ESTONIAN AND FINNISH GIFTED CHILDREN IN THEIR LEARNING ENVIRONMENTS

Helsinki 2005

Research Report 260

Inkeri Ruokonen

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Supervisor: *Professor*
Kari Uusikylä
University of Helsinki

Pre-inspectors: *Professor*
Maija Fredriksson
University of Oulu

Professor
Jane Piirto
University of Ashland, Ohio

Custos: *Professor*
Heikki Ruismäki
University of Helsinki

Opponent: *Professor*
Leida Talts
Tallinn Pedagogical University

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Estonian and Finnish Gifted Children in Their Learning Environments

Abstract

This thesis is a part of a cross-cultural study project between Estonia and Finland concerning gifted children. The aim of the thesis was to describe which catalysts (positive and/or negative impacts) associated with the development of gifted children are found in the learning environments of Estonian and Finnish children. I examined the gifted children descriptions of characterisations of their parents and teachers in their environments; and also assessed gifted children themselves describing their learning environments. I was especially interested in learning which musical and creative opportunities exist in the learning environments of these gifted children? The concept of environmental catalysts as motivational aspects in talent development stems from Gagné's theory of giftedness. The sample group consisted of 64 gifted children from Estonia (32) and Finland (32). They were selected using Raven's Coloured Progressive Matrice (CPM) test (IQ of 120 or higher).

This thesis consists of eight articles and reflective summaries of them. The general outline of the research project can be divided into four different sections followed by a conclusion. First, the learning environment of gifted children was studied by assessing the home environment through parental questionnaires. Secondly, the school environment was examined through teachers' descriptive evaluations of children. Thirdly, in interviews the gifted children reported their thoughts about learning in different environments. Fourthly, close attention was paid to the creative and musical environments of gifted children. Gifted children's measured abilities in creative thinking, especially in divergent production (Torrance's Test of Creative Thinking TTCT) and musical skills (Lotti's C-test) varied and were not significantly connected to their general intelligence. This research material showed the importance of multiple intelligences. The final section summarises the factors in the learning environments of gifted children in Estonia and Finland. The study and the articles include both quantitative and qualitative information.

These gifted children were eager to learn many skills and needed support for special interests. All children were at a very high cognitive level in general giftedness. Every child had one or more areas of specific interest, which may later become talents.

This study showed that gifted children in both Estonia and Finland experience mostly positive motivational impacts in their learning environments. There were not many significant differences found between these two countries and the basic needs for more specific learning possibilities in the school environment were actually the

same in Estonia and Finland. The differences in home environments between Estonia and Finland were mostly economic. The size of family apartment and the financial status of the national economy could restrict children's possibilities for private space or free-time activities in Estonia compared to Finland. In both countries children described their relationships with their parents and other family members as very warm and safe. The study revealed that parents are interested in their children and give them the opportunities and support needed for early learning. However, according to their interviews, these gifted children still wished for more time especially from their parents; they also expressed need for a special enrichment and acceleration at school.

Teachers in both countries reported a need for classroom assistants and space for creating a more multidimensional learning environment suited to the individual needs of different children. Children also hoped for more variation in their learning environments. Finnish gifted children, both in preschools and schools, reported noisy group situations, and gifted children in Finnish schools reported teasing as negative motivational impacts in their learning environments. Children valued their teachers and friends and saw them as positive catalysts for their motivation and learning. Prosocial skills seemed to be important for good learning. Estonian and Finnish gifted children enjoyed learning situations generally and the role of significant people for them seemed to be an important motivational environmental factor.

Keywords: giftedness, learning environment, motivational aspects, interviewing children

Helsingin yliopisto
Käyttäytymistieteellinen tiedekunta
Soveltavan kasvatustieteen laitos
Tutkimuksia 260

Inkeri Ruokonen

Eestiläiset ja suomalaiset lahjakkaat lapset heidän oppimisympäristöissään

Tiivistelmä

Väitöstutkimukseni on rakenteeltaan neliosainen ja koostuu näihin osiin liittyvistä kahdeksasta artikkelista, niiden reflektiivisestä pohdinnasta ja yhteenvedosta. Väitöskirjatyö liittyy osaltaan Eestin tiedeakatemian tutkimusprojektiin, jossa Eestin pedagoginen yliopisto ja Helsingin soveltavan kasvatustieteen laitos ovat tehneet tutkimusyhteistyötä esiintulevan lahjakkuuden tutkimisessa eestiläisissä ja suomalaisissa 6–8 -vuotiaissa lapsissa. Väitöstutkimukseni on samalla prosessikuvaus mukanaolosta kahden naapurimaan välisessä tutkimusprojektissa. Tutkimuksessa oli mukana yhteensä 64 lahjakasta lasta molemmista maista. Lahjakkuus määriteltiin Ravenin testin mittaamalla yleisellä älykkyydellä, tutkimuksessa olevilla IQ oli vähintään 120. Väitöskirjatyössä keskityn kuvaamaan ja tarkastelemaan eestiläisiä ja suomalaisia lahjakkaita lapsia heidän erilaisissa oppimisympäristöissään Gagnén lahjakkuusteorian viitekehyksessä. Gagnén lahjakkuusmallissa lahjakkuuden kykyalueet on jaettu neljään pääalueeseen; älylliseen, luovaan, sosio-emotionaaliseen ja senso-motoriseen. Gagnén mallissa ympäristölliset tekijät voivat ratkaisevasti olla yhteydessä eri kykyjen kehittymiseen. Ympäristölliset tekijät toimivat lahjakkuuden virittäjinä ja ohjaavat kykyjen oppimista erityisalueille, myös sattumalla ja persoonallisilla tekijöillä on vaikutusta lahjakkuuden kehittymisessä. Väitöstutkimuksen tehtävänä oli etsiä ja kuvailla eestiläisten ja suomalaisten lahjakkaiden lasten oppimisympäristöissä olevia motivationaalisia virittäjiä. Tutkimusote oli laaja-alaisen kuvaileva sisältäen sekä kvantitatiivisia että kvalitatiivisia tutkimusmenetelmiä kuten vanhempien kyselyt, opettajien arvioinnit, lasten haastattelut sekä luovan- ja musiikillisen ajattelun mittaamiset.

Väitöskirjan ensimmäisessä osassa tarkastellaan kotia lahjakkuuden virittäjänä lähinnä lahjakkaiden lasten vanhempien kyselytutkimuksesta saadun kuvauksen kautta. Vanhemmille tehdyn kyselyn mukaan sekä eestiläisillä että suomalaisilla lahjakkailla lapsilla on turvallinen kotiympäristö ja hyvä kiintymyssuhde vanhempiinsa. Vanhemmat ovat tietoisia lastensa esiintulevasta lahjakkuudesta ja pyrkivät tukemaan lastensa harrastustoimintaa. Eestiläiset kodit ovat kokeneet suuren yhteiskunnallisen uudistuksen, joka on vaikuttanut uutena mahdollisuutena myös perheiden tilanteeseen. Perheiden sosioekonominen taso erosi maiden välillä ja tuli esille esimerkiksi siinä, että enemmän kustannuskykyisten suomalaisperheiden lahjakkailla lapsilla oli mahdollisuus harrastaa monia erityisharrastuksia eestiläisiä lapsia enemmän.

Väitöstutkimuksen toisessa osassa oppimisympäristönä on esikoulu- tai koulu. Siinä tarkastellaan sitä, kuinka eestiläiset ja suomalaiset opettajat arvioivat lahjakkaita oppilaitaan oppimisessa, luovuudessa, prososiaalisessa käyttäytymisessä ja työskente-

lyssä yleensä. Opettajat pitivät prososiaalisia taitoja merkittävinä alisuoriutumisen ehkäisyssä molemmissa maissa. Eestiläiset opettajat arvioivat eestiläiset lahjakkaat lapset vastuuntuntoisemmiksi verrattuna suomalaisten opettajien arviointeihin, kun taas suomalaiset opettajat arvioivat suomalaiset lapset sosiaalisemmiksi kuin eestiläiset opettajat. Opettajien arvioiden mukaan lasten luova toiminta esikoulu- ja kouluympäristössä oli positiivisesti merkitsevässä yhteydessä prososiaaliseen käyttäytymiseen. Varsinkin eestiläisillä opettajilla oli tarve eriyttää opetusta kaikkien lahjakkaiden oppilaiden kohdalla ja molemmissa maissa opettajat kokivat tarpeen eriyttää opetusta erityisesti lahjakkaiden poikien osalta. Sekä eestiläiset että suomalaiset vanhemmat ja opettajat olivat huomanneet lasten esiintulevan lahjakkuuspotentiaalin, heidän lapsia koskevissa arvioinneissaan oli yhtenevyyksiä, mutta myös eroavuuksia etenkin ryhmässä käyttäytymistä koskien. Erilaiset arviot voivat johtua siitä, että lapset käyttäytyvät osittain eri tavoin eri oppimisympäristöissä ja havainnoijillakin (vanhemmat ja opettajat) on erilaisissa ympäristöissä (koti ja esikoulu/koulu), erilainen rooli.

Väitöstutkimukseni kolmannessa osassa kuvaillaan lahjakkaiden lasten haastatteluaineiston pohjalta sitä, miten lapset itse kokevat oppimisensa erilaisissa oppimisympäristöissä olevissa vuorovaikutussuhteissa. Eestiläisten ja suomalaisten lahjakkaiden lasten kuvausten mukaan heillä on rikas oppimisympäristö ja monimuotoinen vuorovaikutusverkosto. Lahjakkaat lapset ovat innokkaita oppimaan hyvin erilaisissa tilanteissa, vanhemmilta, sisaruksilta, sukulaisilta, ystäviltä, opettajilta ja mediasta sekä itsenäisesti tietoa etsien tai taitojaan harjoittaen. Lapsilla oli positiivinen suhde oppimiseen yleensä, vanhemmat sosiaalistajina kuvattiin merkittäviksi myös monien asioiden ensimmäisinä opettajina. Vanhemmilta ja isovanhemmilta oli opittu lukemis- ja kirjoitustaitojen lisäksi kotitöitä, taiteita ja Eestissä etenkin myös moraalisia arvoja. Kummassakaan maassa kotiympäristö ei lasten kuvausten perusteella antanut stereotyyppisiä roolimalleja esimerkiksi kotitöiden tekemisen suhteen. Lapset arvostivat vertaisoppimista varsinkin itseään vanhemmilta lapsilta, he kuvasivat myös itseään opettamassa taitoja tai leikkejä toiselle lapselle. Kaikki lahjakkaat lapset Eestissä ja Suomessa mainitsivat opettajan eräänä tärkeimpänä aikuisena heille, opettajuudessa arvostettiin lempeyttä ja huumoria. Opetuksessa lapset toivoivat nopeampaa etenemistahtia ja vaihtelevampia oppimisympäristöjä, kuten retkiä eri tutkimuskohteisiin. Vain suomalaiset lapset toivat haastattelussa esille kiusaamisongelman, mutta olivat kehittäneet siihen selviytymisstrategioita. Lahjakkailla lapsilla tuntui olevan hyvä itsetunto, positiivinen minäkäsitys ja vahva luottamus omaan oppimiseensa, he kokivat esiintymiset positiivisina, esimerkiksi musiikkia harrastavat lapset ymmärsivät harjoittelun olennaisen merkityksen erityistaidon kehittämisessä. Lapsilla oli luovia ideoita ja tulevaisuuden unelmia, lapset olivat yleisesti ottaen motivoituneet oppimaan uutta, he nauttivat opiskelusta eri oppimisympäristöissä, hakeutuivat oppimaan asioita ja odottivat oppimisympäristöltään alati uusia haasteita, vaikkakin arvostivat myös omaa rauhaa ajatella.

Väitöstutkimuksen neljännessä osassa tarkastellaan lahjakkaiden lasten luovaa- ja musiikillista ajattelua. Tutkimus osoittaa, että lahjakkaiden lasten luovassa ja musiikillisessa ajattelussa on eroja, eivätkä luovan ajattelun tai musiikillisen ajattelun testitulokset ole yhteydessä yleiseen älykkyyteen. Väitöstutkimukseni osoittaa, että luovan ajattelun arviointi ja kuvaaminen on monitahoisuudessaan haasteellista ja vaativaa. Vaikka suomalaiset lapset menestyivät eestiläisiä lapsia paremmin luovaa ajattelua

mittaavassa testissä tulos voi selittyä sillä, että suomalaiset lapset olivat testattaessa eestiläisiä vanhempia ja heidän taideharrastuneisuutensa oli eestiläisiä lapsia yleisempää. Lasten haastatteluaineisto ja vanhempien avoimet kuvaukset lapsista osoittivat luovan ajattelun kuuluvan lahjakkaan lapsen arkeen. Opettajat totesivat luovien oppimisympäristöjen rakentamisen olevan merkityksellistä lahjakkaiden lasten oppimismotivaatiolle.

