned

Improv Improvisation

Imagin Imaginitive

Exp Experimentation

There appears to be a difference between creativity and originality in the minds of the parents. The teacher response to creativity was positive but weak. It was interesting to note that the child who scored the lowest on the aptitude test was also one who indicated difficulty in creating songs. There was a desire to perform her own compositions but she stopped because they didn't come out right (parent indicated a response of rarely to the creative questions). This ability to transfer the mental sounds to the instrument in her case was a double problem; first the memory required to match the actual sound to the mental sound, and secondly, the problems of intonation when learning violin. The only child who claimed that she didn't create her own songs was also the only one to claim that she did not indulge in imaginative play. Is there possibly a connection here that would need further research?

Experimentation with their instrument was also common among the teachers and the children. Only two parents indicated that their children were rarely experimenting. This matches the findings of Hagen (1980) and Reid (1978). Hagen indicated that gifted children had extensive exploratory behaviour. Reid noted that gifted children showed intellectual curiosity. Both of these could manifest in instrumental experimentation along the lines of 'What would it sound like if....' or 'What would happen if I':

"If I like the pieces I try to play them on as many instruments as I have to see what it feels like and I ask my Dad which instrument it should be played on." (M. age 8)

There appeared to be a possible developmental stage in the amount of the children's creative output (see Table 5). In general terms, twelve (Rarely and Almost Never responses) of the parents indicated that their child did not invent

singing tunes before the age of one. This dropped to only seven parents before the child turned two and further to two parents for after the age of two. On closer inspection, the parents of eight children indicated a jump from a response of rarely or almost never to frequently, between the ages defined by the questions. Two parents indicated a major change in their child's creative behaviour between the ages of one and two, while another three parents indicated a major change between the ages of two and three. Three parents indicated that there was a major positive change between their child's creative behaviour now and from the past but did not indicate how or when that change came about. The remaining parents indicated a steady clear developmental path (five cases) or no change in the amount of creative output (four cases). Again, more detailed research would be needed to find if there was a developmental surge in creative abilities.

Davis and Rimm (1989) talk about creative people having a habit of spontaneous action. The youngest subject managed to insert seven spontaneous vocal pieces into her interview. These tunes were musically organised and had words that made sense. On the quick echo singing test, she also inserted words. She was the only one to do so. Some of the made up pieces by the older children are quite complex⁷. Unfortunately, none of these creations are recorded in any fashion. Only the older children could remember their compositions, as most were played once and then forgotten. With the large number of impromptu performances and the amount of composition by the children in this study, one can assume a high degree of creativity.

Development

The questions concerning development proved to be difficult for the parents and the children. Some of the parents

⁷Two children (aged 6 and 7) performed their own works.

commented that had the questions been concerning their younger children, there would have been greater ease in retrieving the memories as they were more aware of the child's development pattern. This difficulty caused a number of problems in trying to establish when the child passed through various musical developmental stages. The results were further complicated with the possibility of the parents attempting to present their children in the best light. Normal music development is compared with the findings in this study in Table 6.

Seven parents were completely unaware of their child's musical babbling stage, while three thought there was musical babbling but could not indicate an age when it occurred. Buckton (1981) noted that musical babbling only occurs if music is sung or played to the infant. There appeared to be no clear relationship between a weak musical family background and the lack of awareness of musical babbling in that only four of the seven cases were from non-musical families. The others noted that musical babbling began as early as six months or as late as thirty months.

There appeared to be some confusion as to what was meant by the term, musical babbling. Developmentally, this should occur approximately at the eighth (100% of the infants were musically babbling, Colwell, 1992) or ninth month (Moog, 1976 as cited by Sloboda, 1985). Moog also noted in his study that 30% of children were vocalizing (musically babbling) by the six month stage. It is possible that the parent who indicated that their child was into this activity by age six months was showing early musical development. The other parents who indicated time lines of twelve to thirty months were probably interpreting musical babbling to be spontaneous singing. It is around one year of age when children's musical babbling begins to gain patterns (Colwell, 1992) and spontaneous singing begins to

TABLE 6. NORMAL MUSICAL DEVELOPMENT COMPARED TO THAT FOUND
IN THIS STUDY

Age	Normal Musical Development	Age	Musical Development in this Study
3-4 mths	looking towards sound can be soothed by sound 5% can musically babble	? ?	attracted to music sound easily soothed by music
4-6 mths	infant listens to music turns towards source may try to join singing some may imitate pitches 30% can musically babble	4.5 mths ? ?	average for the start of musical babbling (range=6- 30 mths) responsive to music turned towards music source
9 mths	increases in movement to music		
12 mths	beginnings of spontaneous singing		
18 mths	begins to generate recognizable bits of tunes	20.5 mths	recognizable bits of tunes (range=8-42 mths)
24 mths	responds to clue songs attempts to imitate parts of songs	21 mths 28 mths ?	responding to clue songs (range=12-48 mths) repeating parts of songs accurately attempt to sing along
36 mths	imaginative songs begin	?	made up own tunes after 24 mths (4 did before 24 mths)
48 mths	short successes in time keeping	48 mths	average for singing in tune (range=36-60 mths)
72 mths	average music student sings correctly	60 mths	all but one singing in tune

Sources for normal development:

Colwell(1992)
Sloboda(1985)
Shuter-Dyson & Gabriel
(1981)

occur at about the age of eighteen months (Sloboda, 1985).

When the children were asked about their own musical memories, ten out of the sixteen who were asked⁸ gave the response of not having any memories. All of the children who supplied answers were older than five and some of their responses were:

"I listened to sounds that my Mum played on the piano. When I was little she did [play for me], now she just tells me sit and do practise. She played 'Tonalization' and it went [sang the pattern] and then I did it after" (S. age 6)

"I remember that another girl played in a concert and I heard it and I liked it [re Twinkle Variations]" (M. age 8)

There was no clear evidence of any crystallization experiences⁹ among the children that were part of the population for this study.

Parents indicated that their children showed their musical ability between the ages of twelve to sixty months (average being 35.6 months). Eight parents indicated that their child showed their musical ability after they had started lessons through:

"Her progress in playing the piano" (Parent of E. age 6)

"His sureness of touch and quick ability to learn

⁸Three children had indicated with previous answers that memory questions would not give meaningful data. This line of questioning was therefore discontinued.

⁹A crystallizing experience is one in which there is a remarkable or memorable contact between an unusually talented person and some field specific material (Walters & Gardner, 1984). This contact is a single experience or a number of like experiences from which the future musical career can be traced. ie. Stravinsky's weekly theatre attendance as a child, or, the purchase of a piano by Rubinstein's parents. It is possible that hearing older siblings play may be such incidents for M. and A. (both aged 8).

a piece" (parent of Z. age 8)

"When taught pieces on the piano, she was able to play them as taught without much guidance."

(Parent of G. age 8)

This focus on achievement is a common form of judging musical ability and matches back into their definitions of musical talent. The implication is that the parent was unaware of any musical ability before hand. If the parent then had not enroled the child into private music lessons, would the talent have appeared?

The children who showed their ability before they began their lessons, demonstrated this by:

"able to clap in time to music, imitate sounds and rhythms" (Parent of J. age 6)

"Tapped out the rhythms of quite complex pieces of music, hummed pieces from tapes or radio."

(Parent of S. age 5)

"She liked to sit at the piano and play notes, she enjoyed the music she made." (Parent of K. age 5)

In these cases, there was something in the child's behaviour which alerted the parent to the potential existence of musical talent. However, the parents of these children did not state that the presence of these behaviours or suspected musical ability was the reasons for the starting of formal private music lessons. Again there is a risk of the child not being enroled for lessons. Yet all of these children had musical aptitudes in the extreme top range.

In general musical development, the average age where children begin to reproduce bits of familiar songs is around two (Sloboda, 1985). The parents in this study reported their children were repeating bits of recognisable tunes as early as eight months and as late as three and a half years old. The average presented by the parents was

1.7 years of age. Nine parents reported that their children began this activity before the age of two. Seven reported that their children began at the age two. Development of a good ear is necessary to ensure full participation in musical activities (Doxey & Wright, 1990). This early demonstration of a good ear and the ability to reproduce controlled sounds, then, is possibly one skill that shows early development in musically gifted children.

All seventeen parents (who answered this question) indicated that their children were singing in tune by age five. This is slightly ahead of the normal musical development according to Pendarvis, Howley and Howley (1990) who state that the average music student sings correctly at the age of six. One parent indicated that their child now rarely sings in tune but no explanation was offered for the loss of skill. Thirteen parents indicated that their children sang in tune by age four but only seven of them indicated that they did so by age three. The three year old stage was the only one where the girls who were singing in tune outnumbered the boys, 71% to 29%. Being able to sing in tune is one aspect of a good musical ear.

The final aspect of a good ear, having perfect pitch, was given a weak parental response. Only seven of the parents felt that their child could almost always or frequently be able to repeat a tune after one hearing. Again the girls seemed to be more capable of this than the boys, 71% and 29%. The children themselves gave a mixed result to the question about their ability to repeat something after one hearing:

"Well I can sort of play it, it sounds like it but it's not like it... some of it's right but I had to alter it to make it fit." (Z. age 8).

"I don't really need music but I really listen to it....I'd need to try a bit." (A. age 8, in reference to playing by ear)

Fifteen of the parents reported that their children as infants, were attracted to musical sounds and fourteen said that they were responsive to music. Eleven of these children were frequently soothed by music. Ten turned towards the music source. Again the girls were noted as being more sensitive to the sound source (70% for girls and 30% for boys).

Another area where the girls' responses were different was in demonstrating a keen interest in music as infants. The parental response of eleven Almost Always and Frequently answers was examined to show a 67% response for the girls and 33% response for the boys. Bloom (1982) noted in his study of pianists, that there was responsiveness to music at an early age. This study also showed a responsiveness to music but was unable to establish time lines as to when these behaviour manifested. These behaviours were demonstrated in various ways:

"Before he could speak, with sound and body language he would ask me to sing favourite nursery rhymes" (Parent of Z. age 8)

"... responsive to music, smiling, babbling, moving limbs, turn towards sound" (Parent J. age 6)

"Before birth, I noticed he responded to some types of music by vigorous activity and to others by lying still. Similarly when a young baby."
(Parent of C. age 5)

As the children aged, some parents became more aware of their musical behaviour. Fourteen parents indicated that their children at the toddler stage, showed a keen interest for music and that they attempted to sing along. This response level dropped one with school aged children. Only nine noted that their child listened to music intently at this age, while this dropped to an alarming five positive responses when parents were asked if their child listened

to music with intense concentration.

Personality

A number of positive personality traits appear to be present in these children (see Tables F.1, F.2 and F.3 in the appendices for complete results). Fifteen of the seventeen parents (who answered the question) indicated that their children were usually cheerful. There were no negative responses to this question on either the parent or teacher questionnaires. This matches Terman's (1926) study where it was noted that there was a general tendency for the gifted to be cheerful.

Freeman (1978) noted that gifted children generally relate well to peers. The children tend to get along well with their peers and appeared to be popular (both having 12 Almost Always responses) according to the parent questionnaires. Only one child was indicated as not getting along with the peer group. Teachers noted a weak positive response to this characteristic.

Those good peer relationships were evident in the children's responses concerning their preferred playmates. In a situation where children were given a choice of playmate, all indicated that they often played with others rather than alone. Ten indicated that they would prefer to play with a few close friends, while seven preferred to play with a large group. Of the remaining two, both were not attending school. This is in direct contrast with the teachers, where three indicated that they were solitary by nature. In two of these cases, the degree of shyness would have had some influence.

Stein and Heinze (1983) found that gifted children played alone slightly more than the control group. This preference only became evident in this study, when the children were placed into a second choice situation. If

they could not play with a few good friends (or whatever their first choice was), would they rather play with a few friends/large group or alone? Ten children indicated that they would rather play alone.

"I would probably say by myself because I find that rather comfortable." (R. age 6)

Seven of these had earlier indicated a playmate choice of a few good friends. The large group respondents tended to gravitate towards the smaller group. This group of musical children then tended towards being sociable rather than loners. Again, this is supported by a majority of the parents indicating that their child did not prefer their own company to that of other children (thirteen cases). The same number of the parents also indicated that their children enjoyed large social gatherings which matches Terman's (1926) findings for gifted children in general. Two teachers indicated that the enjoyment of large social gatherings was a trait strongly typical of their childhoods.

Sensitivity was tied as the second most commonly indicated personality trait in the parent questionnaires (the other being, 'learns easily'). In the teacher questionnaire, three teachers indicated Almost Always responses in the Likert portion but only two chose it in the ranking question (part three). Sixteen parents picked this trait, with seven parents putting it in the top five for strength. Twelve parents went as far as to indicate that their child was unusually emotionally sensitive.

"I have seen a Zebra being eaten by a lion on T.V. and I really cried. I cried because it was sad. I cried and I cried until Mummy had to give me a cuddle. She said it was OK, but I felt sad because it might not see its Mummy or Daddy again." (R. age 4).

It was interesting to note however, that there was only one indication of introverted behaviour (the stereotypical

overly sensitive). The opposite characteristic of extroversion was also given a weak response (six cases).

Terman (1926) noted a degree of excitability was present in gifted children. Ten parents indicated that their children were excitable, and three teachers chose this characteristic as indicative. Cox (1926, as cited in Scott & Moffett, 1978) noted in her historical study of composers that they scored higher on emotional behaviour than the other eminent groups. Hagen (1980) spoke about the perceptiveness and sensitivity to others that was present. All three of these, excitability, emotional behaviour and perceptiveness can be summed up as forms or aspects of sensitivity in general.