Keskeisiä motivaation virittäjiä lasten oppimisympäristössä olivat perhe, koulu, ystävät ja harrastukset. Motivaatio oppimiseen viriää vuorovaikutustilanteissa ihmisten kanssa eri ympäristöissä tai lapsen ja ympäristöllisen virittäjän välillä. Lapset toivoivat saavansa enemmän yhteistä aikaa vanhempiensa kanssa. Eestiläiset vanhemmat toivoivat, että perheen toimeentulo olisi ollut riittävämpi perheen tarpeisiin esimerkiksi lasten harrastustoimintaan. Opettajat kokivat tarvetta eriyttää lahjakkaiden lasten opetusta ja kehittää oppimisympäristöjä monimuotoisemmiksi molemmissa maissa. Lahjakkaat lapset Eestissä ja Suomessa kokivat olevansa hyviä ja innokkaita oppijoita, he arvostivat laadukasta opetusta, olivat kiinnostuneita useista eri asioista ja kykenivät konstruktiiviseen oppimistoimintaan. Kodilla ja vanhemmilla on ensisijainen rooli lahjakkuuden motivationaalisena kehittäjänä erityisesti terveen itsetunnon, sosiaalisuuden ja harrastusmahdollisuuksien antajana. Opettajilla on mahdollisuus tunnistaa heräävä kiinnostus lapsen erityiskykyjä kohtaan ja rikastaa opetusta mahdollisuuksien mukaan yksilöllisesti. Vaikka Suomen ja Eestin yhteiskunnallinen tilanne on tutkimuksen aikana ollut erilainen Eestissä tapahtuneiden nopeiden muutosten myötä ja tutkimustulosten yksityiskohdissa on maiden välisiä eroja mitään ratkaisevia eroavuuksia oppimisympäristöissä ei löytynyt. Tutkimukseen osallistuneilla lahjakkailla lapsilla molemmissa maissa oli yleisesti ottaen turvallinen ja hyväksyvä kasvuympäristö ilman jatkuvia traumaattisia tapahtumia. Turvallisten kiintymyssuhteiden ja hyvän kasvuympäristön voisi katsoa olevan perustana motivoituneelle oppimiselle. Kulttuurillisesti ja sivistyksellisesti katsottuna jokaisen lapsen yksilöllisyyden ja erityisyyden huomioonottava kasvatus on haaste ja tulevaisuuden mahdollisuus molemmille maille.

Avainsanat: Lahjakkaat lapset, oppimisympäristöt, motivationaaliset virittäjät

Preface and Acknowledgements

My dissertation work is a part of the study project of gifted children between the Pedagogical University of Estonia and the Research Centre for Education Cultures and Arts in the Department of Applied Sciences of Education at the University of Helsinki. The dissertation concerns 6-8-year-old gifted children and their learning environments in Estonia and Finland and it includes an reflective analysis of eight articles about the project. The original articles can be read in the publications in which they were published originally (see the references).

The decision to continue my studies was influenced by several persons; first, I want to express my gratitude to all my supervisors: Professors Arja Puurula, Heikki Ruismäki, Kari Uusikylä and Maie Vikat. Professor Maie Vikat has been the most important of them because the subject and material of the doctoral thesis was connected with the scientific co-operation of the Estonian Science Academy which she leads. I have been allowed to participate in the research project as a Finnish partner. I thank Professor Maie Vikat for her excellent cooperation and for her warm and positive guidance of my dissertation. I also thank the Estonian Science Academy for the arrangements of the accommodation needed in Estonia during this research project, and my Estonian colleagues. The Estonian and Finnish children, their families and teachers who co-operated and participated in this study deserve my special thanks. My study of the Licentiate of Arts in Music which was written 1997 under the guidance of Professor Kai Karma connected me with the preschool-aged children's arts pedagogical program and gave my work some scientific basis.

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1 Introduction

The purpose of the study is to describe the learning environmental catalysts which may be connected to the developmental and motivational processes of a sample of gifted children in Estonia and Finland. Every child challenges his/her environment through individuality and creativity. Many definitions of giftedness have been proposed, most children were advanced in many skill domains. Although the notion of giftedness and its basic elements are valued in every culture, there is no such concept as universal ability. The concept of giftedness is always culturally bound and a talent will be promoted by an optimal environment acting on the child's intellectual capacity. Howard Gardner (1983, 331–366) considers how human intelligences can be marshaled in the service of specific roles by the symbolic systems, codes, and interpretative frameworks of the wider culture. Culture patterns, value systems, motivational aspects—all these are part of the social milieu in which children live and learn and which often continue to be influential during their school life. As educators we must reflect on children's thoughts and developmental processes, personality differences, cultural diversity, underachievement problems and creative changes throughout children's lives.

This research is a part of a research project "Gifted children and the factors contributing to their development in Estonia and Finland". The project is between the University of Helsinki, Department of Applied Sciences of Education, Research Centre for Education Cultures and Arts (ECA) and Tallinn Pedagogical University. The purpose of the study is to find ways to support recognition and development of gifted children aged 6–8 (IQ 120–144) and to study the conditions that support the recognition and development of talent in countries that are characterised by different levels of socio-economic development. Children's development with a special interest in the musical environment of children has been monitored during a three-year period from 1999 to 2001. Issues of developing gifted children have moved up on the agenda world-wide (Stanley 1977). Over the last half century Estonian schools and day-care centres had been educating 'an average person'. In Finland the situation was not much more individualised. During the past few years the Finnish schools wanted a more individualised focus, but in Estonia educational policy was leaning toward a situation in which only the rich could develop their children's talents.

From the first moment this co-operative research work began I have been challenged in different ways. First of all I had to become familiar with this field of special education; previously I had only worked with children talented in music. Secondly, I had to develop different tools for this research; for example, I had to create questionnaires for parents and teachers and develop interviews for children. I did this in a doctoral seminar with Professor Arja Puurula and with the co-operation of the leader of the whole research project, Professor Maie Vikat. The last year of my research work has been done under the guidance of Professor Kari Uusikylä and Professor Heikki Ruismäki. My dissertation study is a report of my work in this co-operative study project and at the same time this study report and its articles show an interest in doing research in an international project between the two neighbouring countries.

1.1 Orientation and theoretical approaches of the study

We can learn a lot from early intervention to develop the conditions which might foster a young gifted child to reach his/her optimal development. Definitions of giftedness will lead us to recognise advanced development in young children. Because there is so little agreement about a definition we must be open minded about which attributes characterise advanced development and which kinds of environments best foster it. Notions of giftedness and its basic elements are universal, but talent is manifested in many ways depending upon the cultural and historical perspective. We can see giftedness as a very dynamic concept which reflects changes in society's needs and priorities. Our western culture often overvalues individual and academic factors of giftedness. However during recent years we have been discussed more about multidimensional and emotional intelligence. If, we compare our western culture's understanding of giftedness with some traditional cultures we can see that we are increasingly approaching the multidimensional understanding of giftedness of traditional cultures in which emotional and spiritual functions often connected to arts or crafts are valued. The *Kalevala's* Väinämöinen is one example. Harslett (1996, 100) reports that Australian Aboriginal peoples who value talents in areas such as medicine, lore, story telling, religion, music, crafts and hunting and tracking. People who have these talents are expected to be humble and group oriented in their use.

Although children's intelligence has been recognised since the time of the Romans as the first aspect of character, the gifted-child movement in western societies can be seen as a more recent aspect of humanistic psychology. The psychological legacy of William James embraces a humanism, which includes the measurement of individual differences, intelligence, and gifted children, creativity, and finally development. All these areas are connected by a sense of the dignity of human, by development, by measurement, and by concern for the unusual. According to Julian C. Stanley (1977) the gifted-child movement may be considered to have begun around 1869 with the work of Francis Galton on *Hereditary Genius*. However, it could also be seen as a product of the twentieth century when Lewis Madison Terman used Alfred Binet's intelligence test to develop his own and inaugurated in 1921–22 the first major longitudinal study of intellectually-talented boys and girls. Binet and Simon had discovered a method of measuring intellectual developmental progress in all children. The rate of intellectual developmental progress with respect to the chronological age-represents a ratio of less than one in the case of the below-average child, but greater than one in the case of the above-average child. Later Terman multiplied this rate by 100 (to avoid decimals) and named it the 'intelligence quotient' (abbreviated as IQ). J. Curtis Gowan (1977, 13–14) summarised some of the most important results of Terman's research. Gifted children differed among themselves in many ways, and the best way to identify the most intelligent child in a class was to consult the record book for the youngest. The superiority of intelligence was maintained, and acceleration at all levels was beneficial; the mean IQ of the Terman group was 132,7. It is remarkable that a strong case was made for hereditary influences but, of course the interaction between environmental factors, socio-economic conditions and heredity was too little realised or investigated in Terman's time.

Terman laid a strong methodological foundation for the developmental measurement of the expanding abilities of man, but in the gifted-child movement two brilliant women, Maria Montessori and Leta Hollingworth, were both interested in gifted children and children's and women's rights and developed the pedagogy of gifted learners. Gowan (1977, 19–22) mentions the most significant research milestones of the gifted-child movement: firstly, Guilford's Structure of Intellect theory. This factor-analytic advance over Spearman and Terman's unifactor concept of 'g' has many implications for identification and curriculum intervention. Secondly, Brandwein's (1955) classic theory though now forgotten, spelled out the necessary parameters for

the training of scientific talent. Thirdly, Bonsall and Stefflre (1955) found that the personality of gifted children is associated more to the socio-economic environment than to intelligence itself. Fourthly, Torrance (1962, 1964) carried out multivaried investigations on developing creativity in children and measured their creative thinking with the Torrance tests. Fifthly, Gowan (1977) mentions Ashner's (1961) and Gallagher's studies of developing curricula and Goldberg's and Passow's (1959) studies which showed, among other things, that improvement in underachievers required assistance with learning skills and identification with a supportive teacher. Gowan (1972) referred to Erikson's (1968) and Piaget's (1967) valuable work and studies on cognitive and affective developmental stages for the first explanations of some of the factors that cause gifted children to develop as they do. For example they reach verbal readiness while still in the initiative-intuitive 'fantasy' stage between the age of four and six and gain a much better grasp of verbal creativity.

During the last few decades a great change has taken the place in the concepts of giftedness and talent as they are featured in research literature. Whereas the latter field was dominated by the one-dimensional concept of giftedness corresponding to IQ measurements, a large majority of more recent models of intelligence are based on the multidimensional or multifactorial psychometric concepts of intelligence. The meanings and definitions of giftedness reflect diversity. The definitions may differ according to conservative or liberal, single- or multidimensional or they may focus on potential or performance (McAlpine 1996). Despite the criticism of IQ as a means of identifying gifted children, its use has never been completely abandoned. According to Tannenbaum (1993, 22), in recent reviews all of the empirical studies published in the *Gifted Child Quarterly* listed IQ or alternative tests that correlate highly with IQ as the measure of choice for identifying experimental samples.

One of the greatest changes in research has been Gardner's (1983, 1997) theory of multiple intelligence which examines specialised talents and demonstrates the extraordinary rates of mastery and creativity. Gardner's list of special aptitudes has been widely circulated, and includes linguistic, logical-mathematical, spatial, kinaesthetic, musical, naturalist, interpersonal, and intrapersonal intelligences. Another major trend in describing high potential in children is through the study of mental processes explicated by Sternberg's (1986) "Triarchic Theory", so-named because it contains three sub-theories; Sternberg and Davidson (1986) present 17 different models of giftedness.

According to Uusikylä (1994, 45) Renzulli's, Cohn's and Tannenbaum's theories are more implicit theories; these theories are more theoretical and not easily empirically testable. For example Renzulli's (1978, 1986) three-ring model describes enabling personality characteristics, and Tannenbaum's (1983, 1997) psychosocial model adds external catalysts as well. Sternberg and Davidson divide more explicit or scientific theories of giftedness into two categories: cognitive theories, which Sternberg's own theory represents, and developmental theories. Tannenbaum focuses more on those resources that enable giftedness, whereas Sternberg and Lubart (1991) focused on resources that enable giftedness. In this theory facilitating factors such as intelligence, knowledge, intellectual style, personality, motivation and a conducive environment are necessary at an optimal level for optimal personal growth. According to the developmental theories, for example Francoys Gagné, the necessary enabling features might change throughout childhood.

The ability to monitor children carefully and to systematically study their performance in learning environments remains to be seen. This approach can improve upon conventional testing methods. Feuerstein (1979) has developed the idea of mediating the child's entering behaviour in a test situation so that the role of the examiner changes from an objective observer to more of a participant-observer who orients the child to the underlying cognitive principles involved in the test experience. According to Feuerstein (1979) the organism is so modifiable that mediated learning affects not only the cognitive functioning of the individual, but also the structure of intellect as well; such is the power of regulated encounters between the individual and the environment.

Conservative definitions restrict the areas included in the gifted category or the percentage of the population that will be regarded as gifted. Giftedness is equal to high intelligence. Intelligence is thought to be a global, stable and unchangeable trait. According to Kurt A. Heller (1993, 49) in modern scientific thinking 'giftedness' is defined as the individual cognitive and motivational potential for—as well as social and cultural conditions of—achieving excellent performances in one or more areas such as mathematics, languages or arts. 'Talent' can be defined as a domain-specific gift or ability, for example 'scientific ability'. However, in this study the differentiation suggested by Gagné between giftedness and talent is used; it can be said that in the Finnish and Estonian languages, and in many others such as German or Swedish, both concepts are used more or less synonymously. For this reason the semantic differentiation is usually explicated in individual research con-

texts. In some of the first articles of this research project the concept ‘talented children’ mean ‘gifted children’ concerning the children of this study group. If, in some of the first articles, the concept ‘talent’ has been used less than perfectly as meaning ‘gifted’, it is due to our research group’s irregularities in Estonian, Finnish and English language translations.