In musical terms, we speak of sensitivity to music. This refers to an emotional response to a musical stimulus (Kitano & Kirby, 1986). Thirteen of the parents indicated that their child usually responded emotionally to music. All four teachers gave Almost Always responses to this question. Again, this was more prevalent among the girls than the boys. Storr (1992) speaks about the close relationship between hearing music and emotional arousal. He also implied that the musical person was more aroused than the non-musical even when there was no previous knowledge about the music.

The children themselves were questioned as to how music can affect people. Fourteen of the children said that music can make you feel happy. This probably ties into their responses about why they like music (warm, feels good, nice, etc.). Nine children said that it could make you sad. The younger children were not so sure, as only four of the seven in the K grouping gave affirmative answers. Could it make you cry? Nine children said no, while only six implied that it could happen. None would admit it happening to them. The following exchange was the closest

a child came to admitting a physical emotional response to music;

"Int; Does music ever make you feel happy or sad?

R.; Happy. Sometimes it can make you sad.... if it's sp.... scar....it can scare you.....sometimes.....

Int; Can it ever make you cry?

R.; Yes

Int; Has it made you cry?

R.; Nnnn....yes...sometimes. It can make me cry with happiness.

Int; Do you remember what song that was?

R.; No, but I haven't really done it. I sort of cry in my head." (R. age 5)

Ten children also stated that playing their instrument could change a grumpy mood into a better one. These children were willing to concede that music had an emotional affect on people but this had not yet touched them personally or they were not willing to share such a strong response with a stranger.

The third most commonly identified traits were that parents thought their children were physically active and able to concentrate for long periods of time (fourteen cases each). Teachers' ranked concentration first and physical activity came in a number of traits ranked in the top ten. Reid (1978) noted that gifted children in general were physical and Terman (1926) spoke about them as being hyperkinetic (more action than thought). The children themselves spoke about their involvement in sports, in games with their friends and other lessons in dance or ballet.

In the Likert portion of the questionnaire, parents were asked if their children were unusually active as infants. The results were not clear. Six parents indicated a strong positive response, and six parents indicated a strong negative response. The problem may have occurred over the

choice of word 'unusually'. A negative leaning was indicated with the other supportive questions asking if the child danced (5 Almost Always, and 7 Almost Never responses) or if they tapped out rhythmic patterns (5 Almost Always, and 7 Almost Never responses) when they were waiting without occupation.

In working with the children themselves, three appeared to be extremely physically active to the extent that the taping of the interview was extraordinarily difficult as they wiggled, squirmed, rolled, ran off to get something, or climbed over or under the furniture. The other extreme was also represented by children of the same age as the three above, who sat completely still for the entire length of the interview. It was not possible to ascertain if the child's own personal activity level (temperament related) impacted upon their musicianship. All three of these children scored off the top of the aptitude scale. With the question about a physical response to music, there was a clear positive parental response (14 cases), while the teacher answer split with two Almost Always and two Almost Never responses.

Fourteen parents indicated that their children were able to concentrate for long periods of time. This was not surprising with the practise commitment that some of them have. Seven parents place this trait in the top five position tied with sensitivity. Reid (1978) and Dalton and Smith (1989) reported finding this trait among gifted children in general. Hagen (1980) speaks in terms of task absorption and the teachers spoke about being absorbed by the music. This ability to concentrate was not overwhelming as only a few children were described as being intense (4 cases) or focused (7 cases). The parental response about concentration and its relationship with task absorption, was supported by the children's responses about the speed of the passage of their practice time. As noted

earlier, this can be seen in Table 4.

The willingness to work that Bloom (1982, as cited in Kitano & Kirby, 1986) found among his pianists, was also found among this small group of musical children. Twelve of the parents indicated that their children were able to work hard. Feldman (1979, as cited in Pendarvis, Howley & Howley, 1990) found this trait also among the gifted in general. Only two teachers chose this trait as highly typical of their childhoods. However, they did indicate that this was one of the traits they felt was needed to become an excellent musician (see part C of Table F.3 in the appendices).

The desire to excel was also chosen by twelve of the parents and three teachers. Both the Terman (1926) and Cox (1926) studies indicated that musicians expressed a desire to excel. Hagen (1980) speaks of the gifted being self-critical of performance and Dalton and Smith (1989) speak about the gifted setting high standards. Davis and Rimm (1989) note that creative elementary school children tend to be more careful and meticulous in their work. In the majority of the children, the above traits developed into a tendency towards perfectionism.

Eight parents and two teachers selected 'perfectionist' as an indicative trait and seven chose 'fussy'. Two of the children gave support to this:

"I don't like messy stuff like... if I wrote and A I wouldn't like it to go (demonstrated a crooked letter)" (J. age 6)

"If I do something wrong I can't resist to rub it out and make it right. I like things perfect, I can't stand messiness, I don't know how my friend can stand his room." (Z. age 8)

In Z's case, there was a question of self-fulfilling prophesy. He spoke during the interview about how his

mother and teacher had both referred to him as being a perfectionist during a school interview. What was surprising was that four parents each ranked perfectionism and fussiness in the top five traits.

Goldsmith (1990) noted that prodigies have unusual confidence and a sense of inner security. Howe (1992) quoted prodigies themselves as saying they were unique in being more self-confident. Feldman (1984) stated that the one distinct personality characteristic of the talented was their self-confidence. Eleven parents chose this characteristic and rated it as the third most indicative characteristic of their children (tied with, desire to excel, sensible and physically active). Only one teacher chose this trait as being indicative. She added the comment that she often felt that she could do anything.

The next most frequently indicated characteristics were sensible, curious, appreciates beauty and does not give up easily. Each trait was chosen by ten parents. In the teacher questionnaires, appreciates beauty was ranked second over all.

Curiosity is a trait found among the gifted in general and prodigies (Dalton & Smith, 1989; Reid, 1978; Hagen, 1980). Howe (1992) noted that prodigies don't consider themselves more intelligent, just as having more curiosity. This curiosity can often lead to the discovery of unusual information. During M's (age 6) interview, ten minutes at various times was spent in trying to discover the name of an instrument for future study. After great description, and sound demonstrations, it turned out to be a bagpipe. Not an instrument that would be within the usual music experiences of a six year old polynesian boy. Curiosity can also lead to self-initiated learning. This is a trait found among prodigies (Radford, 1990). One parent noted on their questionnaire that they were surprised by their

daughter playing a number of pieces that they thought she did not know in a music workshop (parents of M. age 8).

Persistence is also a trait found among the gifted and prodigies (Dalton & Smith, 1989; Reid, 1978; Hagen, 1980). Terman (1926) and Cox (1926) found a degree of persistence among the musicians they studied. It was interesting to note that fewer parents selected 'persistence' (eight cases) than, 'does not give up easily' (ten cases). Yet three out of those that chose persistence ranked it in the top five, while none did so with does not give up easily. Both these traits , persistence and does not give up easily, were chosen by three teachers as self-indicative and they also stated that it was a necessary trait to become a successful musician. The children themselves stated that to succeed in music, it was persistent practise that made the difference, not talent.

"I find that I always try to do stuff and I try and try until I can do it." (A. age 8)

"Sometimes when I do mistakes again and again, I keep starting over again and again and again."
(G. age 5)

The next group of traits that parents indicated were motivated, and imaginative. Three teachers selected imaginative but only two chose motivated. Dalton and Smith (1989) found that gifted children had unusual imaginations and Reid (1978) indicated that they tended to prefer games requiring imagination. The interesting thing for two of these children was that musical performance was part of their imaginative play:

"Sometimes I pretend I'm playing" (D. age 6)

"Yeah, she has a beautiful voice too. I am imagining her and me singing up on a stage, and Bunny stood on my shoulders and O. stood on no, no, no, no," (R. age 4, in reference to a toy stuffed rabbit)

Only one child indicated that she did not play any form of imaginative or pretend games. The others spoke of games with friends or with a favourite toy. Sounds were part of these games in the case of thirteen children and imaginary conversations with toys (in one case a poster) were not uncommon. One child even involved the researcher in one of his games by ambushing a dreaded Vogon invader (the arriving researcher), using the appropriate sung theme music, costume and home made ray gun. It was not possible in the nature of this study to establish if these children were more imaginative, or if they indulged in more imaginative play than their age peers. Therefore, McCurdy's (1983) gifted trait of an 'efflorescence of fantasy' could not be substantiated.

The question of motivation is important, as motivation is always heavily involved with the most exceptionally successful individuals (Howe, 1990). It was thought that this would appear higher on the list and the ambiguity of the term might have hindered its interpretation. These children used certificates and performances as external motivators and the enjoyment and pleasure they received from musical activities as their internal motivator.

A number of traits were added by the parents and the teachers at the end of part three of the questionnaires (see parts A and B in Table F.3). Some of them related back to concepts already looked at, such as: doesn't like making mistakes could be part of perfectionism, loves to learn new things could be part of curiosity or extensive exploratory behaviour, strong love of animals and a very loving nature could both be part of sensitivity or emotional behaviour. Others, such as casual and relaxed, insightful or moodiness, all need further exploration to see if they are indicative traits in a larger population.

5. CONCLUSION

The nineteen children in this study did display characteristics found in the gifted, prodigies and musically successful adolescents and adults. Table 7 (p. 92) shows the specific characteristics from Table 1 that had support. Table 8 (p. 93) shows the parental order of personality traits and characteristics from the questionnaires. These are presented according to the strength of the response (to a level of eight parents indicating favourable responses) and whether there was support for the trait in the children's interviews and/or the teachers' questionnaires. These results indicate the characteristics and traits found in the majority of children in this study.

Some music skills did show early development. These children appeared to reach three musical stages earlier than their less musical peers. The majority were reproducing recognisable fragments of songs before the age of two. Tuneful singing was established before they began attending school, as was their creative musical behaviour.

As infants, these children were attracted to and responded to music. They also turned towards a sound source and were soothed by music. However, it was not always possible to establish if these displayed musical behaviours were apparent at earlier ages or present to a greater degree than in normal musical development. There were some reported foetal reactions to music and infant musical preferences but it could not be determined from the literature if these were unusual or specific to the group being studied.

The gifted trait of a marked field commitment was shown through the children's willing involvement in learning an instrument(s), the amount of practice, their performing and

TABLE 7. CHARACTERISTICS FOUND IN THIS STUDY'S SUBJECTS

Gifted Characteristics	Prodigy Characteristics	Musical Characteristics
marked field commitment	enthusiastic	enjoys & seeks out musical activities
willingness to work		willingness to work
field enjoyment		responds sensitively to music
direct energy & effort towards field accomplishment		desire to excel
rapid & easy learning		rapid learning
curious	curious	
superior academic ability		intellectual ability
		eager for crowd admiration
shows initiative & originality		originality of ideas
	self-confident	tendency to be cheerful
		emotional behaviour
unusual skills for age		play by ear
innovative use of common material		makes original tunes
		excitable
persistence	persistence	persistence
extensive exploratory behaviour		moves body in accord with music
		early responsiveness to music
		fondness for large social gatherings
likes to invent design and create things		sensitivity and awareness of sounds
unusual imagination		
		aesthetic feeling
concentrates for extended periods		self-control
physically active		
		sensitive to criticism
Sources:		
Pendarvis, Howley & Howle (1990)	Goldsmith (1990)	Terman (1926)
Reid (1978)	Howe (1992)	Cox (1926)
Hagen (1980)		Kitano & Kirby (1985)
Dalton & Smith (1989)		Bloom (1982)
		Radford (1990)
		Shuter-Dyson (1985)

TABLE 8. CHARACTERISTICS DISPLAYED BY A MAJORITY OF CHILDREN IN THIS STUDY

Parent Responses (maximum number is 18)	Child Responses	Teacher Responses
17- enjoys playing pieces	*	
16- does well in school learns easily sensitive	** ** **	** ** **
15- learns easily (Likert portion) usually cheerful practises daily	**	* **
14- enjoys performing responds physically to music physically active able to concentrate for long time	** * **	* ? ** **
13- shows talent in other areas enjoys social gatherings	*	*
12- gets along well with peers is popular currently invents tunes or songs able to work hard desire to excel	* * ** **	* * * ** **
11- sings or hums at play experiments with instrument self-confident	* *	** *
10- shows interest in various music is highly aware of sounds enjoys practising needs practise supervision sensible does not give up easily curious appreciates beauty excitable	** ** ** **	** did not ** * ** **
9- has music in the background responds emotionally to music unusually sensitive to sounds unusually emotionally sensitive motivated imaginative	* * * ** * **	** ** * **
8- sings or hums while working enjoys scales or drills needs practise reminder persistent perfectionist self-disciplined	** * * *	did not did not ** ?

** = good support

* = weak support

? = unclear or split response

- Notes: 1) No response represents negligible support or no support indicated.
2) A contradictory response is typed in.
3) Numbers indicate the number of parents who selected or supported the trait.

future musical plans. Although the parents had begun the pattern of musical learning, the majority of children were not prepared to abandon it and could foresee a role for music in their adult lives. The seeking out and enjoyment of musical activities and opportunities, identified in previous research as a musical characteristic, was evident in their desire to learn more than one instrument, their school musical involvement and their personal listening habits. Although this commitment is strong, there is yet no clear evidence of the intensely focused and dedicated study of the prodigy. These children were not particularly upset or restless if they had to miss practising. Some freely admitted that there were other things that they would prefer to do if given a choice. Practise could be work.