When looking at the concept of ‘giftedness’, it is necessary to focus on how it is conceptualised in the main theories of intelligence. According to Gardner’s (1983) theory, giftedness is seen in a phenomenographic sense: high intelligence manifested in a single ability, or a set of abilities. Sternberg’s (1993) theory describes the excellence, productivity, valuing and demonstrability criteria of giftedness, so the understanding of excellence is seen as a dimension of giftedness. This conception includes the idea of potential excellence; gifted young children have the potential to achieve, to do productive work in some domain in the future, if not now.

Creative potential is usually connected to giftedness. According to Kari Uusikylä and Jane Piirto (2001) creativity thrives in freedom and the wrong kind of assessment may be very dangerous for the development of creative talent. He points out that a good, encouraging and supportive learning environment is a resource for creative work. Renzulli (1986) writes that research on productive or creative people shows that their giftedness is a combination of three interlocking traits: above-average ability, creativity and task commitment. His model shows that potential is translated into talent.

Sternberg’s (1993,186) asserts that giftedness is rare; an individual must possess a high level of an attribute that is rare relative to peers, or an individual may exhibit a talent, but unless that talent is rare, that individual must not be labelled “gifted”. In this study I used Gagné’s (1997) concept of giftedness and talent is used. I chose it because Gagné sees ‘giftedness’ as an innate ability and acknowledges the role of the environment in shaping and developing gifts towards special talents. Gagné (1997, 77) notes the role of genetics in giftedness but emphasises the role of the learning environment as a motivational resource in developing talent. Gagné’s theory suggests the need to reflect on the motivational aspects of environmental catalysts as developing giftedness of children in practice. Also Sternberg’s (1990, 282) theory stresses the role of environment in identifying giftedness. Intelligence cannot be understood independently; it may be understood in terms of how children interact with their immediate environment. This interactive focus may be remarkable for development of giftedness. In this study a gifted child is seen as a most important interactor in his/her environment. Sternberg ob-

serves the role of three behavioural goals in shaping intelligent thought: these are adaptation to an environment, the shaping of an environment or the selection of an environment (Sternberg 1990, 272). Sternberg identifies giftedness in one's ability to adapt to the environment, to change behaviour to fit the environment or to change the environment to suit oneself.

Libby Lee (1999, 7) speaks about rebelling as one form of gifted children's environmental behaviour. In developmental theories of giftedness, especially in socio-cultural oriented models, the social microenvironment (family, school, and peers) has a great impact on a child's development. However, it is evident that the macro-environment also has an impact on the development of each individual; the economic situation, political orientation, cultural values and beliefs all influence human development and therefore the development of gifted children (Mönks & Mason 1993, 94). Tannenbaum (1983) stressed that outstanding achievements are equally determined by five factors or *star definitions*: general ability, special ability, nonintellective factors, environmental factors and change factors.

All children need good physical, emotional and social resources in order to reach their own potential. Gifted learners need special and varied supports and different challenges, so optimal environmental conditions are very important in the early years and will vary across different age groups. According to Gagné (1991, 2003) giftedness is an untrained, spontaneous natural ability that exceeds the norm. He defines talent as the superior mastery of systematically-developed abilities. Behind talent there is giftedness, but the natural aptitude of giftedness can be hidden and not necessarily demonstrated as a talent. Gagné (1990, 66) conceptualised giftedness as follows: "*Giftedness* corresponds to competence that is distinctly above average in one or more domains of human aptitude. *Talent* corresponds to performance that is distinctly above average in one or more fields of human activity". Gagné's model (see Figure 1) shows that various personal and environmental forces affect the translation of gifted potential to talented performances. The model specifies that the emergence of a particular talent results from application of one or more aptitudes to the mastery of knowledge and skills in that particular field, mediated by support of intrapersonal (e.g., motivation, self-confidence) and environmental (family, school community) catalysts as well as through systematic learning, training and practice. These forces are catalysts which enable or block the expression of the individual's natural giftedness. In this perspective persons such as parents and teachers, surroundings, events or undertakings are important environmental influences on the developmental

process of training talents. My research work describes of these environmental catalysts.

Only a few writers (e.g., Tannenbaum 1983) use the terms gifted and talented interchangeably. Most writers define these terms separately in different ways. Braggett (1998) sees talent as a remarkable ability which is characterised by a superlative level of true giftedness. Some writers use the term talent to refer to some specialised aptitudes that are assumed to be unrelated to general intelligence or giftedness. According to Louise Porter (1999, 31), the term talent has been used to replace the term gifted which has become more offensive as it implies having to put in little effort to achieve and seeing oneself as better than other people.

Gagné (1985, 1991, 1993) said that if these terms are used synonymously there is no need for both. In this study I will follow Gagné's model and separate these two concepts so that giftedness means innate capacities and talent means developed abilities or performances. In his model Gagné (2003) describes the factors that contribute to the translation of gifted potential into talented performances.

Porter (1999, 33) who specialises in research on gifted young children, refers to giftedness as the potential or capacity to achieve excellence in one or many culturally-valued domains. She summarised the conceptions of giftedness and talent: "Gifted young children are those who have the capacity to learn at a pace and level of complexity that is significantly advanced of their age peers in any domain or domains that are valued in and promoted by their socio-cultural group". She also said that some of the gifted children may be recognisable by their talented behaviour: "Talented behaviours are performances that are quantitatively or qualitatively exceptional compared with age mates".

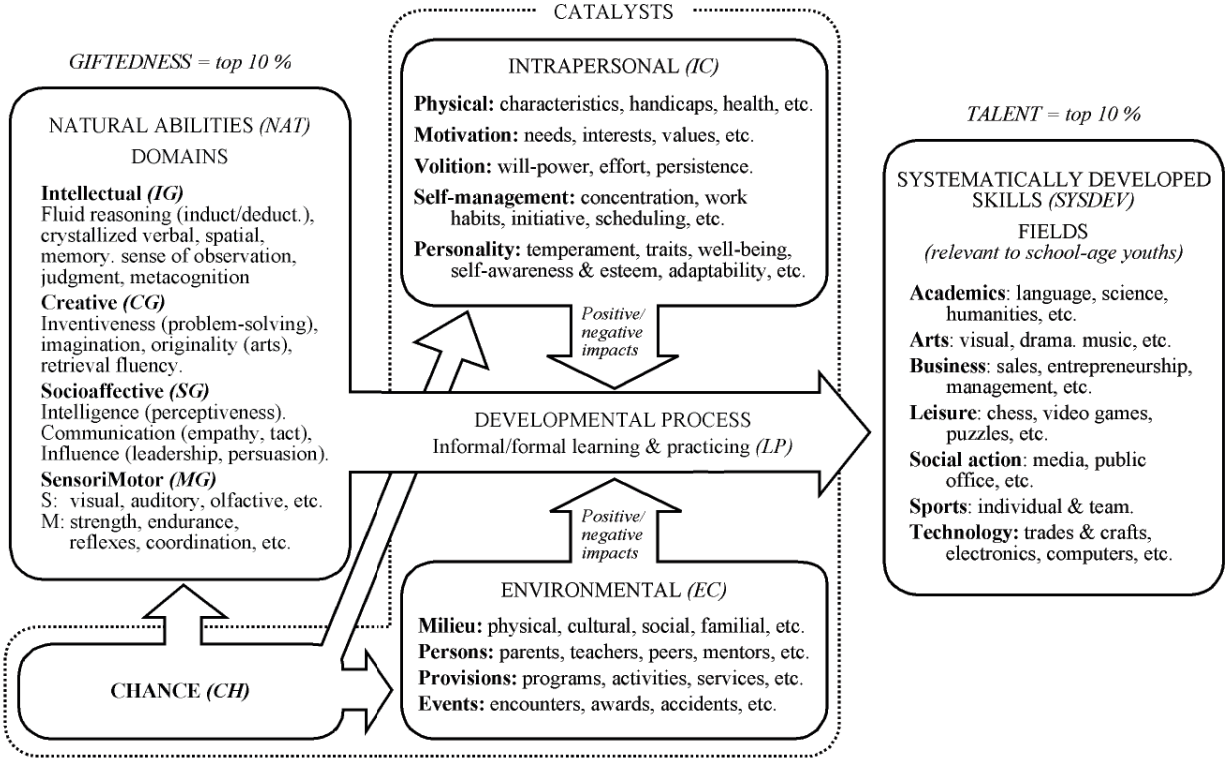

Figure 1. Gagné's (2003) Differentiated Model of Giftedness and Talent (DMGT)

There are three basic visions for this research which are connected to both to the Gagné's (1991) and Porter's (1999) ideas of the giftedness. General intellectual function develops with age; and is influenced both by environment and maturation. It is valid to work on the basis of some general intellectual function in children which underlies any particular context or subject-dependent component.

In Gagné's (2003) model motivation determines whether giftedness is expressed, but it does not define gifted potential itself, so underachievers have a place among gifted people in this model. The other interesting feature in Gagné's model is that he divides both gifts and talents into various domains. He reflects on the multi-dimensional understanding of intelligence compared with Gardner's theory although he divides it and says that Gardner's (1983) intelligences are content areas rather than intelligences. Gagné (2003, 61) presents the talent development trio, to which belong gifts, talents and learning and practice. In the DMGT-model gifts are categorised in four aptitude domains. Gagné's (1993, 73–74) aptitudes are genetic structures of the human organism; they appear and develop spontaneously and appear in every human being. They can be observed in very young children. Even though aptitudes have a significant genetic component, their growth is by no means controlled solely by maturational processes; environmental simulation plays an equally important role. Gagné's (1993, 73) model identifies five domain aptitudes: intellectual, creative, socio-active, sensomotor and others. In Gagné's more recent (2003) DMGT-model the 'others' has been dropped.

In this study assessments have been made in connection with those DMGT-models' four domains. Intellectual aptitude is assessed by Raven's test, creative thinking by Torrance's test, socio-active behaviour by the teachers' assessment of prosocial behaviour, and musical ability by Lotti's imitation test combined with assessment of musical performance. Sensomotor aptitude is not specially assessed; some forms of it may be noted in parents' and teachers' assessments or in the sound discrimination part of the test of musical ability. All assessed areas give only some aspects of children's abilities concerning each domain aptitude. Gagné (1993, 86) thinks that creativity is one of the domain aptitudes and not any exact key of talent performance otherwise like Renzulli's model in which creativity is described as an essential component of giftedness. Similarly, Tannenbaum distinguishes 'the consumers' of knowledge from 'the producers' of knowledge; only the latter are 'truly gifted'. In contrast, if there is one characteristic in Gagné's model that could be considered common to all domains aptitude (NAT, see figure 1)

thus to all gifted persons, it is their facility and rapidity in acquiring new knowledge and skills and in generalising them to adjacent areas of domain. According to Gagné (1993, 73) it appears that intellectually-gifted children demonstrate precociousness in social intelligence, but not necessarily in their relationships with peers and adults. Except for the 'others', which acts for Gagne (1993) as an 'expansion port' of domain aptitudes, there is incontrovertible evidence concerning the heritability of aptitude categories (Gardner 1983, Plomin 1986, Scarr 1981). It can be concluded that we are different from one another, on both a genetic and an environmental basis—as well as in intellectual ability, personality, cognitive styles, communication and linguistic styles. According to Gagné (2003, 63) 'talent' is a developmental construct; after children have begun learning new skills, it becomes necessary to assess and compare their learning to others, even at kindergarten age. Assessments exist for beginners and they can be in music, dance or sports. Gagné (2003, 63) notes that the level of achievement can change as learning progresses and during the first school year a child can obtain grades within the top 10 percent of the average peers and be labelled academically talented. Learning and practising are important in talent development. Gagné (2003, 63–64) says that talent is to gifted education what competence is to general education; he stresses that maturation is the major developmental agent for gifts closely followed by informal learning and, in the case of talents, development is the opposite, formal institutional learning has the most effective impact.

Gagné (2003, 64) also presents the trio of catalysts in his DMGT-model. For this study the catalysts of Gagné's (1985/1991/2003) model must be conceptualised more thoroughly. There are three kinds of catalysts: environmental, intrapersonal and chances. Intrapersonal catalysts include human characteristics which are outside the domain abilities. The most visible of these is motivation. Motives can initiate or activate behaviour; they direct and guide it and they can guide it or maintain it in the presence of obstacles until needs are satisfied. Directional energy is as important as task commitment to the development of talent, often called curiousness, inquisitiveness, specific interests or intrinsic motivation (Deci & Ryan 1985). Earlier Gagné (1993, 74) also mentioned motivation, self-esteem, self-confidence, moral judgement, emotional maturity and health as intrapersonal catalysts although there is no causal significance between these personality characteristics and the development of talents or domain aptitudes.

This study discusses the meaning of positive and negative environmental and intrapersonal catalysts and chances that the learning environment can offer as positive or negative motivational aspects of the developmental process towards perhaps special talents in the future. There has been extensive research on the terms of motivation. For example, Wentzel (2000) defines a goal as a cognitive representation of what it is that an individual is trying to achieve in a given situation. Goal achievement can be also described as the reasons a person pursues an achievement task. Allan Wigfield and Jacquelynne Eccles (2000) define expectancies for success as children's beliefs about how well they will do on upcoming tasks, either immediately or in the future. Edvard L. Deci and Richard Ryan (2000) speak about extrinsic and intrinsic motivation. Extrinsic motivation is a construct that always pertains when an activity is done in order to attain some separable outcome; it differs from intrinsic motivation which involves doing or studying something because it is inherently enjoyable. Their concern is that parents, teachers and other socialisers should realise that they can lead children to internalise the responsibility and sense of value only for extrinsic goals instead of motivating them to find their intrinsic goals.

In a taxonomy of human motivation, Deci and Ryan (2000, 61) present regulatory styles of motivation or amotivation, which is a state of lacking an intention to act. Then they have classified four styles of extrinsic motivation. The first type is external regulation which is the only kind of motivation recognised by operant theorists. A second type of extrinsic motivation is introjected regulation in which a person performs an act in order to maintain self-esteem and a feeling of self-worth. A more self-determined form of extrinsic motivation is identification; the person has identified with the personal importance of a behaviour and has accepted its regulation as his/her own. For example, a child memorises the alphabet because he/she sees it is relevant to reading and writing. The most autonomous type of extrinsic motivation is integrated regulation. Integration occurs when identified regulations are fully assimilated to the self. These integrated forms are autonomous and unconflicted, but they are still extrinsic because the motivated behaviour is performed for its presumed instrumental value with respect to some outcome even though it is valued by the self. Intrinsic motivation is a prototype of self-determined activity.

Deci and Ryan (2000) suggest that the process of internalisation is developmentally important and that social values and regulations are continually being internalised over the life span. Both of these types of motivation

are connected with the growth towards children's special talent. In their Self-Determination Theory Deci and Ryan (1985, 2000) describe internalisation as a process of valuing or as a process of regulating and integrating. In this internalisation process persons totally transform the regulation into their own so that it will emanate their sense of self. Developmentally the types of behaviours and values can be assimilated to the growth of cognitive self and ego capacities and it happens that people's general regulatory style tends to become more internal over time according to general organismic tendencies toward autonomy and self-regulation (Ryan 1995; Ryan R. & Deci 2000). According to Reijo Byman's (2001, 188–189) findings, curiosity and sensation-seeking are completely different traits although the term 'intrinsic motivation' describes the motivational aspects in both traits.

Gagné (1993/2003) divides environmental catalysts into five categories of significance: persons (parents, siblings, extended family, friends, educators, mentors or idols), environments, interventions, events, and chance. According to Gagné's DMGT-model (see Figure 1) the environment exerts positive and negative impacts in many ways, from the macroscopic level to microscopic. According to Gagné (2003, 65) the concept of environmental input is connected to significant persons; he refers to the retrospective interviews of eminent individuals who report that significant persons had an important environmental influence on them. Gagné (2003, 65) also mentioned the provision of other assistance such as (enrichment, grouping and acceleration) as environmentally meaningful to talent development.

The role of significant persons is one of the best documented sources of development of talents. Geographical features and changes in the physical environment from a developing country to a more competence environment can play a significant role in the development of some talents. Gagné's category of significant interventions covers community resources, for example activities related to special content such as academic subjects, artistic activities or athletics. According to Gagné's (1993/2003) thinking chance as an environmental catalyst plays a role which is probably much more critical than is usually recognised in the literature. According to Gagné (2003, 66) chance influences all the environmental catalysts; an intrapersonal catalyst also impacts natural aptitudes. In this study Estonia's attainment of independence can be seen an example of chance that influenced all Estonian children as an environmental catalyst. Tannenbaum (1983) first created the concept "chance" as a contributor to talent development. Gagné (2003, 66) explains that "chance" was listed as a fifth element among the environmental cata-

lysts, but because it influences all it manifests itself in the DMGT-model as one other major catalyst. According to Gagné (2003, 66) "there is 'chance' in all the causal components of the model, except LP process". Gagné (2003) shows that even though all causal components are active each talented person follows a unique path toward excellence.

The talent component of Gagné's (1993) model is totally compatible with Mihaly Csikszenmihalyi's (1988) distinction between the domains of knowledge and fields of human endeavour. They correspond to such self-sufficient areas of knowledge as, physics, literature, music and engineering, that are embedded in a particular culture at a given time. Gagné (1993) emphasises the role of learning, training and practice in the longitudinal development of talents. He defines four different developmental processes: maturation, daily problem-solving, informal training and practice, and finally formal training in a particular field of activity. The first two processes contribute directly to the development of aptitudes. The third can foster the development of both aptitudes or talents. Systematic and formal training is the usual and effective way of developing talents in any field and the higher the talent is, the greater is the investment of time and effort that is necessary. According to Gagné (1993) each component of the model can have an impact on any of the others and it can be shown that these relationships are bidirectional. A talented person is also always gifted, but a gifted person might not be talented. Underachievement as a problem of gifted children shows the negative motivational catalysts in the development of talents.

From Gagné's (1991) model, Porter (1999) has developed a new model (see Figure 2) for the realisation of gifted potential; she combines its most useful elements with cognitive theory. Porter describes the resources that are necessary for success at task, the performance of which will be judged both personally and socially. If it meets certain criteria for assessing its value, the performance will be deemed to be talented.

Porter (1999, 45) describes the ideas of her model in a very environmental and holistic way. When children are faced with a problem they use their neurological structure and their knowledge base, such as memory of previous experiences, to solve the problem. The environment affects all stages of task completion and together all these factors affect performance. The first component of this theory is physical and social environment which is the catalyst and resource of the individual to use his/her potential skills in both the short and long term. Environment is important because it influences all other components of this model. The second component is the task, which

can call on the individual's strengths and interests and it can be suggested by environment or by one's own experimental resources. This component of Porter's (1999, 44) model embodies Gardner's (1983) domains. The third component is the central nervous system. This refers to a person's neurological structure and functioning which is mainly genetically set down, but also can be influenced by external factors (e.g., alcohol abuse that leads to fatal alcohol syndrome). This component determines an individual's developmental potential in temperament or personality and intellectual processing capacity. Porter's (1999) model's fourth component concerns intellectual information-processing skills (meta-cognitive skills, intellectual styles, knowledge acquisition mechanism). The fifth component is the experiental (memory) source, in which an individual's previous information, emotions and behaviours are used as data for future experiences. Porter reminds us about feedback, when a task triggers an old memory or might provoke a new problem to solve. The sixth component is performance, which can be thought, feeling or behaviour. The last component is the social evaluation of a performance. Porter (1999, 44) describes performance as a judged talent, that is value when it is excellent and rare or scarce and enhancing, productive or useful. It is valuable also when it is adaptive to the task and context. Culture, time and place will set specific requirements for tasks and individual performances. Porter takes the age and experience of the performer into account in judging the value of the performance.

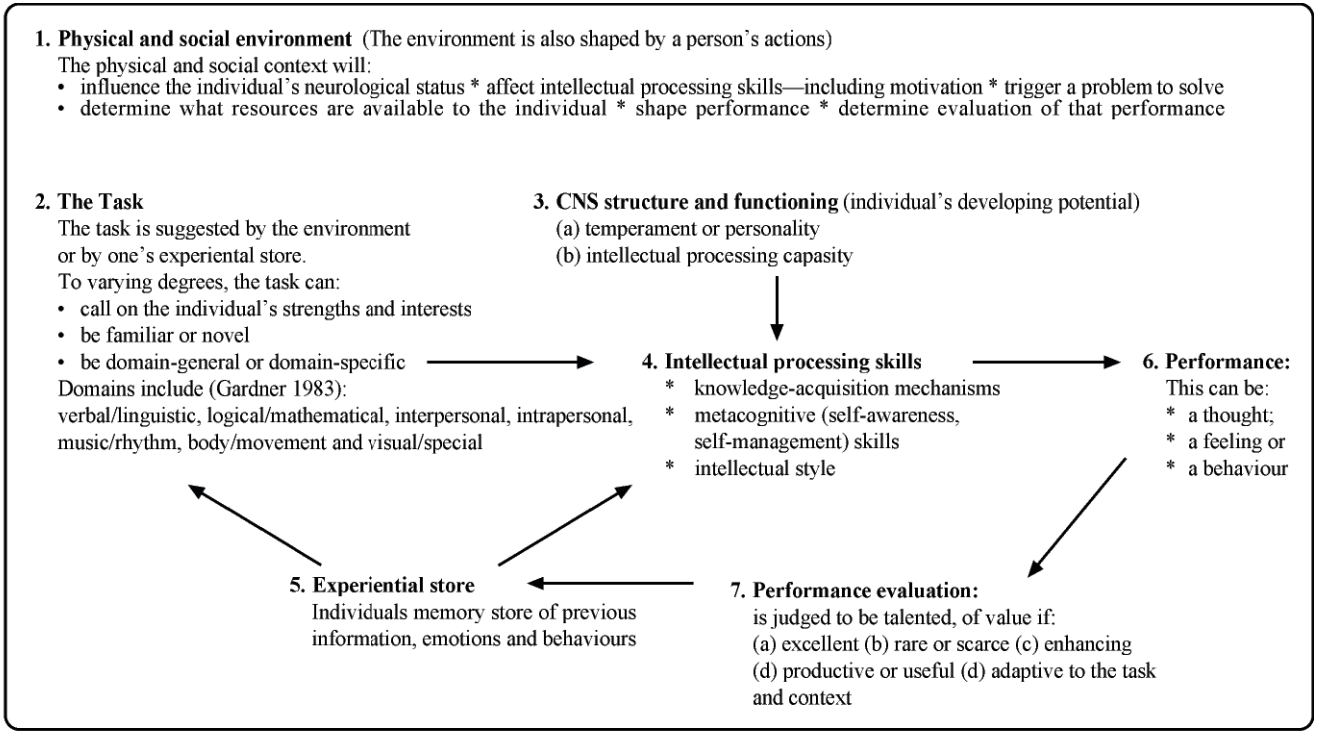

Figure 2. Porter's model (adapted from Gagné) for the realisation of gifted potential (Porter 1999, 44)

In Finland the research work concerning gifted children has been quite active during recent years. Internationally most respected research concerning giftedness and creativity has mainly been done by Professor Kari Uusikylä. Uusikylä's (1991) study of gifted and talented individuals presented the self-portraits of student actors, dancers and graphic artists who recounted their childhood and creative processes. The subjects evaluated themselves to be ambitious, experimental, sensitive, curious and witty. Most of them mentioned their feelings of both pleasure and suffering during their creative processes. They defined creativity giving an aesthetic-expressive definition, a combination of person-process elements of creativity. The emotional climate of their childhood was evaluated positively by 41% of subjects and negatively by 23% of the subjects.

According to Risto Hotulainen's (2003) study, the identification of potential academic excellence at a preschool age was relatively accurate. In Hotulainen's (2003) findings potentially-gifted children outperformed their peers academically; they were better in school and they were aware of their academic excellence; especially girls had both higher educational and vocational aspirations. Pirre Maijala (2003), who studied the background components involved in developing expertise in playing a musical instrument found the special importance of the early years in developing talents. According to this study the playing careers of interviewees could be divided into four phases according to their own attitudes towards their talent (= playing) developed and the changes in the role of their parents and teachers during their development process. Their early childhood was a playful time when parents and siblings had an important role; furthermore their teachers encouraged them to form a warm relationship to playing. In the second phase young musicians developed practise habits and became familiar with the music world. After that followed the phases in which master teachers had an important role in their solo careers towards the phase of gaining expertise in playing. According to Annu Tuovila's (2003) study, collaboration between the child, parents and teachers, instruction that promotes a child's musical self-esteem, group participation, and initiative, were central in developing positive learning experiences and achieving good results at a music school for 7–13-year-old children.

My study is more concerned with the early development of giftedness; the children are six or seven years old and their talent is just beginning to develop; the meaning of environmental catalysts as motivators is very interesting to study. In terms of the paradigms of modern child research (Chris-

tensen & James 2000) the theoretical paradigm of this study can be seen as the interaction between the developmental and the social phase. The gifted child is examined both as a developing individual and also as a social actor in this interactive learning process in his/her environment. My methodology in this study project was hermeneutic-pragmatic. As Pauli Siljander (1988) suggests, the hermeneutic method, is not a technical method but rather a way to orientate to the world. My purpose was to try to understand and describe some essential views concerning the reality of gifted children's learning environment and its motivational aspects. I used both quantitative and qualitative methods to determine motivational aspects of developing giftedness. My personal interest was to listen to what gifted Estonian and Finnish children said about their learning and interests in different kinds of environments.

2 Motives for Studying Gifted Children in Their Learning Environments

The environmental catalysts are very important in this study and there is an important question about what is the best environment for a gifted child. According to Piaget and Inhelder (in Gallagher & Reid, 1981) cognitive conflict occurs when the learner's existing mental structures are challenged by cognitive demands which they cannot quite meet. Vygotsky (1978) described the Zone of Proximal Development (CZPD) for individuals as a zone where the learner is working just beyond the limits of his/her capability alone. Instruction is accepted only when it proceeds ahead of development and awakens those functions that are in the process of maturing the CZPD. The development of a shared language between teacher and child is critical to the success of the development of thinking in the learning situation. Children need bridging; they need to be given the opportunity to create links and transfer their own knowledge to their whole experienced environment (Gouge & Yates 2002, 135).