All of this musical activity seems to reflect one aspect of the enjoyment that these children experience in this domain. Not only was this enjoyment expressed externally in high musical involvement but it also appeared to be experienced internally. First, these musical children spoke in terms of how music affected them physically: it felt nice, it felt warm. Is it possible that children who are less musical would express these ideas as sounds rather than physical feelings? To them, music may sound nice rather than feel nice. It is likely that this physical sense of pleasure is an intrinsic motivator for the musical child. Secondly, these children have internalized music to such an extent that they were aware of mentally hearing it and it was part of their secondary behaviour repertoire (they hummed while they were doing something else). Music was an integral part of their internal and external environments.

The gifted traits of being willing to direct energy and effort towards field specific accomplishment and, the ability to concentrate for extended periods, became evident

in these children's practice commitments (Table 4). In one case, the first instrument was practised for an hour every morning, while the second instrument was practised an hour in the evening (every other day) and the third instrument received intensive work on the weekends. On top of this music load came dance practice and the usual amount of homework. Here perhaps we are seeing the beginnings of milder forms of the prodigy's obsessive interest, field enthusiasm, unusual ability to resist distractions, and persistence. Although her interest is in one domain, it is not yet focused enough inside that domain for her behaviour and achievement level to be classed as that of a prodigy.

Because of the young ages and the Suzuki lesson style used in this group, the gifted traits of being able to work effectively on their own and a long interest span were difficult to ascertain. If their current behaviours continue, it is likely that the trait of independent effective work would become more established as they matured. The concept of a long interest span was examined in terms of their musical commitment, not the length of their practice times. Only four of the children had been studying their instruments for between four and five years. One of these children had already switched instruments. Does this time period constitute a long interest span or a comfortable routine that has not yet been challenged by another activity? Is this continuation of lessons because of the child's own wish, the parent's wish, or habit?

The gifted traits of showing initiative and originality, and liking to design or invent things, manifested in the children's displayed creative ability (Table 5). Almost all of the studied group improvised or invented songs for their own enjoyment. However, two of the children had made up specific compositions for school situations. The innovative use of common material (words and sounds) and exploratory behaviour traits were evident when the children

spoke about their favourite sounds (instrumental or vocal sound effects) or their imaginative play (magic music could resurrect the dead). Whether this constitutes the gifted trait of unusual imagination as compared with their non-gifted peers, could not be determined.

Curiosity was present according to the parents and was expressed by a few of the children requesting performances to establish the researcher's own level of musicality, as well as general questions about the research and its purpose. The exploration of how pieces sound on other instruments and noting where it sounded best was experienced by one. Many also asked to be able to listen to the tape after the interviews. Related to this is the gifted trait of having a great breadth and depth of information. A high degree of curiosity, if satisfied, would result in an unusual amount and kind of knowledge (the bagpipes).

Academically, these children appeared to do well. They themselves claimed to do well at school, and to generally learn things easily. This was supported by the parents' responses. Musical performance levels were generally ahead of their musical peers. With one child, the level of achievement was exceptional for the amount of time involved in lessons. Only in one case did learning come with hard work. This matches the gifted traits of learning more rapidly and easily, and, superior academic ability. The gifted trait, of unusual skills for the age, was represented but the reasons for these skills could not be determined. Were the performance levels the result of their ability to learn easily and therefore at a faster rate than their peers, or, were they a result of the large amounts of dedicated practice? One would be aptitude related (potential artist) and the other not (potential technician).

The gifted preference for novel, complex or difficult tasks, and, the frustration with slow learning paces were more difficult to ascertain. A few of the children spoke of the strong dislike for certain school subjects as they required rote copying or that they were required to complete large quantities of similar exercises. Was this a reflection of musical giftedness or of one of their other talent areas? There was a strong preference for the performance of pieces rather than routine exercises, but is this a preference for novel tasks (gifted trait)?

Reid (1978) speaks of the gifted possessing desirable personality traits. What these traits were specifically was not explained. The musical traits of cheerfulness and excitability were present in the majority of children in this study. The lack of self-labelling as talented may be an indication of a sense of modesty. Not one child identified themselves as 'the best performer'. A tendency towards perfectionism appeared clearly in only two children's interviews while parents and teachers gave it a higher ranking. The majority of children appeared to be equally comfortable with either large/small groups of other children, or alone.

The presence of certain traits does make future talent development more likely. The desire to excel, persistence, and self-confidence are traits which appear among the gifted, prodigies and the musically successful. Two of these three, the desire to excel and self-confidence, were clearly evident among the children of this study. Only persistence, as indicated by the parents, showed up in less than half (eight cases) of the population. This may be a factor of the age group studied. As music begins to take over more of their lives as they age, persistence may become more evident. Bloom's (1982) trait of competitiveness (musical trait) among the musical peer group was not evident.

Sensitivity to others (gifted trait) was not clearly visible among all the children but musical sensitivity and a degree of emotional behaviour (musical trait) were present. Parents indicated that their children responded emotionally to music and were unusually emotionally sensitive. Only four of the children were indicated as being able to take criticism well, which may indicate a degree of sensitivity about their musicianship.

The traits which were not clearly evident tended to be those associated with the prodigy. The intensity of the single focus was absent. These children were not driven, nor intensely involved with music. There existed other interests and desires besides their instruments and musical involvement. The negative stereotypical traits of the gifted were also absent. These children were not considered to be unusually fussy, dogged, strong-willed, nervous, solitary, introverted nor anxious.

In general terms, what then does our young musician from this group look like? If we remove those behaviours specifically associated with their lessons, we should have those traits remaining that are associated with their musical ability. One could speculate that these traits are possibly associated with an undeveloped musical talent. The characteristics and behaviours presented in Table 9 are those which would be evident to the observant primary school teacher.

These children are generally bright. They learn things quickly and easily, especially those things that are musical. Once at school, they are probably academically able but not necessarily so. Good self-discipline and concentration skills would enable these children to work hard. They are likely to be persistent in working towards their goals and tend not to give up easily. There can be a desire to excel which gives slight tendencies toward

TABLE 9. BEHAVIOURS FOUND AMONG THE SUBJECTS OF THIS STUDY

General Behaviour	Musical Behaviour
able to concentrate for long periods	musical task absorption
long interest span	seeks out musical activities
curious	enjoys musical activities
above average academic ability	responds physically to music
learns rapidly and easily	creates tunes or songs
good concentration skills	shows interest in musical things
able to work hard	sings or hums at play
self-disciplined	experiments with sound
persistent	enjoys listening to music
desire to excel	responds emotionally to music
self-confident	sensitive to sounds and changes
popular with peers	in sounds
emotionally sensitive	imaginative use of music
excitable	sings or hums while working
does not take criticism well	desire to learn to play an
sensible	instrument
highly aware of sounds	shows interest in various kinds of
imaginative	music
physically active	good musical ear
sensitive	good musical memory
usually cheerful	sings in tune before peers
fondness for large social gatherings	learns music easily
perfectionist	musically creative
self-disciplined	spontaneous music making
internally controlled	

perfectionism. Their popularity among the peer group is probably due to their self-confidence, cheerful dispositions and level of physical activity. They may be leaders because of their enjoyment of being the focus of attention. They are not introverted, although some may be extroverted in nature. They may be emotionally sensitive and excitable with the ability to appreciate the aesthetic. They are likely not to take criticism well. Strong imaginative skills and curiosity can lead to vocal or environmental sound experimentation. They appreciate various kinds of music and may experiment with instruments if given the opportunity. During play or other activities, they are likely to sing or hum. They tend to be more aware of sounds than their peers. Music stimuli may result in an emotional and/or physical response. If given the opportunity, they will likely show a preference for active over passive musical activity.

A great deal more research is required before it can be established if these traits are universal or unique to all musically gifted children. It would appear that the areas of creative musical behaviour, imaginative behaviour, sensitivity, emotional responsiveness and an unusual awareness of music and sound, may be good starting points in the search for specific identifiers for the musically gifted. Related to this, is the necessity of establishing how often musical talent appears as an isolated area of exceptional ability or as part of a multi-talented collection.

It would be interesting to continue to follow the level K and 1 group as they progress through the next few school levels until their aptitude results stabilized. Would the aptitude scores change? Why or why not? Would their musical behaviours strengthen or weaken in relation to possible aptitude changes? Which factors would influence these changes? Which behaviours, if any, would cease, start or alter? Most importantly, what is the affect of

the current music education program in the primary system on the musically gifted child?

"I would teach the children music, physics, and philosophy, but the most important is music, or in the pattern of the arts are the key to all learning."

Plato

(Potosky, 1986)

6. EDUCATIONAL IMPLICATIONS

If the home environment is so critical to the development of musical ability, why should school systems be concerned with identifying and developing the musically gifted?

The home and the school are of major importance to young children. These are the two environments that contribute the musical resources which will impact on the child's musical development (Doxey & Wright, 1990). They also contribute the people who are important in the music-making experiences of children (Fox, 1991). Parents and teachers bear the responsibility of providing a stimulating environment that will lead to the optimum musical growth of the child. Musical behaviour must be valued and nurtured if there is to be successful musical development, let alone gifted development.

Jaques-Dalcroze (1967) stated that musical instinct (referring to talent) did not always emerge of itself but was required to be brought out by training. He argues that musical aptitudes were often deeply latent in the individual and could fail to find the means of manifesting themselves. A problem then arises when the home is musically poor and cannot recognise nor develop this potential. The school subsequently becomes more important in introducing the domain and providing appropriate equipment. However, the school itself may only reinforce the parental attitude. Freeman (1984) found that schools which were in economically poor areas could not produce a single subject for her study. Teachers and parents tended to be dismissive of school time spent in 'unessential' activities. Such attitudes ensures that musical talent remains undeveloped. The school, as part of the community, must demonstrate that it values the individual's activities and efforts in pursuit of excellence (Sosniak, 1990), if excellence is to be achieved.

It is essential that promising talent be identified from an early age. Identification should occur in the primary school years, as this is when the majority of children have begun to display their potential musical ability. This ensures that there is sufficient time to develop the appropriate skills to enable successful learning. In New Zealand, the Ritchie Committee Report (1980) recommended "that children with outstanding musical gifts should not delay in laying the foundations of sound musicianship" (p. 34). Karnes (1987) stated that one of the most important reasons for early identification is the prevention of underachievement and to deter the formation of negative attitudes towards learning. However, identification is only one part of the solution and is not sufficient on its own.

The Ritchie Committee (1980) report, in regard to all schools in New Zealand, went on to state that, "The Committee favours identification as early as possible and the provision of expert teaching and appropriate facilities for particular high-level talent". If these are not supplied, it is possible that music aptitude levels will be damaged rather than increased during the early school years. Bloom (1982) believed that without extremely favourable supporting and teaching circumstances over more than a decade, the subjects of his study would not have been likely to reach their levels of attainment. Expert teaching and appropriate facilities are the other necessary factors for optimum gifted development.

Because all children's musical aptitude is in a state of flux until the age of nine, there appears to be periods when any child can benefit more from training that focuses attention on relevant aspects of auditory materials (Dowling, 1982). This aspect of the child's education should be based upon incidental learning experiences (Shuter-Dyson's fluid intelligence) rather than drill and

practise in order to increase aptitude. This again points to the potential impact of the primary school system on all musical abilities. To ensure the highest level of achievement, the primary school needs to be able to concentrate resources, and provide excellent teachers who are capable of early talent identification and encouraging optimum musical development in all their students while musical aptitude is still modifiable.

Education itself, is a process of cognitive and affective growth toward the goals of intellectual and emotional maturity (Aronoff, 1969). School Mission statements often talk about developing the whole child, or encouraging children to reach their full potential. This implies a wider focus than just on the academic. As schools cannot predict the future adult contributions made by their students, they should then prepare all children to perform optimally. "A well educated majority will accomplish more than a well educated minority of students" (p. 17, Pendarvis, Howley & Howley, 1992). In the case of the musically gifted, if we nurture the exceptional abilities and achievements that individuals have, then they have a high probability of making outstanding contributions or of reaching a superior level of performance in the area (Hagen, 1980). Formal classroom music education has a place in that development, but not only for the musically gifted.

Music and the other arts are unique in the values they offer and are fundamental to any notion of the good life (Reimer, 1989). It is a discreet form of intelligence and has tremendous potential with regard to the aesthetic aspect of learning (Aronoff, 1969). It is not just 'cultural icing', but is as necessary in developing human potential of children as other 'basics'. By fostering creativity, and teaching effective communication, it provides basic tools for critical assessments of the world

around us and instills the abiding values of self-discipline and commitment (Music Educators National Conference, 1991). Not only are musical aptitudes specifically affected by music education, but so are the students' general hearing, concentration abilities, conditional reflexes, emotional horizons and their physical culture.

All children, not only those who are deemed to be musically gifted, benefit from formal musical education. Just as we educate all children to reach the best of their intelligence levels, so we should educate all children to the best of their musical levels. Richardson (1983, as cited in Doxey & Wright, 1990) assumed all children possessed creative abilities that could be more fully developed through music education. Doxey and Wright (1990) suggest from their research that cognitive skills such as analytic ability, conservation, seriation, and temporal relations can be improved through music education (Draper & Gayle, 1987; Peery & Peery, 1987). Australian research (as cited by Music Educators' National Conference, 1991) has shown a statistically significant relationship between music instruction and positive performance in such areas as: reading comprehension, spelling, maths and learning ability (Herbert, 1979): listening ability (Tapley, 1980): primary mental abilities ie. verbal, perceptual, number and spatial (Gates, 1980); motor proficiency. Schroff (1990) found during his own research that choristers in cathedral schools in the U.K. had their academic and concentration levels raised through their choral training.