Urie Bronfenbrenner's (1979) ecological theory of human development gives some good starting points for the study of learning environments in two countries. Bronfenbrenner (1979, 24–26) used the concepts of the macrosystem, the exosystem, the mesosystem and microsystem to describe proximal and distal settings of human development. In the microsystem settings the child is considered to have a direct impact on experience in face-to-face interaction. Interpersonal relationships, activities and roles constitute the elements of the microsystem. My study concerned mostly the microsystems such as home, preschool and school and music schools or other places of free time activities. The interrelations between two or more microsystems provide the settings for mesosystem. The child is not directly involved with the exosystem, which may include the parent's place of work. The macrosystem is the broadest ecological system and in this study it refers to consistencies that may arise from the Estonian and Finnish culture or the subculture in which the child lives. Later Bronfenbrenner (1986/1992/1997) developed the bio-ecological model, in which the interaction between the individual and the environment is seen in a certain time frame so that the nature of the process of development is considered as changing across time.

Bronfenbrenner and Morris (1998) divide personal characteristics into three categories in this bio-ecological model. Firstly, there are force charac-

teristics, that are productive from the perspective of life-span development and can be divided into selective responsiveness, structuring proclivities and directive belief systems. Individuals react and respond in different ways to stimuli from the social and physical environments. Children have differences in selective responsiveness. Directive belief systems refers to the child's developing ability and active aptitude to conceptualise. The bio-ecological model points out individuals who perceive themselves as active agents in relation to themselves and their environment. Laura Hirsto (2001) saw similarities in this concept of directive belief systems with Bandura´s (1986) concept of self-efficacy. Secondly, Bronfenbrenner & Morris (1998) categorised resource characteristics, which are the abilities, experiences, knowledge and skills that are needed for effective proximal processes in different states of development. The third category is called demand characteristics and refers to factors that can facilitate or suppress the fuctioning of proximal processes such as genetic handicaps or physical disabilities.

According to Hirsto (2001) the temperament of a person and all special educational personal features including giftedness can be considered as both force characteristics and demand characteristics. However, the bio-ecological model stresses the interaction between the person and the objects and symbols of the environment. The context factors of this model are proximal and distal environmental contexts are defined in the original ecological model. They are now extended so that they take more account of the proximal processes and personal factors. The time-dimension in this model is an influential factor in development from different perspectives. Bronfenbrenner & Morris (1998) divide the time dimension into macro-, meso-, and microtime. Microtime refers to the discontinuity or continuity of ongoing processes, mesotime to longer periods, and macrotime to the larger society and changes in sociocultural events and expectations.

Development is seen as an active interaction process between an individual and the environment. According to Bronfenbrenner & Morris (1998) proximal processes are long-lasting and relatively regularly occurring interactions that are significant for an individual's development. My opinion is that during these proximal processes gifted children find their inner motivation and begin to develop their special talents. It is an interactive process between an individual gifted child and his/her environment. The bio-ecological model considers a person as an agent in interaction processes with the environment and learning is a key part of the process of constructing a world view. When studying the development of talents of an individual child in his/her learning

environment, it is currently clear that both social developmental growth and developmental-psychological features have to be considered. I refer also to the concept of endosystem, developed by Hirsto (2001), which describes a person as a systemic whole. According to Hirsto (2001) a person can be seen as a psychophysical whole that can be studied on different levels, like physiological, motoric, psychological or overall functioning according to Bronfenbrenner's theory.

G. H. Mead (1934/72) thought that a child is born with certain biological attributes into a certain social and physical environment from which an individual child acquires a complex repertoire of overt and covert behaviours that influence and shape both micro- and macro-society and larger cultural systems. Environmental aspects have strong effects on the activation of genes, so the relationship between biological and environmental factors is many-faceted (Haila 2000, Hirsto 2001). According to Hurrelmann (1988, 47–48) the process of personality development is progressive in childhood and adolescence, so an individual's ability to acquire and process reality expands continuously. For developing giftedness this is remarkably important if we think of an individual interacting with his/her environment with a specific field of interest. This way an individual arrives at a growing understanding of external reality and develops, a complex cognitive map of his or her physical and social world and even more effective mastery of biological needs and psychological motives. Hirsto (2001, 43) represented von Wright's idea of an interesting concept of personal world view as a tool or means for understanding and interpreting action on the interaction between a person and the environment. According to von Wright (2000) genotype and personal history together with social and physical reality and environment is connected with the person's world view, cognitive-emotional competence, skills and action strategies. This leads to situation-specific goals and intentions and choices between alternative courses of action. And actions within limits set by situational constaints are in direct interaction with the social and actual present physical environment.

Researchers have different approaches to the concept of a learning environment. For example, according to Annu Brotherus (2004) a learning environment means only the physical and pedagogical environment and she writes about activity culture in pre-school education. In this research I look at a learning environment in a more interactive and holistic way. I include in the learning environment everything which surrounds or is in interaction with a

child, for example cultural, physical, social, psychological and emotional aspects. And through the children's interviews I wanted to give voice to their personal world views, descriptions of their competences, skills, and action strategies in different kinds of learning situations in their learning environment.

According to the results of a study by J. D. Isaac, & C. Sansone and J. L. Smith (1999), the social world, other people around a child, may be a source of interest and intrinsic motivation. They suggested that an autonomous-supportive approach in interpersonal interactions may lead to greater children's interest not just because of the feelings of self-determination, but also because the autonomous-supportive context allows an individual the freedom to create the activity in a personal way. When we are assessing suspected giftedness, we should use a method that allows us to identify the child's skills and age appropriateness (Porter 1999, 83). Developing procedures for identifying artistic talent provides a valuable opportunity for specialists in the arts to begin a dialogue that examines the underpinnings of artistic talent. Porter (1999) writes: "Children with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience or environment." According to Bernadette Duffy (1998, 140–141) the challenge of evaluation should not be underestimated; any educational program should involve critical reflection and evaluation of teachers and children. During this process both adults and children can learn how their work relates to the world around them; they can improve their evaluative skills and values associated with artistic products. In my study, one of the aims was to reach the holistic reflection of environmental catalysts of both adults and children themselves. These described environmental catalysts might act as positive or negative motivational aspects to the developmental process toward talents.

2.1 Identifying Early Giftedness

Porter (1999, 103–104) proposed an assessment model for identifying early giftedness.

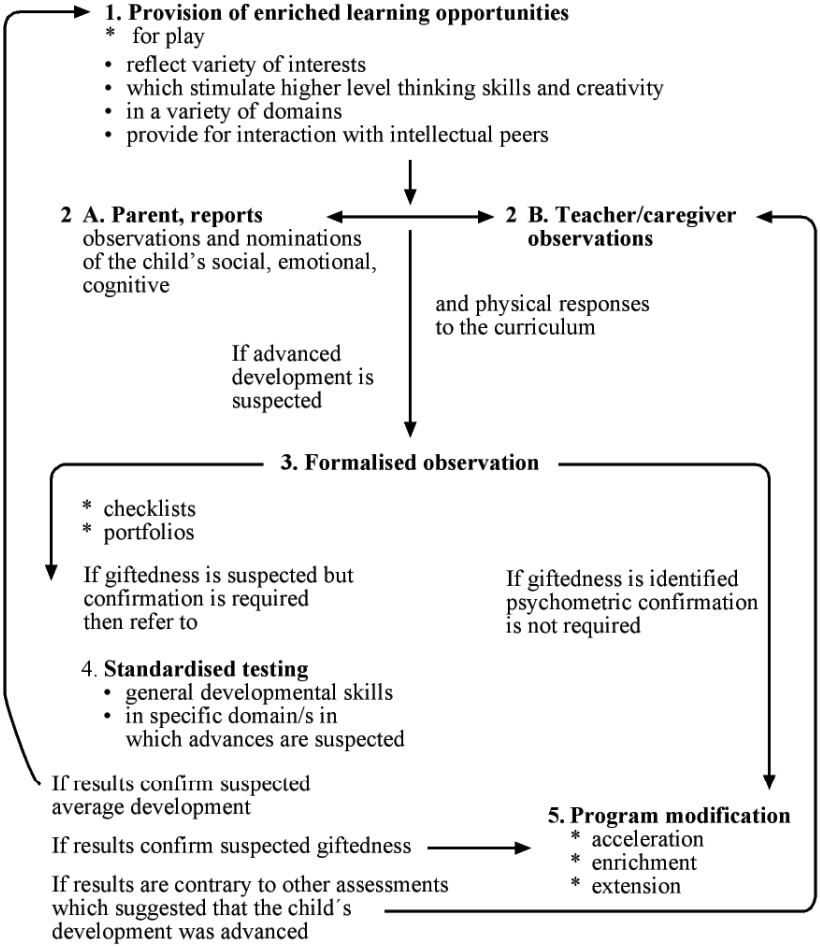

Figure 3. Porter's model for identification of advanced development in young children (Porter 1999, 104)

The program is not altered in response to the identification of giftedness; rather the identification of giftedness occurs when teachers or caregivers recognise the advanced way in which a child responds to the curriculum or tasks. The basic requirement for her model (see Figure 3) is collaboration between parents, caregivers, and teachers in order to identify which children need special provision or deeper assessment. Through this model Porter

hoped to ensure that the focus is on environmental assessment, not only on formal testing of giftedness.

A child's talent is shaped by many factors; our definition of giftedness can be historical, cultural, political, or psychological (Sternberg & Davidson 1986, 3). We are far from being able to identify all gifted children and develop their talent. For example, those children who have advanced skills in only one domain may not be recognised by an IQ test alone. The identification or assessment of children belonging to a minority cultural group, rural children, children with disabilities or children who live in poverty or suffer family problems is challenging for teachers. The underidentification of giftedness of these children is also obvious in this study, because IQ-testing is not the only way of to identify giftedness and because testing took place after the assessment and nomination of parents teachers or school psychologists. In this study gifted children are seen as active dynamic doers in their historical and cultural situation in which they actively seek meaning and creatively process reality. The motivational aspects of the learning environment of gifted children are focused on mainly through Gagné's (2003) model, and its environmental impacts are connected especially to persons, milieu, provision and events.

> *"Giftedness is something we invent, not something we discover: it is what one society or another wants it to be."*
>
> *(Sternberg & Davidson 1986, 3)*

3 The Structure of the Study

3. 1 Aims and Methods of the Study

This research project was supported by the Estonian Science Foundation and was carried out between 1999 and 2001. This research is a part of a continuing cooperative research project between Estonia and Finland. A sample of 34 talented children from both countries is described. Alone, and together with our research team, I have written some articles and reports on this research project. In this research report I will connect different aspects of this research and reflect on the other reports written during this co-operative research. My dissertation research is a combination of five subprojects of this research study. They are all connected to the learning environment of the study group of gifted children in Estonia and Finland and as a combination these subprojects are like mirrors from different sides of the environment and culture where these children grow, reflect each other and try to give a more real and true description of the children's world and the factors that inspire and motivate their learning.

The purpose of the study is to investigate and describe some environmental catalysts (see Figure 1) which are connected to the developmental and motivational processes of this sample of gifted children in Estonia and Finland. As aptitude domains of giftedness we have operationalised intellectual giftedness including spatial ability by Raven's Colour Progressive Matrices. Creative thinking, especially divergent production has been evaluated by the Torrance Test of Creative Thinking. Creative activities and thinking of gifted children were assessed by teachers' assessment and by interviews of the children. Socio-affective giftedness was evaluated by teachers through Kalliopuska's Evaluation Scale of Prosocial Behaviour. Unfortunately, we had no evaluation of the senso-motoric giftedness or other aptitude domains. We have still some information and descriptions connected to these areas from parents and teachers, a musicality test, descriptions of the children and from the interviews of the children. The musical giftedness was measured by Lotti's C-test (Lotti 1998), which is based on the imitation of rhythmical forms, tones, intervals and melodies.

Sixty-four children were interviewed and teachers and parents filled in questionnaires. Parents and teachers described the pedagogical and socio-psychological characteristics and learning environment in Estonia and Fin-

land. All of these gifted Estonian and Finnish children were educated in inclusive classrooms, i.e., in classrooms that included children of all abilities. Knowledge of the influence of social background on a child's development provides a basis for formulating and implementing educational polices that aim at making the child's learning environment more conductive to his or her development. Pedagogically well-developed and focused activity can contribute significantly to the revelation of high levels of ability and development. The mixed method was used to analyse data both quantitatively and qualitatively.

3.1.1 IQ-tests

When identifying academic giftedness the most common norm test is the "intelligence test", IQ-test. The average (or mean) intelligence is 100 IQ points. Traditionally, intellectual giftedness has been defined as any score that is two standard deviations or more above the mean, which translates to an IQ of above 130 on the Wechsler tests and above 132 on the Stanford-Binet. According to Renzulli (1986) the top 5% is regarded as gifted. A liberal definition says that there are no discernible differences in productivity between the top 3–5% and the 10–15% who fall just below that IQ level and include 15–20% of the population in the gifted category. In Gagné's (1998, 90) categorisation of the levels of giftedness the first level of 10% of the population has an IQ of 120+, (used in this research), and the second level of 1% of population have an IQ of 135+. The level of 0,1% of population has an IQ of 145+. Those at the exception level 0.01% of population have an IQ of 155+ and 0.001% of population the IQ points are 165 or more. However, it has been accepted that IQ tests are inadequate as the sole or even pre-eminent measure by which to assess advanced development in all domains especially in the preschool years (Barbour 1992).