A second argument for the importance of a regular formal music programme is that general ability in childhood often evolves toward a special talent in adolescence (Feldhusen, 1986). Bloom (1982) found that the subjects in his study were not labelled gifted at the beginning of their music education. The recognition of outstanding ability came

after many years of hard work. Gordon (1980, as cited in Doxey & Wright, 1990) states that musical aptitude development is very sensitive to environmental experiences and the quality of musical instruction available. How many musically able students do we lose to the turn off of poor subject presentation and lack of competent teaching. If teachers and schools do not value music, why should their students? What is the impact of this attitude on the musically gifted?

Kodaly believed that music education contributes to the many sided capabilities of a child (Campbell, 1988). Suzuki believed that through listening to good music daily and by learning to play it, one could develop sensitivity, discipline and endurance. By creating a beautiful heart through music, one created a good citizen (Potosky, 1986). Unfortunately, Pendarvis, Howley and Howley (1992) concluded that the sort of music instruction and the current lack of sequential programmes provided by the schools does not favour the identification or cultivation of exceptional musical ability. This statement may be applicable in New Zealand as well.

Music education is the systematic development of a major domain of intelligence, dealing with one of the basic cognitive realms in human experience (Reimer, 1989). Aesthetic fulfilment, like creativity requires a disciplined approach, providing a firm grounding in knowledge and skills (Jansen, 1988). Reimer believed that school programmes should have three parts; instrumental instruction, concurrent with history and theory instruction, concurrent with listening and discussion sessions. These programmes would compliment those run by private music teachers and are not meant to replace them, as there is no duplication of teaching beyond the basics of music reading. Reimer's components are found in the New Zealand music curriculum as Create, Recreate and

Appreciate. This has been developed on sound theory but it has not yet been extensively used in the primary system where there is the greatest need.

For aesthetic education to be effective, the responses of the individual learners need to be discovered, encouraged and heightened (Jansen, 1982). Music is unique in that there is a multitude of individual learner needs; the average learner with musical experience, the average learner with no or little musical experience, the experienced musically gifted learner and the inexperienced musically gifted learner. They are all different. The unrecognised musically gifted student, who has no musical experience and/or training, may learn at a much faster rate than his or her less musical peers. The musically gifted child who has learned a great many skills from perhaps as many as four years of private lessons, will need to explore different areas. Both of these groups of children need to have their abilities acknowledged, supported and their learning challenged. This helps to prevent the development of potential behaviour problems and relieves boredom in the child (McAlpine, 1979). Borland (1989) noted that students gifted in creative and performing arts should be given the opportunity for extension the same way as academically or intellectually gifted. The other two groups, the musically experienced and inexperienced average learner will also have special needs.

In New Zealand, the primary school music programme tends to be in the hands of each primary classroom teacher. In 1970, out of 594 full time primary teachers, 464 taught their own music, with only three visiting music teachers (Tait, 1970). The implication was that the remaining teachers taught no music at all. It was the personal interests, experiences and expertise levels of these 464 teachers which dictated the quality and quantity of music education that the children received. Petzold (no date, as

cited by Colwell, 1992) found that a minimum of two consecutive years of study in the elementary school was required to produce any measurable progress toward music objectives. In New Zealand's past, there was no guarantee that, that would occur.

As a result of that New Zealand wide survey, Tait (1970) stated that "If there is a structure of music education in New Zealand, it exists more by chance than design...". It was too haphazard to bring about growth. He concluded that the children's declining musical interest was due to musical response not being related to musical knowledge. He stated that this deficit was because the teachers responsible for music education were not qualified¹ nor adequately trained. In 1982, Jansen noted that there was still a hidden shortage of suitable teachers of music in primary, intermediate and secondary schools. In casual conversations with various staff members of teachers' colleges and the advisory service, that teacher shortage has still not been addressed. Many of the parents in the study expressed concern over the lack of music education (not the quality of it) in the present school system.

Part of the problem exists with past primary teacher training. Currently, there is only a small number of compulsory hours of music training (for example, 36 hours per year at University of Waikato²) for primary teachers at the various training colleges. This is not sufficient to bring about musical competency, let alone to ensure good quality music teaching. However, a new degree program has been developed at Waikato. There is now a Bachelor of Education (Music) being offered, but it will take many years before these graduates will impact on the current

¹Tait used the criteria of the Registered Music Teacher's Association to describe teachers as qualified or not.

²It must be noted that there are more hours available (another fifty hours per year) but they are optional.

teaching situation.

The first goal in New Zealand must be to ensure the implementation and sustaining of a consistent, progressive, high quality primary music programme. At the ISME (International Society of Music Educators) conference, Jansen (1988) noted the development of a new comprehensive music syllabus in New Zealand. He stated that all students from whatever socio-economic or ethnic background, female or male, young or old were to have the opportunity to develop their musical potential and have access to those musical activities which would enable them to grow in aesthetic sensitivity and in cultural understanding. Although the syllabus has been available for many years now (released 1989), it is only recently that a supporting staff handbook and tapes have gone out to Early Childhood and junior teaching staff (released 1993). These handbooks³ (the Standard Two to Form Two book was released in 1992) supply guidelines for programme development, syllabus interpretation, trouble shooting, teaching styles, resources, and basic music information in the appendices. They go some distance in meeting the needs of ordinary music students and supply a basic, progressive, consistent programme for classroom teachers. It is yet to be seen how well they are utilized by those teachers responsible for music in the primary system.

Jansen (1988) also noted that the Ritchie Committee had recommended that, for the five to seven year old, the classroom teacher would be trained to take her or his own music programme. They were to be given systematic small

³Ministry of Education (1993), Music Education for Young Children. A Handbook for Early Childhood Staff and Teachers of Junior Classes. Learning Media: Wellington

Ministry of Education (1992), Music Education. Standard Two to Form Two. A Handbook for Teachers. Learning Media: Wellington.

group vocal tuition over the three years of the pre-service training period. The eight to ten year old classroom teacher was to have access to seconded resource teachers. These specialists would visit clusters of schools to assist the regular classroom teachers. Staff music leaders would have the responsibility of monitoring that all children were growing musically within a progressive scheme featuring continuity from one class level to the next. It is critical that the classroom teacher be prepared for teaching music. However, they also must be able to identify the musically gifted child, and be musically proficient enough themselves to be able to provide a challenging programme for those children who are technically proficient or musically gifted.

Borland (1989) states that the true goal of gifted education is to provide special services for those children who really require them because of their exceptionality. Two concerns need to be addressed. First, a consistent music programme must be established to see how it affects musically gifted children. Secondly, at present we do not know if the numbers of musically gifted children merit special schools or programmes. We also do not know the number of children for whom the school alone introduces and/or identifies ability in the field of music. Until research examines these issues, we need to identify, encourage and challenge them in the regular music classroom.

"Those we label gifted possess special characteristics that affect their ability to learn to a significant degree, and they will not reach their full educational potential unless we modify their curricula substantially" (p.2, Borland, 1989)

For the purpose of identification, Reid (1978) noted that the teacher should be a keen observer of their students and familiar with the traits and behaviours which characterize

gifted children: A) evidence of unusual achievement B) insatiable curiosity C) odd interests D) precocity and so forth. They should also be prepared to support the gifted children in their learning. It is the same for the musically gifted. Looking at the results of this small study, there is an indication that it should be possible (after more substantial and rigorous research) to create a checklist of behaviours that show the presence of talent for use by any primary classroom teacher. Table 8 presented the traits found in this research that may be appropriate. The other methods used to identify the gifted are likely to assist in musically gifted identification: parent nomination, peer nomination, self nomination, teacher observation and so forth. It would appear that Gordon's Primary Measures of Music Audiation is an appropriate aptitude test to use in the early primary years.

Once the musical gift is identified, then what? Sosniak (1990) believed that there were two stages to learning music. The first stage was an initiation into the field. There should be opportunities to explore field specific content without the need for behaving systematically or with demonstrated skill. The second stage was the systematic acquisition of knowledge and development of skill. Here, attention to details, technical skills, the specific vocabulary, rules and logic are addressed. The first stage is appropriate for those children in the early school years who have not been identified as musically gifted and have little or no musical experiences. For children who already have extensive musical backgrounds and/or are musically gifted, it is likely that the second stage is more appropriate. Teachers will need to be able to adapt the music curriculum to challenge these special students.

There are many authors who have researched and/or developed

curriculum models for integrated gifted programmes. For example, Renzulli's Triad Model and his Revolving Door Identification Model work well in music. Other authors dealing with gifted education (Borland, 1989; Dalton & Smith, 1989; Davis & Rimm, 1989; Fliegler, 1961) can be examined in the search for the most appropriate means of meeting the educational needs of the musically gifted.

Curriculum differentiation is a common way of meeting special educational needs. There are two ways that a music curriculum can be differentiated to accommodate the musically gifted. Murphy (1990) speaks of differentiating the programme in terms of degree or kind. The 'degree' refers to changing things so that the musically gifted child studies things to a greater depth, at a faster pace, to a higher expectation, or looks at a greater variety of material. The 'kind' differentiation looks at creating opportunities for the individual to exercise greater independence, initiative, creativity, read more widely and develop an extensive vocabulary. Richardson (1990) lists six approaches for the provision of an appropriate gifted curriculum. Although these are addressed towards the intellectually gifted, they are applicable to the musically gifted. They are: subject saturation, projects, environmental education (cross-curricular integration), subject expression areas, mentorship and shared responsibility. These ideas can be brought into the current curriculum to challenge the musically gifted child.

Vernon, Adamson and Vernon (1977) feel that there are appropriate ages which would most benefit from these special arrangements. They felt it was unwise to begin in the preschool years, but that children ranging from K up to and including grade 3 (up to age 8.8) would benefit the most due to the flexibility of the curriculum. Research is required to see if this is applicable in New Zealand.

An increasing amount of time needs to be spent on the talent area if it is to fully develop. Technical mastery still has to be integrated with a personal desire to pursue the field to its limits. The current music curriculum can meet these requirements if it is given sufficient class time and other resources to develop.

7. SUMMARY AND RECOMMENDATIONS

Musically gifted children are an identifiable subgroup of the gifted population in New Zealand. They demonstrate similar characteristics to those of the gifted in general and to musically successful adolescents and adults. Unfortunately, there is little research on the musically gifted in New Zealand in terms of their identification, development or educational needs.

The experiences children have and the interests that are developed during childhood, appear to strongly influence the later development of their talents (Sloane, 1985, as cited in Doxey & Wright, 1990). Gordon (1979) agrees that early experiences are critical to future talent development. To ensure positive music experiences, it is vital that a sound music programme be well established in the New Zealand primary school system. This would benefit all children and not just the musically gifted.

Educators need to be aware of demonstrated and potential talent in performance skills, creative ability, and musical-perceptual skills, to better identify the pool of students needing special music programmes. Musically gifted children may have different educational needs from their less musical peers and even from other gifted children. Although the home may be expected to initially assume the responsibility of developing a child's musical talent, the school also must support and nurture that talent development. The school must be prepared to identify the emerging musical talent. This is especially true in areas where the home is not capable of recognising nor committing itself to that development.

As a result of this study, it is recommended that;

- 1) More research in the area of musically gifted children be done. The small population in this study showed

that there were links between the characteristics of the gifted in general and musically successfully adults/adolescents. These need to be checked against a larger population of musically gifted children. How are these children the same or different from other gifted children? How often does a musical talent appear in combination with other talents and how often does it appear alone? Are certain abilities more likely to cluster together in the multi-talented individual?

- 2) Further research would be needed to look for specific musical behaviours, their frequency and intensity in a greater population of musically gifted children. How are musically gifted children different from their less musical peers, if at all? Is there a connection between imaginative play and musical creativity? Are musically gifted children more emotionally sensitive than their peers and to what degree? Are these children more imaginative, creative, and unusually aware of sounds as compared with their less musical peers and other gifted individuals?
- 3) Identification checklists for the musically gifted need to be developed or current gifted checklists need to be modified for use by primary classroom teachers. These lists need to be able to identify all musically gifted children. This is especially vital for those children with low academic ability but a high musical aptitude.
- 4) Surveys are needed to establish the population size of musically gifted children in New Zealand primary schools. How many of these children have already been identified as talented by their parents and/or their music teachers (school and private)? What is the affect of the music education system on the music aptitudes of young children? What is the impact of

the new music syllabus in the primary system?

- 5) Teacher training in the area of gifted students needs to include a greater emphasis on how to cope with those students who are musically gifted. Differentiating a music curriculum requires some expertise in music, so these classroom teachers either need to be encouraged to develop their own musicality or they need better access to experts who can assist. These experts then need the time to develop material appropriate for the child that is still within the competency level of the individual teacher.
- 6) The attitudes that musically gifted children are not really 'gifted' students and that music offers no educational value to the children need to be addressed.

Overseas research⁴ has shown that music education benefits all primary school children in many areas and not just in music skills. New Zealand is now moving to establish a national comprehensive music programme in the primary school system. Its impact on children in general, and on the musically gifted specifically, is yet to be revealed. If musically talented children are to reach their optimum development, then primary schools (who have the greatest access to all children) must assume their share in supporting, nurturing and developing that development. Teachers must be able to identify the musically talented and be competent enough to be able to supply a programme that challenges these children to excel. If this does not occur, then music talent development may be weakened or arrested resulting in the loss of a vital resource to the culture.

⁴Doxey and Wright (1990) quote research done by Richardson (1983), Draper and Gayle (1987) and Peery and Peery (1987). Australian research was done by Herbert (1987), Tapley (1980), and Gates (1980) (cited by Music Educators National Conference).

Appendix A: Initial Contact Letter to Teachers

K. Baumgardner (Mrs.)

Teacher's name

Dear *****

As part of some research for a Master of Education from Massey University, I am presently involved in researching musical talent in children. This study of musical five to eight year olds is attempting to discover the early indicators of a developing talent.

As a music teacher currently involved with musical children, I would like to invite you to participate. This would involve nominating your top four or more pupils (on the attached form) for inclusion into this study and answering a short questionnaire. All information will be coded and the source of answers will be kept strictly confidential. If you do not wish to participate, please return the nomination form with only your name filled in and I will remove you from my list of potential contacts.

If the pupils meet the selection criteria, they and their parents will be invited to participate and will be contacted for permission. An explanation of their roles in the research will be given at that time. Anyone may withdraw from this study at any time.

If you have any concerns or questions, please feel free to contact me at my home, *** - ****.

Thank you for your assistance.

Sincerely yours

Nomination Form

Name of the nominating
teacher: _____

Age group of students taught: _____

Instrument taught: _____

I Do/Do not wish to participate in this research.

Please note that this study is only concerned with 5 to 8
year olds. When nominating students, it is important to
put forward only those names that you feel have musical
talent.

A postpaid envelope has been included with this form for
your convenience.

Please print all information. Thank you.

Student's name: _____

age: _____ gender: _____

address: _____

Student's name: _____

age: _____ gender: _____

address: _____

Student's name: _____

age: _____ gender: _____

address: _____

Student's name: _____

age: _____ gender: _____

address: _____

Nominated students will be contacted only if they are to be invited to participate in this study. Those who do not meet the selection criteria will not be contacted.

Thank you for your assistance.

Appendix B: Initial Parent Contact and Permission Letter

K. Baumgardner (Mrs.)

21 June 1993

Dear Mr & Mrs ,

I am presently involved in researching musical talent in children as part of my Master of Education degree from Massey University. This study of musical five to eight year olds is attempting to discover some of the early indicators of a developing talent.

After some initial discussion with music teachers, your child, ***** has been suggested for consideration of inclusion into this study. This would involve a music aptitude test being administered, as well as a short taped interview with the child. Also, there is a short questionnaire which you would be asked to complete. All results will be kept in strictest confidence, with information only being identified according to the child's age, gender and/or musical instrument.

If both you and your child are willing to participate in this research, then please sign and return the permission slip below. I will be in touch with you shortly to arrange testing and interview times at your convenience. If you change your mind at a later date, you are welcome to withdraw.

If you have any concerns or further questions, I may be reached at my home number: 382 - 9296.

Thank you.

Sincerely yours,

Yes, I would like to be involved in K. Baumgardner's research of the indicators of developing musical talent.

I give permission for my child, _____ to be given a musical aptitude test and to be interviewed (which will be recorded on tape).

Parent/Guardian's signature

Date

Parent's Contact Phone Number

Appendix C: Parent's Questionnaire

PARENT QUESTIONNAIRE (Not Original Size)

Section A: Biographical Information

Please read the following questions and print your answer in the space provided.

- 1) What is the relationship of the person filling out this questionnaire to the child being studied? _____
- 2) What is your personal level of musical ability? _____
 a) If applicable, what instrument do you play? _____
- 3) What is the gender of child being studied? _____
 a) The present age of the child is _____
 b) The instrument presently being studied is _____
 c) The number of years this instrument has been studied is _____
 d) List any other instruments your child plays. _____
- 4) The number of children in the family is _____
- 5) The birth order of the child being studied is _____
- 6) Please list any musicians in the family?
 a) Currently _____
 b) In your family's past. _____
- 7) As an infant, did your child show any interest in musical sounds? (Yes/No) _____
 a) How did they show this interest? _____

- 8) Infants generally do two kinds of babbling. Were you aware of his or her musical babbling (nonsense syllables sung in tones)? (Yes/No). _____
 a) If yes, approximately at what age did your child begin the musical babbling? _____

- 9) At what age did your child begin to sing recognizable bits of tunes?
 a) At what age did your child recognise theme tunes?
 ie Sesame Street, MacDonald's commercial, etc. _____

- 10) Were you aware of any unusual or vivid experiences that your child had in connection with music? (Yes/No) _____
 a) If yes, please briefly describe it: _____

- 11) What do you think is meant by the phrase 'musically talented'?

- 11) a) Do you feel that your child is musically talented? (Yes/No) _____
 b) What do you base this opinion on? _____
 c) At what age did you decide that your child had musical talent? _____
- 12) At what age did your child begin to show interest in music?
 a) At what age did your child begin to show his/her own musical ability? _____
 b) How did this ability show itself? _____
 c) At what age did you enrol your child into music lessons? _____
 d) Why did you decide to enrol your child into formal music lessons with a specialist teacher? _____
- 13) Besides lessons, how does your child involve himself or herself with music? _____
- 14) Is music a viable career choice? (Yes/No) _____
 a) What do you base this opinion on? _____
- 15) How do you perceive your child's characteristics to be different from his/her peer group and non musical friends? _____
 a) How do you perceive your child to be the same as other musical children? _____

Section B: Developmental

Please read the following questions and tick the most appropriate responses:
AA almost always F frequently U usually R rarely AN almost never

In the places where a written response is requested, please print your answer in the space provided. If necessary, continue on a separate sheet of paper and attach it to the questionnaire. Remember that you do not have to answer any question that you do not wish to. If you wish to add any comment to any question, please feel free to do so?

- | | AA | F | U | R | AN |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1) Your child shows talent in other areas (excluding music). | <input type="checkbox"/> |
| 2) As a toddler, your child made up his/her own tunes or songs. | <input type="checkbox"/> |
| 3) Your child makes up his/her own tunes or songs now. | <input type="checkbox"/> |
| 4) When at play, your child sang or hummed. | <input type="checkbox"/> |
| 5) Now when at play, your child sings or hums. | <input type="checkbox"/> |

- | | AA | F | U | R | AN |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 6) As an infant, your child was responsive to music. | <input type="checkbox"/> |
| 7) As a toddler, your child listened to music intently. | <input type="checkbox"/> |
| 8) Music is a background noise for your child. | <input type="checkbox"/> |
| 9) Your child shows interest in various kinds of music. | <input type="checkbox"/> |
| 10) Your child responds emotionally to music. | <input type="checkbox"/> |
| 11) Your child responds physically to music. | <input type="checkbox"/> |
| 12) As an infant, your child turned towards a source of music. | <input type="checkbox"/> |
| 13) As an infant, your child was easily soothed by music. | <input type="checkbox"/> |
| 14) As an infant, your child showed keen interest in music. | <input type="checkbox"/> |
| 15) As a toddler, your child showed keen interest in music. | <input type="checkbox"/> |
| 16) As a school age child, your child showed a keen interest in music. | <input type="checkbox"/> |
| 17) As a toddler, your child attempted to sing along with you or other people. | <input type="checkbox"/> |
| 18) As an infant, your child was attracted to musical sounds. | <input type="checkbox"/> |
| 19) Your child preferred to play with toys that made sounds. | <input type="checkbox"/> |
| 20) Your child had toy instruments. | <input type="checkbox"/> |
| 21) Your child was highly aware of sounds. | <input type="checkbox"/> |
| 22) Your child was unusually sensitive to sounds. | <input type="checkbox"/> |
| 23) Your child is unusually sensitive to sounds, at present. | <input type="checkbox"/> |
| 24) Your child made up singing tunes before the age of 1. | <input type="checkbox"/> |
| 25) Your child made up singing tunes before the age of 2. | <input type="checkbox"/> |
| 26) Your child made up singing tunes after the age of 2. | <input type="checkbox"/> |
| 27) Your child sings in tune. | <input type="checkbox"/> |
| 28) Your child was singing in tune by the age of 3. | <input type="checkbox"/> |
| 29) Your child was singing in tune by the age of 4. | <input type="checkbox"/> |
| 30) Your child was singing in tune by the age of 5. | <input type="checkbox"/> |

- | | AA | F | U | R | AN |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 31) When involved with work, your child sings or hums. | <input type="checkbox"/> |
| 32) When waiting without an occupation, your child hums or sings. | <input type="checkbox"/> |
| 33) When fidgeting, your child dances. | <input type="checkbox"/> |
| 34) When fidgeting, your child taps sound patterns. | <input type="checkbox"/> |
| 35) When fidgeting, your child sings or hums. | <input type="checkbox"/> |
| 36) In general, your child does well in school. | <input type="checkbox"/> |
| 37) Your child learns easily. | <input type="checkbox"/> |
| 38) Your child is usually cheerful. | <input type="checkbox"/> |
| 39) As an infant, your child was unusually active. | <input type="checkbox"/> |
| 40) Your child is unusually emotionally sensitive. | <input type="checkbox"/> |
| 41) Your child gets along well with his or her peer group. | <input type="checkbox"/> |
| 42) Your child is popular with the peer group. | <input type="checkbox"/> |
| 43) Your child prefers his/her own company to other children. | <input type="checkbox"/> |
| 44) Your child can repeat tunes from the radio after one hearing. | <input type="checkbox"/> |
| 45) Your child enjoys practising. | <input type="checkbox"/> |
| 46) Your child gets restless if he/she doesn't practise. | <input type="checkbox"/> |
| 47) Your child enjoys performing music. | <input type="checkbox"/> |
| 48) Your child performs for adults. | <input type="checkbox"/> |
| 49) Your child performs for his or her peer group. | <input type="checkbox"/> |
| 50) Your child performs at your request. | <input type="checkbox"/> |
| 51) Your child performs at his/her teacher's request. | <input type="checkbox"/> |
| 52) Your child needs to be reminded to practise. | <input type="checkbox"/> |
| 53) Your child needs supervision during practising. | <input type="checkbox"/> |
| 54) Your child practises daily. | <input type="checkbox"/> |
| 55) Your child practises 15 minutes per day. | <input type="checkbox"/> |

- | | AA | F | U | R | AN |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 56) Your child practises 30 minutes per day. | <input type="checkbox"/> |
| 57) Your child practises 60 minutes per day. | <input type="checkbox"/> |
| 58) Your child practises more than 60 minutes per day. | <input type="checkbox"/> |
| 59) Your child experiments with his/her instrument outside of practise time. | <input type="checkbox"/> |
| 60) Your child enjoys playing pieces. | <input type="checkbox"/> |
| 61) Your child enjoy scales and finger drills. | <input type="checkbox"/> |
| 62) Your child makes up his/her own tunes or songs. | <input type="checkbox"/> |
| 63) Your child listens to music with intense concentration. | <input type="checkbox"/> |

Section C: Characteristics

Read through the following list and circle the traits which are strongly typical of your child. Number each of your responses in order of strongest (1) to weakest (last number).

- | | | |
|---|--------------------|-----------------------|
| sensitivity, | curiosity, | originality, |
| solitary | extroverted, | excitable, |
| introverted, | self-confident, | imaginative, |
| persistent, | focused, | anxious, |
| self-disciplined, | motivated, | driven, |
| intense, | nervous | perfectionist, |
| fussy, | learns easily, | determined, |
| sensible | appreciates beauty | takes criticism well, |
| desire to excel, | able to work hard, | physically active, |
| does not give up easily | | |
| able to concentrate for long periods of time, | | |
| enjoys large social gatherings | | |

If not already marked on the list, please indicate the three or more strongest personality traits of your child.

If there is anything that you feel is strongly indicative of your child's developing musicality that has not been touched upon, please explain here.

Appendix D: Teacher's Questionnaire

TEACHER QUESTIONNAIRE

(Not Original Size)

Section A: Biographical Information

Please read the following questions and print your answers in the spaces provided. (Continue on the back if necessary)

- 1) On a scale of 1 – 10 (where 10 is the highest), where would you place your personal level of musical talent? _____
 - a) What is your performance instrument? _____
 - b) What instrument(s) do you teach? _____

- 2) On average, how long do children continue to study with you? _____
 - a) At what age do children generally begin lessons with you? _____
 - b) What reason is given for beginning lessons? _____
 - c) Is there an average age when children stop lessons with you? _____
What age? _____
 - d) When children stop, what are the most commonly given reasons? _____

- 3) What do you think is meant by the phrase 'musically talented'? _____
 - a) What percentage of your current students do you feel are musically talented? _____
 - b) How do they show their talent? _____

- 4) How are musical children different from other non-musical children? _____
 - a) Which three/four characteristics would you say the majority of your top students have in common? _____

- 5) Did your parents think that you were musically talented? (Yes/No) _____
 - a) How did you show your ability before you began lessons? _____
 - b) How did you show your ability after you began lessons? _____

- 6) What is your earliest musical memory? _____

- 7) Were there any unusual instances involving you and music in your childhood?
(Yes/No)? _____
a) Please describe one briefly. _____

- 8) As a child, were you keen on music? (Yes/No) _____
a) How did this show itself? _____

- 9) If you wanted to create a musically gifted child, what ingredients would be necessary? _____

- 10) To be a great musician, what skills are needed? _____

a) To be a great musician, what personality traits are needed? _____

Section B: Developmental

Please read the following questions and tick the most appropriate responses:
AA almost always F frequently U usually R rarely AN almost never

In the places where a written response is requested, please print your answer in the space provided. If necessary, continue on a separate sheet of paper and attach it to the questionnaire. Remember that you do not have to answer any question that you do not wish to. If you wish to add any comment to any question, please feel free to do so.