According to Porter (1999, 95) formal IQ testing is not the first phase of assessment, but follows parental or professional nominations. In this study the sample of gifted children was found first by the nominations and assessments of parents, school-psychologists and teachers. From this first sample the final study group of gifted children was selected by means of the Raven Colour Progressive Matrices, which measured their coefficient of intelligence. Children with an IQ of 120 or above were included in the contingent study. The Raven Colour Progressive Matrices measure children's skills at

making connections: the ability to perceive a relation between given objects. It is possible to apply the test in order to measure the intelligence of children from different cultural backgrounds (Benbow & Minor 1990, 58). Some definitions of giftedness focus on academic achievements only, while some include achievements in a number of domains. Porter (1999, 14) writes that the push for an inclusive definition reflects a valid desire to avoid excluding individuals that truly are gifted. She suggests that some definitions require evidence of ability while others include underachieving children within the gifted category despite the fact that they don't demonstrate any remarkable abilities.

The sample of gifted children was found by means of the Raven Coloured Progressive Matrices (RPM), which measured their coefficient of intelligence. There are three forms of the test: Standard Progressive Matrice test (SPM), Coloured Progressive Matrice (CPM) test, and Advanced Progressive Matrice test (APM). The SPM was designed to sample the general range of ability in 1938 and the CPM and APM were designed in 1947. The CPM was designed for use with young children and mentally-handicapped adults (Mathews 1988). Each form was designed to assess non-verbal abstract reasoning by having persons select which of 6 or 8 pattern pieces fits best into an overall matrix or array. Each puzzle is coloured and the test consists of problems in 3 sets of 12 items. The problems become progressively more difficult. The easier items serve as a learning experience for later and more difficult problems. (Raven, J. C., Court & Raven, J. 1983.) Raven's (1985) manual states that bright children over the age of six years and most other children before age seven understand the test well in the brightly-coloured print form although there is a board form available for use with younger or developmentally-delayed children.

The test can be also group administered, but we did the test individually for every 6–7-year-old child using different age-based norms. The construct of this test makes it suitable for use with young children when they meet the adult examiner for the first time. Since its origin it has been assumed to have a high general intelligence loading 'g' with some degree of visual-spatial 'k' factor; it has been specially related to Piagetian conservation concepts and it reflects the development in the child's reasoning process (Raven 1985). The CPM requires no verbal response. Without abandoning standardised procedures, it leaves room for the observation of the child's tempo in problem

solving, willingness to engage in figural tasks, level of logical thinking, type of self-talk, and consistency in physical and verbal strategies.

We chose the CPM test because we tested young children from different cultural backgrounds. According to D. Mathews (1988) and K. Stephens & L. Kiger (1999) and P. C. Benbow & L. L. Miror (1990, 58) Raven's Progressive Matrices non-verbally measures some very general intellectual/reasoning ability that is relatively unaffected by educational and cultural background. The Raven's test measures children's skill at making connections: the ability to perceive a relationship between given objects. The RPM is used in many cultures with different educational and developmental backgrounds as was shown in the following research: Annett, M. & Manning M. 1989; Myung J-S.& Lynn, R. 1991; Rabinowitz, M. B. & Wang J.D. & Soong W.T. 1991; Haensley, P. A. 1999; Chan, D.W. 2000; and Vroon P. 2001. According to their research, the strongest relationship involves visual/perceptual/spatial skills and is considered to be part of general reasoning ability. Benbow and Miror (1990) found a stronger relationship between the RPM and mathematical reasoning than between the RPM and verbal reasoning. RPM has been shown to be moderately related to tests of spatial intelligence (Guttman, R., Epstein, Amir, Guttman, L. 1990). The SPM and CPM scores correlate about equally with the Verbal and Performance subscales of the Wechsler Intelligence Test for Children (WISC-R) (Pearce 1983). According to Carol J. Mills & Karen E. Ablard (1993) more research is still needed to explain the role of learning potential on score performance and the differential effects on people with different cognitive abilities and backgrounds. They recommend the RPM for general identification of high potential children who would not be reported by other measures. This is most likely to occur with culturally different, disadvantaged, limited-language ability or learning-disabled children. They advise to choose the right level of CPM test for young children (Mills & Ablard 1993). Some criticism of assessing intellectual giftedness with a strongly spatial ability test has been made, for example David F. Lohman (2005) suggests that the role of nonverbal ability tests on the identification of academically gifted children not is not so culture free. Anyway we chose the CPM-test because of its nonverbal format and cultural fairness. During the research work we found that there were only a few differences for example between the home environments of Estonian and Finnish gifted children even though Estonia had been under Soviet rule for many years, but still there were the language difference to preferring the use of CPM-test.

3.2 The Sample and Research Problems

Children with an IQ of 120 and above (according to Raven's IQ test) were included in the contingent study. For this study 34 children from both countries were selected, altogether 68 gifted children from Estonia and Finland, and 64 of them were interviewed. The lowest IQ of the contingent studied was 120 and the highest was 144. There were seven children from both countries whose IQ was extremely high, ranging from 139 to 144 (Figure 4). In Estonia more than half of the children were boys, 58,3%, while in Finland the proportion of boys was only 32,4% (Figure 5). To find these gifted children we used Porter's (1999) method of pre-evaluation by teachers (Estonia and Finland) and school psychologists (half of the study group of Finland) before testing the children with the Raven's test. The IQ of the Finnish children (mean 131) was higher, but not significantly compared to the IQ of the Estonian children (mean 128).

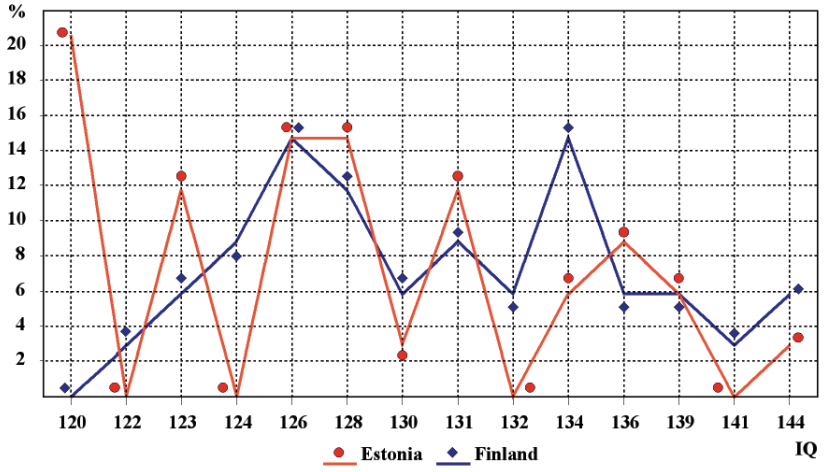

Figure 4. Raven's intelligence scores of the gifted children of Estonia and Finland

There were no significant differences between gender groups of the IQ-results of Estonian and Finnish children.

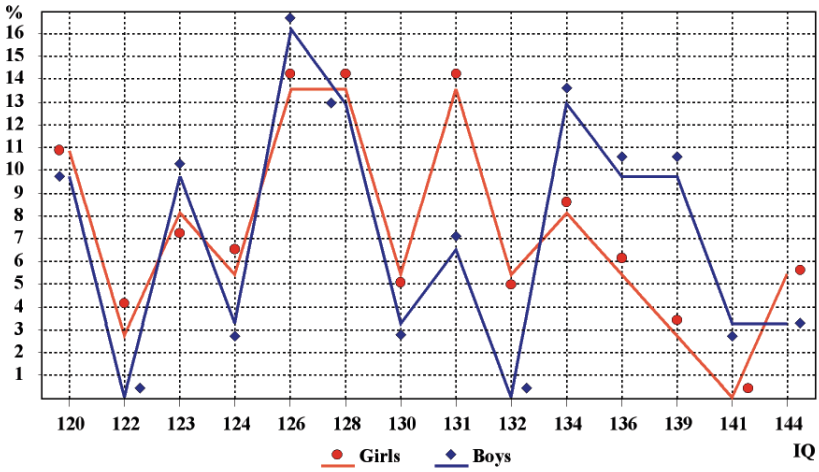

Figure 5. Raven's intelligence scores according to gender of the gifted children of Estonia and Finland

The research problems are:

1. *Which environmental and intrapersonal catalysts, which might act as positive and/or negative motivational aspects associated with the development of gifted children, are found in the learning environments of Estonian and Finnish children?*

2. *How are gifted children described and characterised by their parents and teachers in their learning environments?*

3. *How do gifted children themselves describe their learning environments?*

4. *Which musical and creative opportunities exist in the learning environments of these gifted children?*

The general outline of the research project can be divided into four different sections. First, the learning environment of gifted children is studied by assessing the home environment. Second, the school environment is examined through teachers' descriptions of gifted children. Third, the gifted children

and their thoughts about learning in different environments are described in interviews. Fourth, the creative and musical environment of gifted children is examined. Finally, conclusions about the factors of the learning environment of gifted children in Estonia and Finland are summarised.

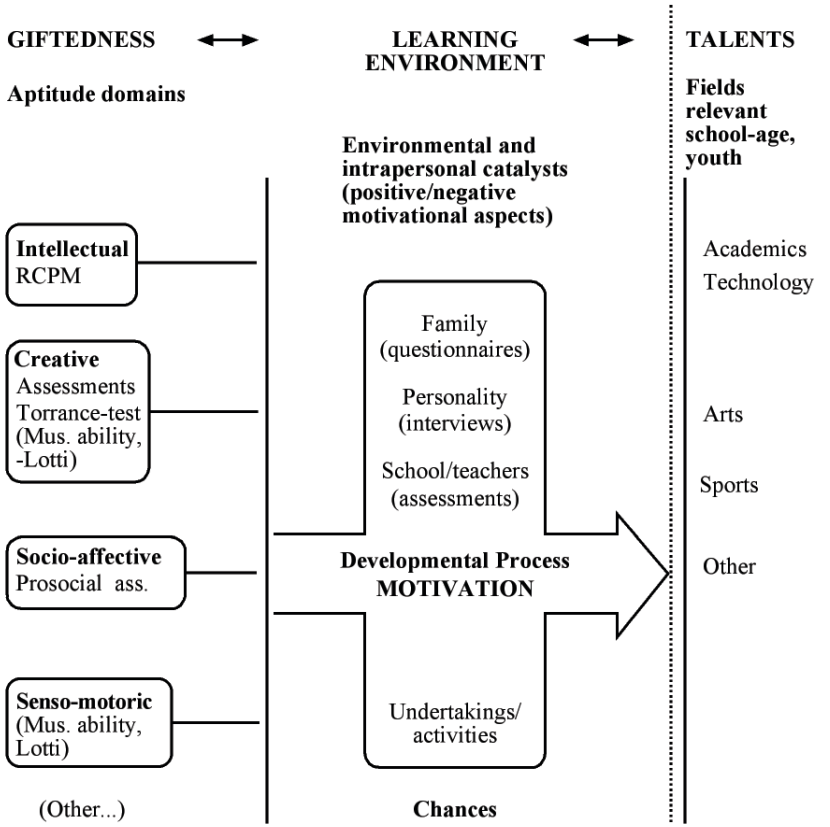

Figure 6. Learning environmental aspects of gifted children applied by Gagné's (1991) model

As a researcher I will focus on the centre part (learning environment) of this Figure 6. I'm interested in describing those environmental catalysts (family—through parents questionnaires and children's interviews; preschool and school—through teachers' assessments and children's interviews), and some intrapersonal catalysts (motivation, personality, interests—through children's

interview, parents' and teacher's assessments) around these gifted children which might be connected to their developmental processes and development of their special talents. In the applied model (see Figure 6), there is a broken line symbolising an unseen future where there are specialised talents and which part of the model cannot be examined with young gifted children.

Several socio-cognitive theories beginning with focus of control and attribution theories discuss how children's understanding and self-descriptions of their behaviours can influence their future performance and choices. Terry McNabb (2003, 418–422) emphasises concentrating research on the nature and consequences of children's performance and goals versus learning especially in order to understand underachievement of gifted learners. When gifted children are more focused on preserving their identity as gifted than on increasing their competence they may limit their potential by avoiding challenge. According to McNabb (2003, 422) this kind of knowledge is important for the educators of gifted children because the label of "gifted" may reduce some children's motivation to accept challenge. In this study I received some wise advice from Professor Uusikylä not to speak to parents, teachers or children about giftedness as criteria of being selected for this study group. I avoided such discussion in Finland. In Estonia the study project was more openly known and even publicised at newspapers, but those gifted children who took part of this project were not identified.

Figure 7 presents an interactive developmental process showing the motivational aspects of gifted children towards their special talents. This model of motivational aspects includes the idea of intrinsic motivation in every child together with extrinsic motivation as a developmental continuum towards more intrinsic values and relative autonomy. I see this developmental process as a part of the interaction process between a child and his/her learning and growing environment. All children have their own interests and activities that they want to do just for enjoyment. In addition there are many extrinsic motivations in the environment where family, day care, school, playmates, activities, media etc. are involved. Through interaction with his/her environment, the child develops the motivation which may lead to a special talent or to individual growth.