As a child, do you remember if;

- | | AA | F | U | R | AN |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1) You were sensitive to musical sounds. | <input type="checkbox"/> |
| 2) You were sensitive to sounds. | <input type="checkbox"/> |
| 3) Music moved you emotionally. | <input type="checkbox"/> |
| 4) You responded to music physically. | <input type="checkbox"/> |

- | | AA | F | U | R | AN |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5) You practised daily. | <input type="checkbox"/> |
| a) On average, between the ages of 5 – 8, how long was your daily practise session? _____ | | | | | |
| 6) You were restless if you missed a practise session. | <input type="checkbox"/> |
| 7) Your practise sessions were initiated by a parent. | <input type="checkbox"/> |
| 8) Your practise sessions were supervised by a parent. | <input type="checkbox"/> |
| 9) You lost track of time during practise. | <input type="checkbox"/> |
| 10) You sang or hummed when working. | <input type="checkbox"/> |
| 11) You sang or hummed when you were at play. | <input type="checkbox"/> |
| 12) You did experiment with your instrument (outside of practise times). | <input type="checkbox"/> |
| 13) You made up your own tunes. | <input type="checkbox"/> |
| 14) You performed for others. | <input type="checkbox"/> |
| 15) You enjoyed performing. | <input type="checkbox"/> |
| 16) You would lose yourself in the performing of music. | <input type="checkbox"/> |
| 17) You would lose yourself while listening to music. | <input type="checkbox"/> |
| 18) You were excitable. | <input type="checkbox"/> |
| 19) You were imaginative. | <input type="checkbox"/> |
| 20) You were unusually sensitive. | <input type="checkbox"/> |
| 21) You were creative. | <input type="checkbox"/> |
| 22) You were solitary in nature. | <input type="checkbox"/> |
| 23) You were a perfectionist. | <input type="checkbox"/> |
| 24) You were perceived as having many friends. | <input type="checkbox"/> |
| 25) You were usually cheerful. | <input type="checkbox"/> |
| 26) You did well at school. | <input type="checkbox"/> |
| 27) You learned things easily. | <input type="checkbox"/> |

Section C: Characteristics

Read through the following list and circle the traits which are strongly typical of you in your childhood. Number each of your responses in order of strongest (1) to weakest (last number).

sensitivity,	curiosity,	originality,
solitary	extroverted,	excitable,
introverted,	self-confident,	imaginative,
persistent,	focused,	anxious,
self-disciplined,	motivated,	driven,
intense,	nervous	perfectionist,
fussy,	learns easily,	determined,
sensible	appreciates beauty	takes criticism well,
desire to excel,	able to work hard,	physically active,
does not give up easily		
able to concentrate for long periods of time,		
enjoys large social gatherings		

If not already marked on the list, please indicate the three or more strongest personality traits that characterized your childhood.

If there is anything that you feel is strongly indicative of a child's developing musicality that has not been touched upon, please explain here.

Appendix E.1: Interview Format

STUDENT QUESTIONNAIRE FOR INTERVIEWS

[This interview is set up along informal lines. The main questions are those which are against the left margin. Affirmative answers are not necessary to continue with the next question. Related questions are given after the main question. The exact wording of the question may vary according to the age of the subject. Not all the questions need be asked as some are variations on a single theme.]

Last time we were together we did some music tests. Today, I would like to ask you some questions about music and you....

ATTITUDE

Do you like music?

What's so great about music?

Why do you like music?

What kinds of music do you like? Listen vs. perform.

Do you think that music is important?

Why?

Do you ever use music for a particular reason?

How? Why?

Besides practise, how else is music in your day?

Every day/Special days?

Why did you get involved with music?

Are you a musician?

How can you tell?

Why are you involved with music?

DEVELOPMENTAL

What is your earliest musical memory?

Tell me about it.

What's the first song you learned to sing (not formally taught)?

How old were you?

When did you start getting involved with music?

When did you start playing your instrument?

Who picked the instrument you are learning?

Why that one?

Before you started your lessons, were you playing your instrument?

How were you learning to do things?

Why are you taking lessons now?

Who decided that you should take lessons?

Are they easy?hard?fun?

How did you pick your teacher?

Have you always studied with the same teacher?

When you were little, do you remember listening/hearing any music?

Were you easily scared by sounds?

Were you a good listener?

What kinds of sounds did you like listening to?

What was your favourite toy? Did it make sounds (real or pretend)?

Did you play lots of pretend games?

Did you make up your own games? songs?

SCHOOL AND CHARACTERISTICS

Do you do well at school?

What's your best/worst subject?

Do you learn new things easily or does it take a little

while to get the idea?

When something gets really hard and you don't think you can do it, what do you do?

Do you have lots of friends, or just a couple of really good best friends?

Do you get along well with your classmates?

Do you like playing by yourself best?

Are you fussy about your school work?

In what way?

When someone says you are talented in music, what does it mean?

Do you think your are talented in music?

How can you tell?

Can you tell if someone your age is going to be a famous musician?

If you wanted to be famous, what would you have to do?

Is it something that just happens?

How come some people are better at music than others even though they are taking lessons and everything?

Invisible lady story; same piece, same practise time, same days, perform, but I play much better than she did - why? How do you tell who is good or not? How can someone else tell that you are a musician?

Can you tell from the outside if someone is a musician or not?

Can you tell whether someone is going to be good at music before they start lessons? How?

Do you know anyone who is really good at music?

How do you know that they are good?

How did they get to be good?

In what ways are they the same as you (musically)?

How are they different from you (musically)?

Do you ever fool around with music?

What do you do?

Do you ever make up your own songs?

Do you sing?

When?

When you are playing by yourself, do you sing?

When you are working on something, do you sing?

Do you ever have music running through your head?

when?

If you hear something on the radio once, is it easy for you to pick out the tune?

Do you have a favourite piece of music?

What is it like for you when you are listening to your favourite piece of music?

Do you get really involved when you are listening to music?

Do you ever loose yourself inside the music?

How do you show your enjoyment if you really like a piece of music?

Does music ever make you feel sad or happy? Tell me.

How often do you practise?

How long?

When you are working on a piece of music do you ever lose track of the time?

How do you handle something that is really hard in music?

Do you remember to start by yourself or does someone have to remind you to practise?

Do you enjoy it?

Do you ever skip practise?

How often?

How do you feel if you miss practise?

Are you fussy about how things sound when you are playing them?

How do you feel when you make a mistake?

Do you ever play for other people?

Do you ever play for your friends?

Who asks you to play?

Do you ever offer?

That's all the questions I had. You did really well with your answers.

Is there anything special about you and music that you want to tell me about that we haven't talked about?

Appendix E.2:Sample Interview

Interview of J. age 6.10:

Int: There, its running. That button was hard to push
wasn't it?

J.: Yes.

Int: Here comes your first question. Do you like music?

J.: Umm..... well I love guitar.

Int: Is there any kind of music that you don't like?

J.: Well.... I don't like violin very much.

Int: All kinds of violin music or just some kinds?

J.: Some kinds.

Int: What about music on the radio, do you like music
there?

J.: Yep.

Int: What kinds of music?

J.: umm.... ummm... mostly ummm..... stuff like Eric
Clapton music and stuff.

Int: So you like rock music?

J.: ummm, rock, jazz, blues, stuff like that.

Int: Ok. Why do you think you like music? What's so
special about it?

J.: It gives me a nice feeling.

Int: Does it? What kind of a feeling does it give you?

J.: Just cause my um music.. I like.... I don't really
know.

Int: But just a nice feeling.

J.: yeah.

Int: Do you think that music is important?

J.: umm.... I don't know that question, but it is to me.
I don't know if it is to anyone else.

Int: Do you do music at school?

J.: um yeah.

Int: Do you think that music is important to the kids in
your class?

J.: umm. I think so.

Int: Should everyone learn music?

J.: Well, not if they don't want to... only if they want to.

Int: So only kids that want to learn music should learn it. Is that all kinds of music or just instruments?

J.: any kind.

Int: Do you ever use music for a reason?

J.: Umm... yes.

Int: What kinds of reason do you use music?

J.: To cheer up people if they are feeling a little bit sad or something.

Int: That would be nice. Do you use it for anything else?

J.: No, not really.

Int: So you don't use it to wake up in the morning? You don't have a clock radio?

J.: Yes I do.

Int: Do you use music on special days?

J.: umm... well... yeap.

Int: What days?

J.: On rugby days when the All Blacks go and have a game against another really, really good team and you have to sing the national anthem or something and then they do the Haka.

Int: Yes they do, don't they. Are you a musician?

J.: umm... yep.

Int: How do you know?

J.: Because I play music.

Int; Is that the only way you get to be a musician? Is there another way you can get to be a musician?

J.: Yep

Int: How?

J.: loving music

Int: So by loving music you can get to be a musician? Is there any other way?

J.: No

Int: I want you to think back to when you were a little,

little, little boy. Do you remember any music then in your life?

J.: Oh... yeah

Int: What kinds of music was in your life then?

J.: Um.... sort of jazz

Int: So you would listen to music. Do you remember any particular kind?

J.: umm... Eric Clapton

Int: What about other kinds of music, not just radio or tapes?

J.: I would hear my friends playing music.

Int: Was that when you were little or now?

J.: Sometimes now, but I used to hear them playing music when they were little.

Int: Do you ever sing?

J.: yep.

Int: Can you remember the first song you learned to sing?

J.: I learned to sing Baa Baa Black Sheep that was the first song.

Int: Who taught it to you?

J.: My Grandmother.

Int: She taught it to you. Did she teach you any other songs?

J.: Yes, most of my old songs she taught me.

Int: Like what?

J.: Like um Twinkle Twinkle and um.. and ... and.. um. mostly just nursery songs.

Int: How old were you when you learned Baa Baa Black Sheep?

J.: About 3 or 4.

Int: Did you know any songs before that?

J.: um... I used to know some songs, but I didn't know how to sing them.

Int: What songs did you know?

J.: I don't know.

Int: You don't remember?

J.: No.

Int: Ok. When did you start getting involved with music?

When did you start doing music?

J.: 3.

Int: When you were 3. Is that when you started your lessons?

J.: My group lessons.

Int: Your instrument is.....

J.: Piano.

Int: Who picked the piano? How come you didn't start learning another instrument?

J.: Well, I don't know. Mommy and Daddy chose it.

Int: They chose it?

J.: Yeah,. I really wanted to play the guitar the most.

Int: So you wanted to learn the guitar?

J.: Yeah.

Int: Well may be you'll be able to do piano and guitar lessons a little bit later. Before you started your lessons, were you playing around on the piano?

J.: Yes.

Int: Did you make up your own songs and things?

J.: Yeah, I used to go (demonstrated).

Int: So you used to play all over the place. You must have liked the sounds?

J.: Yeah... that's something to do with music. Well the sounds.

Int: Was somebody teaching you to play songs on the piano before you started your lessons or did you just explore it yourself?

J.: I explored it myself.

Int: Do you remember anything from that time?

J.: Um.... well I do remember some things, When I was about 2 or something Mommy used to pick me up.... I used to butt her on the head with my head and then I would bite her.

Int: Gracious, you must have been practising your chewing. When you were little, besides the piano sounds, were there other sounds that you liked listening to?

J.: Yeah.

Int: What kinds of sounds did you like?
J.: Motor sounds, truck sounds, motorbike sounds.
Int: So all the bike sounds?
J.: Yeah and cars and loud plane sounds.
Int: So all the motor sounds?
J.: Yeah and some other things too.
Int: Like what?
J.: Like um... like... um... horse sounds and stuff.
Int: Did sounds ever scare you when you were little?
J.: Cannon sounds because when I went to a museum when I was only 2 or something, Mum said look down that barrel, and when I looked down that barrel my Mum made a big cannon ball sound and I cried.
Int: When you were little, do you think you were a good listener?
J.: umm... yes.
Int: What kinds of things would you like to listen to?
J.: Like listen to....
Int: What kinds of things would you listen to that you liked?
J.: (vocal racing sounds)
Int: So back to the motor sounds again?
J.: Yeah.
Int: Did anybody ever read you stories?
J.: Yep.
Int: Did you listen to music on tapes or records?
J.: Yep.
Int: Did you listen to the TV?
J.: Yep.
Int: So out of those things, what would be your most favourite things to listen to?
J.: Motor racing.
Int: What was your favourite toy when you were little?
J.: Transformers.
Int: When you were playing with your transformers could you hear sounds inside you head that you had given them?
J.: Yep.

Int: Did you make their sounds for them?

J.: Yep.

Int: What kinds of sounds? Could you give me an example?

J.: (robotic voice)

Int: So just like the TV show, the robot sounds? Did you do a lot of pretend games like that?

J.: Yep.

Int: With your friends to or just by yourself?

J.: With my friends and by myself.

Int: That would be fun. What about pretend games that you would do, but you wouldn't use toys?

J.: Well, yep.

Int: Like what?

J.: I used to do things like, play rescuing princesses.

Int: So you would go save people?

J.: Yeah.

Int: What would you save the princess from?

J.: ah...

Int: Do you remember?

J.: Dragons, either knights and princes and stuff.

Int: So that was kind of like the Princess Bride?

J.: Yeah.

Int: Did you see that show?

J.: Yeah.

Int: Now talk to me a little bit about school. Are you a good student at school?

J.: Yes.

Int: Do you like school?

J.: Sort of.

Int: Do you do well at school?

J.: I don't know.

Int: What's your favourite subject? What do you like doing the most at school?

J.: umm.... It's a hard question. um....I think it's play time.

Int: So you like playtime best?

J.: Yeah.

Int: What's the one thing you don't like doing at school?

J.: Don't like doing ..um.. maths very much.

Int: You don't like doing maths. Is it hard?

J.: No, because it's usually a time when everyone is mean to me.

Int: How come?

J.: I don't know.

Int: That doesn't sound very good. When your teacher is teaching you something new, do you learn it quickly and easily or do you need to practise it?

J.: Practise it.

Int: So you need to work at it a little bit. What about the opposite, when something is really really hard, and your trying and it just doesn't go right, what do you do?

J.: Ask someone to show me how to do it.

Int: Who would you ask?

J.: My Mum.

Int: But what happens if you still can't get it? Do you keep trying or do you give up?

J.: I keep on trying.

Int: You don't ever give up?

J.: No.

Int: With your friends, do they give up?

J.: Yes.

Int: Are you stubborn?

J.: What does that mean?

Int: It means that you won't ever give in.

J.: Yes.

Int: With your friends, do you have lots and lots of them or just some very close friends?

J.: Very, very, very close friends.

Int: How many best friends have you got?

J.: Um.... about.....four or something like that.

Int: Are they all boys, or some girls too?

J.: Two girls and two boys.

Int: That's pretty even. When you have a choice, and you

can't play with your best friends, would you rather play by yourself or with a big group of people?

J.: By myself.

Int: Are you fussy about your school work? Is it important how it looks?

J.: Yes.

Int: So you don't like messy things?

J.: I don't like messy stuff like.... if I wrote an A I wouldn't like it to go (demonstrated).

Int: All crooked? So you are very fussy about your printing. When someone says that a person is talented in music what do they mean?

J.: um... They mean, that they like it

Int: That the person likes music?

J.: Yeah.

Int: Ordinary or a lot?

J.: Quite a lot?

Int: If someone says that you are talented in music what do you think they mean?

J.: They think that I love music

Int: OK. How can someone show that they love music, that they are talented?

J.: Well, if someone likes the music, its.... I love that music, play it again, please please...

Int: So its the person who is listening that is calling out for the song to be played again?

J.: Yeah.

Int: Can we tell from the outside that someone is a good musician?

J.: um...

Int: I haven't heard you play yet, can I tell just by looking at you that you play the piano?

J.: No.

Int: So there's no clue?

J.: Only the piano.

Int: So only the instrument. Are you going to be a famous pianist?

J.: I don't know.

Int: If someone wanted to become famous as a pianist what would they have to do?

J.: Practise and practise and practise and practise, and practise for about 16 or 60 years or something and not let out a day.

Int: If you did all that practise, that would guarantee, that would promise you, that you would be a famous pianist? or does it take something else beside that?

J.: Someone should come round to your house, and listen to you play, if they like it a lot, then they might say, "Hey, come around here to this boys place. I think he should be famous. He can play the piano. He is so good at it, let's hear him and get him on a CD".

Int: So we would have to record you and film you. What would we do with those things?

J.: We go to take it to all the famous people around the world and um...ask them if they think that persona should be famous. Put it to a vote or something.

Int: That would be a very good idea. In your lessons, are there people who are better than others?

J.: Yes, the older people.

Int: Are there also people who don't play as well?

J.: Yes, about six.

Int: How come some people can play better than others?

J.: Because they practise a lot. If someone practised sword fighting they would be very fast.

Int: Is it possible for two people, who practise the same amount of time, and still one person is better than the other?

J.: Yep.

Int: How come?

J.: Cause the other person did harder things and learned much more.

Int: Can we tell if someone is going to be a good musician before they start lessons?

J.: um....

Int: Think about someone two years old, how can we tell if they should start lessons?

J.: Because they love music or something and if they listen to lots of the same type of music that they learned to play, that they can play, ... this note is G this note is E, and they can start playing.

Int: So they would be listening and watching?

J.: Yeah.

Int: You told me that you sometimes fool around with music and that you make up your own songs to sing, do you ever make up your own songs to play?

J.: Yep.

Int: What do you use those songs for? Just for fun or do you have a reason for making them up?

J.: A reason.

Int: Like what?

J.: Just part of the game that I'm playing, and I felt that the piano was a cure, like

Int: A cure for what?

J.: It's just in a game but if someone is dead or something, the piano can bring them back to life.

Int: You also said earlier that you used music to cheer people up. Can it change other moods as well?

J.: Yes.

Int: What other kinds?

J.: Some people who are angry.

Int: Does that work for you too, when you are angry?

J.: Yes.

Int: All the time?

J.: Yep.

Int: Good, Maybe you should become a music doctor. Do you ever have music running through your head?

J.: Yeah.

Int: What kinds of songs?

J.: umm.. like Eric Clapton.

Int: Is it ever music that your practising?

J.: umm...No, cause it is too hard on the piano.

Int: But you practise piano songs too. Do they ever run through your head?

J.: Yes.

Int: What are you doing when they go through your head?

J.: It's just like I'm inside my head and I'm still playing, I'm in a dream, I'm in two places, I'm outside in the playground and in my head I'm practising my piano. It's like the sound goes out here and in my ears and into my head playing the piano.

Int: Can you see your hands inside your head too or is it just the music that you can hear?

J.: I can hear the music and I can see my hands playing the music and me sittingit's just like having a little mini one of those that would always keep.

Int: Inside?

J.: Yeah, inside.

Int: How handy. That's neat. When you hear something on the piano or on the radio and you only hear it once, can you remember it straight away?

J.: Yeah, I can hum it.

Int: Even if you've only heard it once?

J.: Yeah.

Int: Do you have a piece of music that is your favourite, that you like to listen to?

J.: Yep.

Int: What?

J.: (title of a piece of piano music)

Int: Ah, so that's the one that you are learning now?

J.: Yep, Do you want me to play it for you?

Int: I will, but not just right now. Do you have a favourite piece that you listen to?

J.: Yep.

Int: How does it make you feel inside when you are listening to it?

J.: It makes me feel like a famous rock or jazz star.

Int: Do you pretend to be playing with it?

- J.: Yeah I pretend to be that person, if I'm hearing say, Eric Clapton's Tears, I would do (demonstrated and sang most of the song), something like that.
- Int: How much do you practise every day?
- J.: Well I don't really know. I can show you, Mum writes it down in a book.
- Int: Is it a short time or a long time?
- J.: Fifty minutes.
- Int: Every day?
- J.: Sometimes.
- Int: When you are practising, does the time go really really fast or slow?
- J.: Fast.
- Int: Do you every miss practising?
- J.: (head nod)
- Int: When?
- J.: Quite often because I'm late for school and I get told off if I'm a bit bit late.
- Int: So you practise in the morning?
- J.: Yeah, cause I've been trained up to a big book
- Int: How do you feel when you make a mistake when you're playing?
- J.: um.... I don't really know.
- Int: Is that because you don't make a lot of mistakes?
- J.: I don't really know.
- Int: Who reminds you to start practising; do you go yourself or does Mum say when it's time?
- J.: She goes, "Go on you haven't practised today, play me um...", the pieces she wants me to play.
- Int: Everyday?
- J.: Everyday.
- Int: So if you had a choice, you wouldn't practise?
- J.: I would only practise Alleosaurus.
- Int: So you would only practise the one song that you like? Are you fussy when you are practising?
- J.: Sometimes.
- Int: Do you ever play for other people?

J.: Yeah.

Int: Do you offer to play or does someone ask you to play?

J.: Yeah.

Int. You offer?

J.: Yes.

Int: Did you have any questions that you wanted to ask or was there something special that you wanted to tell me about?

J.: No.

Int: But you wanted to play a song for me, so let's do that now.

End of interview.

Appendix F: Questionnaires' Results

Table F.1 Parent Questionnaire: Likert Results

(using AA=Almost Always & Frequently responses, AN=Rarely & Almost Never, U=Usually);

AA U AN

Strong Parental Positive Responses		AA	U	AN
94%	singing in tune by age 5	17	-	-
	enjoys playing pieces	17	1	-
89%	sings in tune now	16	1	1
	does well in school	16	1	-
83%	as an infant, was attracted to musical sounds	15	1	1
	learns easily	15	2	1
	usually cheerful	15	2	-
	practises daily, (67% for girls and 33% boys)	15	3	-
78%	as an infant, was responsive to music	14	2	1
	as a toddler, showed as keen interest for music	14	1	2
	as a toddler, attempted to sing along	14	2	1
	enjoys performing	14	4	-
	performs at the teacher's request	14	3	-
	responds physically to music	14	2	2
practises 15 minutes per day	14	0	1	
72%	shows talent in other areas	13	4	1
	school age child, shows a keen interest in music	13	3	1
	singing in tune by age 4	13	3	1
67%	gets along well with peers	12	6	-
	is popular	12	5	1
	invents tunes now	12	4	2
	makes up own tunes or songs on their instrument (33% for girls & 67% for boys)	12	5	1
61%	when at play, will sing or hum (66% for girls & 33% for boys)	11	3	4
	as an infant, showed keen interest in music (66% for girls & 33% for boys)	11	3	2
	practises 30 minutes per day	11	4	1
	experiments with their instrument	11	5	2
56%	when at play now, will sing or hum	10	6	3
	shows interest in various kinds of music	10	8	-
	as an infant, was easily soothed by music	10	5	6
	is highly aware of sounds	10	4	2
	enjoys practising	10	6	2
	performs at the parent's request	10	7	1
	*needs to be supervised at practise	10	6	2
performs for adults (30% for girls & 70% for boys)	10	7	1	
50%	as a toddler, listened to music intently	9	4	3
	has music in the background (70% for girls & 30% for boys)	9	5	2
	as an infant, turned towards music source (70% for girls & 30% for boys)	9	5	1
	responds emotionally to music (70% for girls & 30% for boys)	9	5	3
	unusually sensitive to sounds at present	9	3	6
unusually emotionally sensitive	9	4	4	

Weak Parental Positive Responses		
44%	had toy instruments (66% for girls & 33% for boys)	8 8 2
	unusually sensitive to sounds	8 6 4
	when involved with work, sings or hums (89% for girls & 11% for boys)	8 5 5
	as toddler, made up own tunes or songs	8 7 3
	performs for peer group (25% for girls & 75% for boys)	8 8 2
	enjoys scales and finger drills	8 5 4
	*needs to be reminded to practise (38% for girls & 63% for boys, with R and An was 26%, 100% for girls)	8 5 5
42%	preferred to play with toys that made sounds	7 6 4
	repeats tunes after one hearing (71% for girls & 29% for boys)	7 6 4
	made up singing tunes after the age of 2	7 8 2
39%	singing in tune by age 3 (71% for girls & 29% for boys)	6 7 3
26%	listens to music with intense concentration	5 8 4
Negative Parental Responses		
72%	prefers his/her own company to other children	2 3 13
	practises more than 60 minutes per day	1 - 13
67%	made up singing tunes before the age of 1	2 - 12
	child gets restless if he/she doesn't practise	2 3 12
	practises 60 minutes per day	4 - 12
44%	when fidgeting, your child sings or hums	5 4 8
39%	made up singing tunes before the age of 2	4 5 7
	when fidgeting, your child dances	5 4 7
33%	waiting without occupation, your child sings or hums	5 5 6
	when fidgeting, your child taps sound patterns	5 5 6
Unclear Parental Response		
	as an infant, your child was unusually active	6 5 6

* a negative response was desirable

Note: The percentages represent the strongest response number divided by the total number of parent returns.

Table F.2 Teacher Questionnaire: Likert Results
(using AA=Almost Always and Frequently responses, U=Usually, AN=Rarely and Almost Never responses)

Strong Positive Teacher Responses		AA	U	AN
100%	sensitive to musical sounds	4	-	-
	sensitive to sounds	4	-	-
	emotional response to music	4	-	-
	imaginative	4	-	-
75%	practised daily	3	1	-
	sang when at play	3	1	-
	absorbed into music	3	1	-
	did well at school	3	1	-
	unusually sensitive	3	-	1
	creative	3	-	1
	solitary	3	-	1
	learned things easily and quickly	3	-	1
67%	instrument experimentation	2	2	-
	usually cheerful	2	2	-
	lost track of time during practise	2	1	1
	enjoyed performing	2	1	1
	excitable	2	1	1
Weak Positive Teacher Responses:				
25%	performed for others	1	2	1
	perceived as having many friends	1	2	1
	restless if missed practise	-	3	1
	made up own tunes	1	2	1
Negative Teacher Responses:				
75%	practice supervised by parent	-	1	3
	practice initiated by parent	1	-	3
Unclear Teacher Responses:				
	had physical response to music	2	-	2
	absorption into music when performing	-	2	2
	sang when working	1	1	2
	perfectionist	1	1	2

Note: The percentages represent the strongest response number divided by the total number of teacher returns.