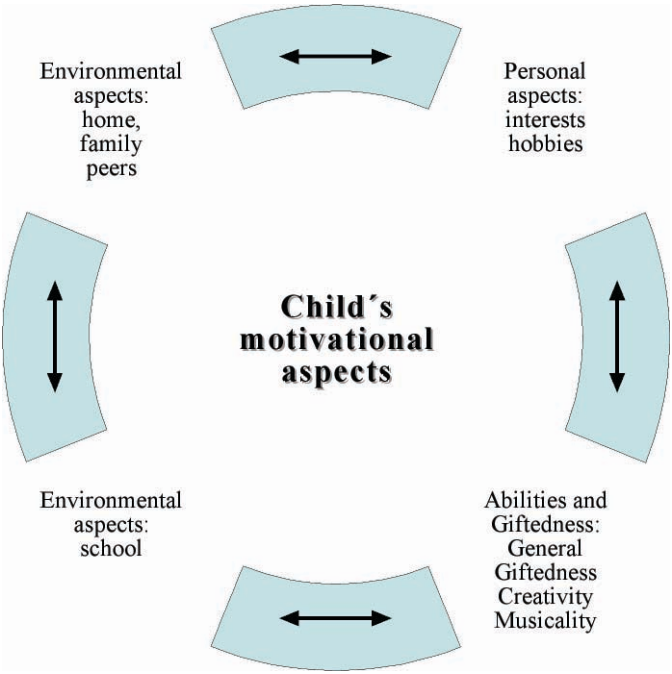

Figure 7. An interactive developmental process showing the motivational aspects of a gifted child towards his and her special talent/s

In this research I am not trying to explain the quality of different kinds of motivation of these gifted children; that is too complicated an issue for me to explore. My aim in this study is to describe those environmental and intrapersonal catalysts in the learning environments of these gifted children which might be connected to their developmental process and motivation to study in some special field, such as music or other arts (see Figure 7). Giftedness is seen as developing potential in social interaction with the learning environment. I describe the environmental settings of the interactive learning processes of these gifted children in different learning environments and some positive or negative motivational aspects found in their learning environments. Motivational aspects can be found from those environmental or intrapersonal positive or negative catalysts (see Gagné's model, figure 6) which exist in children's learning environments and are important to the developing interests and learning of gifted children. Through questionnaires completed

by parents and teachers and interviews with children, I will bring to the discussion both environmental settings and personal opinions and descriptions of learning and motivation concerning these gifted children.

I have used 'mixed method' for analysing the data of this study. According to Anthony J. Onwuegbuzie (2004, 144) mixed-methods design has the following three dimensions: (a) level of mixing (partially mixed vs. fully mixed), (b) time orientation (concurrent vs. sequential) and emphasis of approaches (equal status vs. dominant status). The data has been analysed in various ways using both qualitative and quantitative methods. I used partially-mixed methods where both the quantitative and qualitative data were conducted sequentially in their entirety before being partially mixed during this writing process and reflection on the articles. Time orientation refers to the qualitative and quantitative phases of the study which have occurred sequentially in this study project. Finally my emphasis on approach pertain shows that both qualitative and quantitative elements are quite equal. The quantitative approach is more present in most of the articles I reflect, but in this report I emphasise the qualitative approach to the learning environments of these gifted children. Both qualitative and quantitative phases are important in answering the research questions in this mixed method design.

The data were collected from the questionnaires of parents and teachers and all test results were analysed with SPSS using t-tests, ANOVA, correlations, cross-tabs, frequencies, percent and descriptive statistics. The statistical information presented in this study concerns only this small study group in two countries and the results cannot be generalised. The data from the interviews and from open-ended questions were analysed qualitatively. The answers to open questions are introduced as presentations of certain areas of the learning environment and some of these presentations were also collected and analysed to the quantitative data. The children's interviews were analysed thoroughly as the representative expressions of their thoughts concerning their different experiences of learning in various environments. I introduce the results of this research project so that the qualitative and quantitative phases occur sequentially, they are mixed across the stages, and are given in some chapters more qualitative or more quantitative weight.

3.3 Disposition of this Report

In this chapter I introduce the design of this study work and mention some of the underlying previous research articles of the whole research project I have participated. This project has been a cross-cultural study project between Estonia and Finland. My role in this research project has been as an equal co-operator from the Finnish side. I developed the questionnaires for parents and teachers in project meetings with Professor Vikat. On the Finnish side I have collected all Finnish research material and analysed it. We have done comparative analyses together for our common articles (1–2) and congress presentations concerning part one were done with Professor Maie Vikat and Eva Noormaa. I am the sole author of the articles (4, 5 and 6). I also wrote three of the common articles (3, 7 and 8) independently, but I had guidance in forming my questions from the leading professor of our project, Maie Vikat. The most interesting part of this research project for me personally was meeting and interviewing all these 64 gifted children in Estonia and Finland. In this study of learning environments and gifted children one of my personal qoals was to increase awareness of children's own world views and to increase their thoughts about learning in different kinds of interactions with their environment. This research report is a kind of a journey or a travelogue of what is happening in the bicultural research project described from "my window".

The first part of this study concerns the home environment of gifted children as described by their parents. Through a questionnaire (Appendix 1) we wanted to investigate the kind of home environments these children have in Estonia and Finland and how parents describe their children and education. We also wanted to learn if there are any similarities or differences in home environments between Estonia and Finland. In the first part of the study I summarise and reflect on the presentation of our research group at the Eecera (European Early Childhood Education Research Association) conference in London 2000 in the following two articles:

1) Vikat, M., Ruokonen, I., Noormaa, E., Toro, L. & Vennik, M. (2001). Andekas laps ja tema arengufaktorid. [The Gifted Child and Factors Contributing to it's development] In M. Veisson, (ed.) *Väikelaps ja tema kasvukeskkond II [A Gifted Child and his/her Educa-*

tional Environment]. Tallinn. Tallinna Pedagoogikaülikool. TPÛ KIRJASTUS, 155–169.

2) Vikat, M., Ruokonen, I. & Noormaa, E. (2002). 6–8 aastase andeka lapse kodune kasvukeskkond ja arenguvõimalused Eestis ja Soomes. [Home environment and development options of 6–8 year-old gifted children in Estonia and Finland] In M. Vikat, (ed.) *Andekas laps muutuvas ühiskonnas*. [A Gifted Child in a Changing Society] Konferentsi ettekanded, 26–46.

The second part of this study concerns the preschool and school environments of these gifted children. Through a questionnaire (Appendix 2) we wanted to investigate how teachers describe these gifted children and their teaching and learning in inclusive classrooms. We also wanted to know if there are any similarities or differences between two countries, Estonia and Finland. I summarise and reflect on my presentation at the Eecera conference in Alkmaar in 2001 and the following article:

3) Ruokonen, I. & Vikat, M. (2001). Pedagogical and Socio-Psychological Characteristics of Talented Children and Their Learning Environment in Estonia and Finland. In L. Talts, & M. Vikat, (eds.) *Lapse kasvukeskkond Eestis ja Soomes* [The educational environment of a Child in Estonia and Finland] Tallinn. Tallinna Pedagoogikaülikool. TPÛ KIRJASTUS, 110–133.

In the third part of my study I wanted to investigate how children experience their learning environment through a theme interview (Appendix 3) I describe children's own experiences and descriptions of effective learning and learning environments. Here I summarise and reflect on my presentation at the Eecera conference in Nikosia in 2002 and Malta in 2004 in the following articles:

4) Ruokonen, I. (2001). Lasten haastattelu tutkimusmenetelmänä eräässä kahden kulttuurin välisessä tutkimusprojektissa. [Child interviews as a research method in a bicultural project]. In A. Puurula, (Ed.) *Taito- ja taidekasvatuksen tutkimuksia kasvatustieteenpäivien teemaryhmän esitelmät 2000*. Mauno Koivisto Keskus, Turku 23.–24.11.2000. Studia Paedagogica 27, 131–143.

5) Ruokonen, I. (2002). Children's Ideas of Good Learning in Estonia and Finland. In L. Talts, & I. Männamaa, (eds.) *Paradoxes in Childhood: Reality and Perspectives.*Tallinn. TPÛ KIRJASTUS, 49–63.

In the fourth part of the study I investigate the learning environment of these gifted children as it is connected to musical environment and creativity. As research material I use all available material connected to music, arts and creativity in this study combining the information collected from the questionnaires of parents and teachers and children's descriptions of musical environment through their interviews Here I summarize and reflect on the following articles:

6) Ruokonen, I. (2003). Lasten musiikillisen ja luovan lahjakkuuden tunnistamiseen ja arviointiin liittyviä teoreettisia näkökohtia. [Theoretical views on the identification and assessment of the artistic, especially musical giftedness of children in preschool and initial education]. In V. Meisalo (ed.) *Aineenopettajankoulutuksen vaihtoehdot ja tutkimus 2002. Ainedidaktiikan symposiumi 1.2.2002*. Helsingin yliopisto. Opettajankoulutuslaitos, Tutkimuksia 241, 464–477.

7) Ruokonen, I. & Vikat, M. (2004). The Musical Ability and Environment of Gifted Children in Estonia and Finland. In K. Swanwick (ed.) *The Changing Face of Music Education*. Tallinn Pedagogical University , 84–95.

8) Ruokonen, I. & Vikat, M. (2005). The creativity of gifted children in Estonia and Finland from a musical and environmental perspective. In *TRAMES, Journal of the Humanities and Social Sciences* 1, vol. 9, no.1, 49–68.

The purpose of presenting these four inter-related studies is to give a more reliable description of the multifaceted learning environments of these gifted children in which the individual interests of each gifted child hopefully begin to develop towards a personal talent. In this research I wanted to collect data concerning children's abilities and background from multiple sources: in the kindergarten, schools, home and from children themselves. Knowledge of the influence of the social background on a child's development provides a basis

for formulating and implementing educational policies that aim at making the child's learning environment more conducive to his or her development in all fields of education. Pedagogically well-developed, evaluated and focused activity can contribute significantly to the revelation of high levels of ability and development.

> *"We are social beings, born with the need to represent and communicate our experiences. Through our interactions with others we grow and develop and our role as adults is to ensure that children for whom we are responsible have this opportunity. Interventions should support and extend children's learning and development by adding the information or skill they need at the point they need it."*
>
> *(Duffy 1998, 94–95.)*

4 Review and Reflections on the Articles

4.1 The Home Environments of Gifted Children

> *"The most important people for me are my family members… and the best time is when we all are together at home… unfortunately that is too seldom. My parents are often so busy."*
>
> *(Finnish 7-year-old boy)*

There are many compelling reasons to study parenting and the home environment of gifted children. The information about how parents and gifted children are doing should be of interest to educators, early childhood professionals, and administrators. This first part concerns the home environment of Estonian and Finnish gifted children. After collecting the research material, we analysed the some of the data and presented the results with Professor Maie Vikat at the Eecera-Conference in London in August 2000. The questionnaire sent to parents contained 60 questions in order to study the home-rearing environment of the children. The questionnaire (Appendix 1) consisted of background data about the family of the gifted child and parents' assessments of their children generally, concerning the special interests of the child and the child's social relations with other children. I planned the questions for the questionnaire at Professor Puurula's seminar. After that they were evaluated and in some part revised in Estonia and translated to the Estonian language.

For planning our questionnaire I received much help and some models from Anja-Riitta Lahikainen's (1995) comparative study concerning 5–12 year-old children's insecurities, fears and worries in Finland and Estonia. Through the questionnaire we learned the background information of each child, members and living conditions and incomes of the families, educational backgrounds and work places of the parents, day-care system of these children, interests, hobbies and time spent together of these families, problems and crises of families and children. We also asked parents to characterise their child and their leisure activities and media behaviour. There were also open-ended questions concerning parents' opinions about the giftedness of their child and their assessments of the most salient features in their child's developmental history. They also wrote about how they support their child's

learning and free-time pursuits and they reported about their wishes regarding the child's school environment and future.

Eva Noormaa did her research for her Master's in Education in 2001 using the results of this questionnaire, and therefore I am not going to give results for all details of questionnaire. I will refer to our Eecera conference presentation in 2000 and reflect on the results of our common study on some interesting aspects of the home environment. The questions on the questionnaire were statistically evaluated by SPSS 11 using frequencies, procents, means, correlations and t-tests. I will also summarise the parents' answers to the open-ended questions on the questionnaire as examples of parents' thoughts about their children and education.

The family influences a child's development. Good parenting behaviours facilitate cognitive and conceptual development as well as nurture gifts exhibited by the child (Hotulainen, 2003; Maijala, 2003; Tuovila 2003; Uusikylä 1991, 1992). Families of gifted children must cope with the developmental characteristics of the gifted person and they may often have to handle many unusual situations with their gifted child. Early experiences are related to emotional stability and to social and intellectual competence (Brody & Axelrad 1978, 32). The impact of family-child interactions on human development is important, and the values and expectations of parents are those against which their child often measures her/himself. Current research has shown the importance of parenting, experience and learning on the physical brain and neurological development (Goleman 1995; Ornstein, & Thompson, R 1984). A study (Goertzel, M., Goertzel, V. & Goertzel, T. 1978/2004) of the lives of 300 famous 20th-century figures presents a picture of the negative impact of the home environment. Many of these famous adults spent their childhood in bleak, troubled homes with unstimulating home environments and some had domineering or neglectful parents. Those gifted children, who succeeded despite their non-supportive home-environment can be described as invulnerable to at-risk conditions. This study cannot be a model for home environmental catalysts; there are happier, smoother ways to maximise of human potential. It is valuable for a growing child to be a member of a loving and culturally rich family with a high degree of parental involvement (Tannenbaum 1992; Howe 1990; Snowden & Christian 1999).