Table F.3 Parent and Teacher Questionnaires:
Personality Ranking Question Results

Responses	Parent identified trait	Responses	Teacher identified trait
16 89%	learns easily sensitivity	4	concentrates for long periods appreciates beauty
14 78%	physically active concentrates for long periods	3 75%	persistent desire to excel does not give up easily learns easily imaginative physically active
13 72%	enjoys large social gatherings		
12 67%	able to work hard desire to excel		
11 61%	self-confident		
10 55%	sensible does not give up easily curiosity appreciates beauty excitable		
9 50%	motivated imaginative	2 50%	sensitivity self-disciplined sensible enjoys large social gatherings focused motivated able to work hard original perfectionist determined
8 44%	persistent perfectionist self-disciplined		
7 39%	focused fussy		
6 33%	extroverted originality		
5 28%	determined	1 25%	solitary curious extroverted self-confident nervous excitable takes criticism well
4 22%	takes criticism well intense		
1 5%	nervous solitary introverted anxious		

Responses	Parent identified trait	Responses	Teacher identified trait
0	driven	0	introverted intense fussy anxious driven
Numbers represent the numbers of parents/teachers who selected the trait.			
A) Traits added by parents:		B) Traits added by teachers:	
casual and relaxed		happy	
has insight		very shy	
gives up easily		competitive	
loves to learn new things		secure	
doesn't like making mistakes		feeling that could do anything	
enjoys performing			
strong love of animals			
moody			
loving and caring			
perseverant			
loving and cuddly			
gets upset when family members leave for any length of time			
		C) Traits teachers indicated were needed to become excellent musician:	
		love to play and have a delight in music	
		excited by own progress	
		love challenges	
		good supportive parents and a good teacher	
		hard work with good self-discipline and dedication	
		desire to excel	
		concentration, single-mindedness	
		persistent, conscientious effort, motivated	
		desire to share music with others	
		an early beginning to learning	
		see themselves as a successful musician	
		intelligence	
		ability to carry on without support from others	

Bibliography

- Aronoff, F.W. (1969). Music and Young Children. Holt, Rinehart and Winston Inc.: New York.
- Austin, J.R. & Vispoel, W.P. (1992), Motivation after failure in school music classes: The facilitative effects of strategy attributions. In Bulletin, the Council for Research in Music Education, 3, 1-23.
- Bamberger, J. (1986). Cognitive issues in the development of musically gifted children. In Sternberg, R.J. & Davidson, J.E. (Eds.), Conceptions of Giftedness (pp. 388-413). Cambridge University Press: Cambridge.
- Bloom, B. (1982). The role of gifts and markers in the development of talent. In Exceptional Children, 48(6), 510-522.
- Bloom, B. (1985). Developing Talent in Young People. Ballantine: New York.
- Borland, J.H. (1989). Planning and Implementing Programs for the Gifted. In Education and Psychology of the Gifted Series. Teachers College Press: Columbia University.
- Buckton, R.M. (1981), The Development of Musical Concepts in Young Children: An Investigation. Unpublished doctoral dissertation, Auckland University, Auckland.
- Buckton, R. & Manins, S. (198*). Optimal ages and stages in developing: Musical activities and concepts, affective response to music, instrumental and vocal training. In Sell, D. (Ed.), Studies in Music Education. The Canterbury Series, No. 2.

- Campbell, D.G. (1988). Introduction to the Musical Brain. MMB Music Inc.: Missouri.
- Colwell, R.J. (1992). Music education. In Alkin, M.C. (Ed. in chief), Encyclopedia of Educational Research, Sixth Edition, Vol. 3 (pp. 879-887). Macmillan Publishing Co.: New York.
- Cox, C.M. (1926), The early traits of 300 geniuses. In Albert, R.S. (Ed.), 1983, Genius and Eminence. The Social Psychology of Creativity and Exceptional Achievement (pp. 46-51). Pergamon Press: New York.
- Dalton, J. & Smith, D. (1989). Extending Children's Special Abilities. Strategies for Primary Classrooms. Office of Schools Administration, Ministry of Education: Victoria.
- Davidson, L. & Scripp, L. (1988). Young children's musical representations; windows on music cognition. In Sloboda, J.A. (Ed.), Generative Processes in Music. The Psychology of Performance, Improvisation and Composition (pp. 231-259). Clarendon Press: Oxford.
- Davis, G.A. & Rimm, S.B. (1989). Education of the Gifted and Talented. 2nd Edition. Prentice Hall: Englewood Cliffs.
- Dixon, B.R., Bouma, G.D. & Atkinson, G.B.J. (1991). A Handbook of Social Science Research. Oxford University Press: Oxford.
- Dorhout, A. (1982). Identifying musically gifted children. In Journal for the Education of the Gifted, 5(1), 56-66.

- Dowling, W.J. (1982). Melodic information processing and its development. In Deutsch, D. (Ed.), The Psychology of Music (pp. 413-429). Academic Press: New York.
- Doxey, C. & Wright, C. (1990), An exploratory study of children's music ability. In Early Childhood Research Quarterly, 5, 425-440.
- Ericsson, K.A., Tesch-Romer, C. & Krampe, R.T. (1990). The role of practice and motivation in the acquisition of expert-level performance in real life; An empirical evaluation of a theoretical framework. In Howe, M.J.A. (Ed.), Encouraging the Development of Exceptional Skills and Talents (pp. 109-130). The British Psychological Society: Leicester.
- Feldhusen, J., VanTassel-Baska, J. & Seeley, K. (1989). Excellence in Educating the Gifted. Love Publishing Company: Colorado.
- Feldman, D.H. (1987). Extreme giftedness: A bit less mysterious - An editorial. In Roeper Review, 10(2), 72-74.
- Feldman, D.H. & Goldsmith, L.T. (1986). Nature's Gambit. Child Prodigies and the Development of Human Potential. Basic Books Inc. Publishers: New York.
- Feldhusen, J.F. (1986). A conception of giftedness. In Heller, K.A. & Feldhusen, J.F. (Eds.), Identifying and Nurturing the Gifted. An International Perspective (pp. 33-38). Hans Huber Publisher: Toronto.
- Fliegler, L.A. (1961). Curriculum Planning for the Gifted. Prentice-Hall Inc.: New Jersey.

- Flohr, J.W. (1987). Parenting the musically gifted: Assumptions and issues. In Creative Child and Adult Quarterly, 12(1), 62-65.
- Fox, D.B. (1991), Music, development, and the young child. In Music Educators Journal 77(5), 42-46.
- Freeman, J. (1984), Talent in music and fine-art. In Gifted Education International, 2, 107-110.
- Gardner, H. (1983). Frames of Mind. The Theory of Multiple Intelligences. Heinemann: London.
- Goldsmith, L.T. (1990). The timing of talent; The facilitation of early prodigious achievement. In Howe, M.J.A. (Ed.), Encouraging the Development of Exceptional Skills and Talents (pp. 17-31). The British Psychological Society: Leicester.
- Gordon, E. (1971). The Psychology of Music Teaching. Prentice-Hall: New Jersey.
- Gordon, E. (1979). Primary Measures of Music Audiation. G.I.A. Publications Inc.: Chicago.
- Hagen, E. (1980). Identification of the Gifted. Teachers College Press: Columbia University.
- Hargreaves, D.J. (1986). The Developmental Psychology of Music. Cambridge University Press: Cambridge.
- Howe, M.J.A. (1990), The Origins of Exceptional Abilities. Basil Blackwell: Massachusetts.
- Howe, M.J.A. & Sloboda, J.A. (1991), Young musicians' accounts of significant influences in their early lives. In British Journal of Music Education, 8, 39-52.

- Isaac, S. & Michael, W.B. (1972). Handbook in Research and Evaluation. Robert R. Knapp Publisher: California.
- Jansen, G.E. (1982). Music in New Zealand Schools. A Personal View. Unpublished paper.
- Jansen, G.E. (1988). Priorities in a National Music Syllabus: Early Childhood to 18 Year Olds. Unpublished paper presented to the International Society for Music Education XVIII World Conference: Canberra.
- Jaques-Dalcroze, E. (1967). Rhythm, Music and Education. The Dalcroze Society Inc.: England.
- Judd, T. (1988). The varieties of musical talent. In Obler, L.K. & Fein, D. (Eds.), The Exceptional Brain. Neuropsychology of Talent and Special Abilities (pp. 127-155). The Guilford Press: New York.
- Karnes, M. (1987). Issues in Educating Young Gifted Children. Promising Practises. Leadership Accessing Monograph: Education of Gifted and Talented Youth. Indiana Department of Education: Indiana. (ERIC Document Reproduction Service No. ED 315 946).
- Kauffman, J.M. (1989). Characteristics of Behavior Disorders of Children and Youth. 4th Edition. Merrill Publishing Company: Columbus.
- Kitano, M.K. & Kirby, D.F. (1986). Gifted Education. A Comprehensive View. Little, Brown and Company: Boston.
- Korner, A.F. (1973). Individual differences at birth; Implications for early experiences and later development. In Westman, J.C. (Ed.), Individual Differences in Children. John Wiley and Sons: New York.

- McAlpine, D.M. (1979). The Identification of Gifted Children in Early Childhood. Paper presented to First National Conference of Gifted and Talented Children, Auckland, New Zealand.
- McCurdy, H.G. (1983). The childhood pattern of genius. In Albert, R.S. (Ed.), Genius and Eminence (pp. 155-169). Pergamon Press: Oxford.
- Mills, E. (1973). Advice to a new mother. In Mills, E. & Murphy, T.D. (Eds.), The Suzuki Concept: An Introduction to a Successful Method for Early Music Education (pp. 17-32). Diablo Press: Berkley California.
- Mills, J. (1985). Gifted instrumentalists: How can we recognise them? In British Journal of Music Education 2(1), 39-49.
- Music Educators National Conference (1991). Growing up Complete; The imperative for music education. The report of the National Commission on Music Education: Reston VA March, 1991. (ERIC Document Reproduction Service No. ED 332 914).
- Murphy, F. (1990). Music and the gifted. In Gifted Education International, 7(1), 33-35.
- Norris, P. (1983). The Yehudi Menuhin School. In International Journal of Music Education, 2, 33-36.
- Pendarvis, E.D., Howley, A.A. & Howley, C.B. (1990). The Abilities of Gifted Children. Prentice-Hall: New Jersey.

- Potosky, A. (1986). Testimony to Music. A paper presented to the Music Educators National Conference, Reston, Virginia. (ERIC Document Reproduction Service No ED 284 800).
- Radford, J. (1990a). Child Prodigies and Exceptional Early Achievers. Harvester Wheatsheaf: New York.
- Radford, J. (1990b). The problem of the prodigy. In Howe, M.J.A. (Ed.), Encouraging the Development of Exceptional Skills and Talents (pp. 32-48). The British Psychological Society: Leicester.
- Radocy, R.E. & Boyle, J.D. (1979). Psychological Foundations of Musical Behaviour. Charles C. Thomas Publisher: Illinois.
- Reid, N.A. (1978). Helping the Gifted Child. Teacher and Parent Roles. Address to the Third Annual General Meeting of New Zealand Association for Gifted Children Inc., 30 September, 1978.
- Reimer, B. (1989). A Philosophy of Music Education (2nd ed.). Prentice-Hall: New Jersey.
- Revesz, G. (1953). Introduction to the Psychology of Music. Longmans, Green and Co.: London.
- Richardson, C.P. (1990). Measuring musical giftedness. In Music Educators Journal 76(7), 40-45.
- Robinson, N.M. (1987). The early development of precocity. In Gifted Child Quarterly, 31(4), 161-164.

- Scott, D. & Moffett, A. (1978). The development of early musical talent in famous composers; A biographical review. In Critchley M. & Henson, R.A. (Eds.), Music and the Brain. Studies in the Neurology of Music (pp. 174-201). Heinemann Medical Books Ltd.: London.
- Shroff, N. (1990), The school choir and the musically gifted child. In Apex 3(3), 36-38.
- Shuter-Dyson, R. (1982). Musical ability. In Deutsch, D. (Ed.), The Psychology of Music (pp. 391-412). Academic Press: New York.
- Shuter-Dyson, R. (1985). Musical Giftedness. In Freeman, J. (Ed.), The Psychology of Gifted Children (pp. 159-183). John Wiley & Sons: New York.
- Shuter-Dyson, R. & Gabriel, C. (1981). The Psychology of Musical Ability (2nd ed.). Methuen: London
- Sloboda, J. (1985). The Musical Mind. The Cognitive Psychology of Music. Clarendon Press: Oxford.
- Sloboda, J. (1990). Musical excellence - How does it develop? In Howe, M.J.A. (Ed.), Encouraging the Development of Exceptional Skills and Talents (pp. 165-178). The British Psychological Society: Leicester.
- Sosniak, L.A. (1990). The tortoise, the hare, and the development of talent. In Howe, M.J.A. (Ed.), Encouraging the Development of Exceptional Skills and Talent (pp. 149-164). The British Psychological Society: Leicester.

- Stein, M.I. & Heinze, S.J. (1983), A summary of Terman's Genetic Studies of Genius Vol. I and III. In Albert, R.S. (Ed.), Genius and Eminence. The Social Psychology of Creativity and Exceptional Achievement (pp. 75-84). Pergamon Press: New York.
- Storr A. (1992), Music and the Mind. The Free Press: New York.
- Swanson, B.R. (1969). Music in the Education of Children, 3rd Edition. Wadsworth Publishing Company: Belmont, California.
- Terman, L.M. (1926). Genetic Studies of Genius. The Early Traits of Three Hundred Geniuses. Volume II. Stanford University Press: California.
- Terman, L.M. (1981). The discovery and encouragement of exceptional talent. In Barbe, W.B. & Renzulli, J.S. (Eds.), Psychology and Education of the Gifted, 3rd Ed. (pp. 5-19). Irvington Publishers Inc.: New York.
- Thomas, A., Chess, S. & Birch, H.G. (1968). Temperament and Behaviour Disorders in Children. New York University Press: New York.
- Vernon, P.E., Adamson, G. & Vernon, D.F. (1977). The Psychology and Education of Gifted Children. Methuen and Company Ltd.: London.
- Walters, J. & Gardner, H. (1984). The Crystallizing Experience: Discovering an Intellectual Gift. Harvard Project Zero. Harvard University: Cambridge. (ERIC Document Reproduction Service No ED 254 544).

Zdzinski S.F. (1992), Relationships among parental involvement, music aptitude and musical achievement of instrumental music students. In Journal of Research in Music Education, 40(2), 114-125.