Many studies of child prodigies show the importance of the early developmental period and early recognition of and support for gifts and talents. Parental support is needed for a special talent, such as musical talent (Bloom 1985). Major differences in the families of child prodigies emerged in pat-

terns of family activity, setting of priorities, allocation of resources, and family members energies that could be channelled into a single child's support and education (Feldman 1991). In many ways the families of gifted children are like all other families. M. B. Karnes, A. M. Swedel & D. Steinberg (1982) compared families of gifted children to families of non-gifted and they found that parents of gifted children spent substantially more time with their children on school-related activities, encouraged their children to be more independent, were emotionally supportive of their children and their efforts, and expected their children to complete activities with little, if any, assistance. Parents of gifted children also mentioned unusual curiosity and early verbal expression as characteristics of their children (Creel & Karnes 1988). Parents of gifted children are also quite reliable in judging of the gifted potential of their preschool child. According to B. Louis & M. Lewis's (1992) study of identification of preschool gifted children and the relationship between parental characteristics and assessments of their child 61% of the children screened had IQ scores between 132–185; thus the researchers concluded that parents were accurate in their perceptions of their children's intellectual ability.

Peggy. L. Snowden and Linda, G. Christian (1999) studied parenting of young gifted children. They used the PAAT Inventory which is a composite attitude scale that assesses parent attitudes about certain aspects of parent-child relationship. They assessed five areas that describe parental expectations and actions in response to the child's behaviour. The key domains of child development are: creativity, frustration, control, play and teaching-learning. The results of this study showed the importance of supportive behaviour in parenting of gifted children. In terms of creativity the parents were adaptable and allowed their children to be flexible and imaginative and to make independent judgements and choices. In terms of the topic of frustration the parents of gifted children studied were very flexible; they encouraged and accepted normal developmental behaviours and set expectations compatible with individual abilities and needs. The scores of the control indicated that the parents were willing to share control and to let their children make certain decisions. The parents allowed the child to be spontaneous, accepted the child's need for privacy, and allowed the child to wield some degree of power over the environment. Parents who realise and understand the connection between play and symbolic development and learning, encouraged playful behaviours. The results of this study according to play scores showed that the parents who performed in use desirable and highly desirable range, rec-

ognised the value of play, understood its links with learning and creativity, and participated as observers, partners or models. In terms of teaching-learning the job of teacher is important for the parent. Respect for the child's needs and developmental levels are the key to parents' ability to judge the motivational level of the child and to measure the impact and outcomes of their teaching. In addition to assessments they did an interview and home observation in one family in order to obtain a more accurate picture of the parents of gifted children. Both parents valued education and preferred to be democratic educators.

Parenting duties were shared in a responsible way. Parents encouraged academic success; they said that almost anything the child might do with his/her future would be acceptable as long as he/she was doing what he/she wanted. Parents wanted to transmit their values to the children by modelling them, not just by talking about them. They valued high self-esteem and wanted to promote successful behaviours and confidence. The case study family provided a highly facilitative and nurturing home environment for their gifted child. In their study of Snowden & Christian (1999) show that supportive behaviours are the main key for parenting gifted children.

4.1.1 Reflection on the Study Results

Our study the results showed the value of the home environment especially for developing self-esteem and socio-emotional growth. The parents were highly committed to their child's development. The objective of Finnish family policy is to create a safe growth environment for children and guarantee parents the material and psychological resources to bear and raise children. To level out the expenses that children bring, Finnish society provides more various forms of financial support and child-care arrangements than Estonian society, although Estonian family policy has taken many models from Finnish social policy. In both countries many mothers of small children work full-time and in this situation a reliable, safe and reasonably priced day-care system is of vital importance.

Our presentation at the Eecera conference in London in 2000 concerned the considerable differences in the home environment between Estonia and Finland and the parents' descriptions of their gifted children in both countries. The education level of parents was high in both countries. Half of the parents of both Estonian and Finnish children had some higher education. In

Finland some parents of gifted children had no, or a low level of vocational education. Estonian mothers had the highest education, but in both countries the mothers had higher levels of education than the fathers. Over half of these gifted children had parents who had a university-level education so it seems that the parents were also gifted and they had problem-solving skills and healthy self-images.

From parents' descriptions we conclude that gifted children in both countries develop in a versatile stimulating environment, which supports the emergence and development of their innate giftedness. Eva Noormaa's (2001) study in this research project confirmed the fact established by other research on gifted children in the world that more than half of them are only children or the eldest children in the family. One could say that the better living conditions were, the higher the IQ was. Estonian gifted children usually live in nuclear family settings. The living and economic conditions of the families of Finnish gifted children are better than those of the families of Estonian children, but the internal relationships between the family members of Estonian are closer (Noormaa 2000).

Statistically significant differences were found in the sphere of economic coping: a little more than one third of the Finnish families (36,4%) assessed their standard of living as very good, whereas in Estonia only one tenth of the respondents (9,1%) shared their assessment ($p < 0.01$); see Figures 8 and 9. The salaries of Estonian and Finnish parents differ greatly, but there are also differences in the cost of living: 82% percent of Estonian and 62% of Finnish families assessed their income as moderate (Vikat, Ruokonen & Noormaa 2002). Jaana Vasama (2001, 72–74) found the same kind of results in her research work where she examined the Estonian and Finnish educational environments at both macro-(society) and micro-(family)-levels. The financial problems and large individual differences of financing education or everyday living between families or regions may be the most problematic for the developmental growth of the Estonian educational system.

Figure 8. Living on a single-family income in Estonia

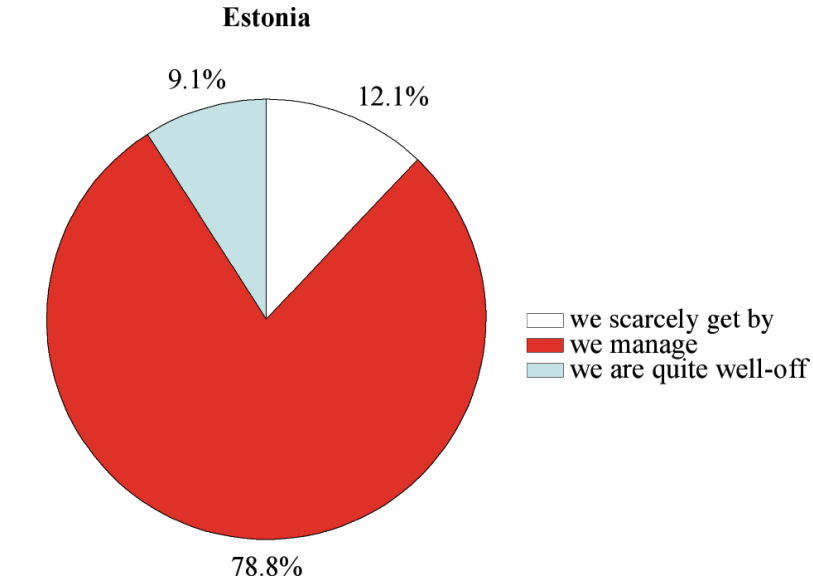

Figure 9: Living on a single-family income in Finland

On the following I review some previous studies of the home and social environments of creative people. According to Freeman (2000) the conditions for artistic creativity are found in an intricate web of personality, social background and the living and working environment. High intelligence, optimistic personality, good social skills and supportive adults contribute to positive developmental outcomes for creativity. Although there are differences between family incomes between these two countries there is no need for the persistence of stereotypical description of lower income families as not supportive of academic and creative pursuit. The perception is that economically-disadvantaged students face societal, scholastic, familial and personal difficulties which prevent successful realisation of their potential (Torrance 1964; Frasier, 1987 and 1991). There is some evidence that some gifted children who are economically disadvantaged can rise to eminence despite these apparent difficulties (Goertzel & Goertzel 1962; Glasser 1986; Chaplin 1992). Some children share certain characteristics that foster resilience in the face of disadvantage. For example, Charlie Chaplin's father died of alcohol-related complications and his mother became a single parent; the family moved many times according to her ability to earn sufficient money to feed her sons and to pay the rent. Moving was disturbing, but it was viewed positively if it indicated a more solvent time to come. (Chaplin 1992).

In our study the gifted children had no serious problems in their families, but one interesting connection was found between the creativity evaluated by teachers and the alcohol problems in the family reported by parents. Teachers evaluated those children as more creative whose parents had reported having some alcohol problems in the family; this interesting detail was not connected to the creativity test results.

Ruth E. Stewart & Marion Porath (1999) did a case study with five gifted boys who were born in low socioeconomic conditions and who became eminent in adulthood. They found the influence of the mother, organisational structure within the home, and mentors to be important positive factors that encouraged success. Mothers promoted emotional stability and identity through love, encouragement and expressiveness. The mothers of the five had their own interests although they had economic problems and stress. Mothers had strength and character for the skilful management of household finances. Bowlby's (1973) extension of attachment theory suggested that early bonding between a caregiver and a small child is the basis of the child's emotional life. From this foundation a child develops his/her sense of significance and self-worth. In this case school was not found to be a positive fac-

tor. There was a strong relationship between the personal characteristics of the boys and the characteristics of resilience.(Stewart & Porath 1999)

Kari Uusikylä´s (1991) study of a self-portrait of student actors, dancers and graphic artists is very interesting. The analyses show that the dancers' home environment were most favourable. Actors had the most variation in home environment and the statistically significant correlations were associated with the father's positive and emotionally warm influence at home. Graphic artists described their home environment and parent-child relationships as typically neutral.

Estonian families spend more significantly time together than Finnish families ($p < 0.001$), see Figures 10 & 11. More than one third of Estonians dedicate a considerable amount of time to be with their children, while Finnish families allocate only a little more than one-tenth. One reason for this may be that Finnish children had more hobbies outside the home than Estonian, and this can be connected with the better economic situation of Finnish families (Vikat, Ruokonen & Noormaa 2002). Parents also had time for their own personal pursuits; in both countries fathers had more time for personal hobbies. According to children's interviews in this study parents also had creative interests and they spent time in arts or sports activities alone or together with their child. Mothers still had time for their children. Estonian mothers (62,9%) and Finnish mothers (75,8%) very often spent time together with their gifted children.

Parents who themselves were gifted as children can be especially sensitive to the challenges that might lie ahead for their own gifted children. Parents are often worried about their children's social isolation or choice of less able companions (Keirouz 1990). Parents are often accused of putting pressure on their children (Rimm 1992). According to this study parents were not worried about their children's social conditions or their own educational role. Preschool gifted children have been described by their parents as divergent thinkers, who are curious, and highly focused on their interests. They become early readers and are persistent. They also described them as possessing an unusual sense of humour, an unusual ability to make abstract connections in learning, a high verbal ability and a wide range of interests with a demonstrated ability in one area which could be identified even at a very early age (Louis, Feiring, Lewis & Roedell 1992). Parents reported that their children's leisure activities had gender-stereotypic patterns: for example dance and fine art skills for girls and convergent games and construction for boys (Johnson & Lewman 1990).

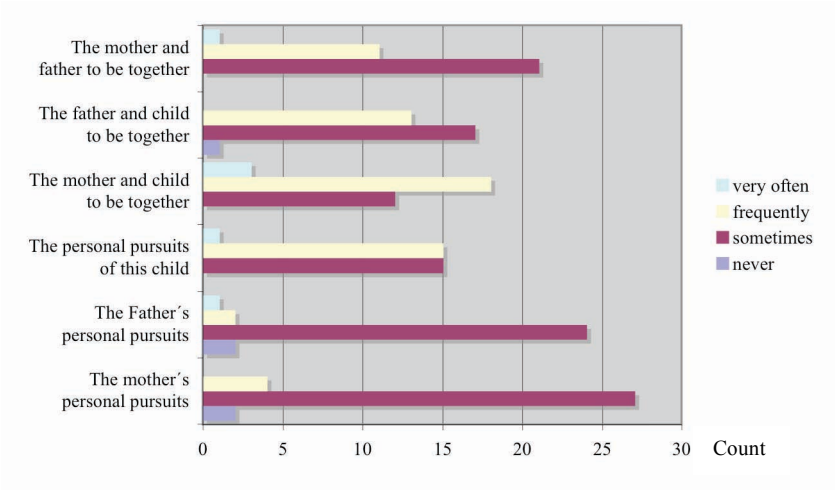

Figure 10. Time spent enough in the Estonian families on:

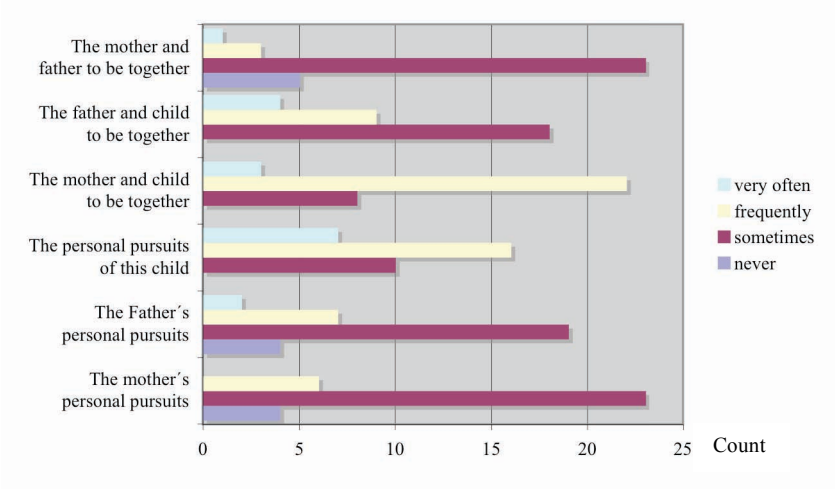

Figure 11. Time spent enough in the Finnish families on:

4.1.1.1 Home as the first Learning Environment for Gifted Children

Home is the first learning environment for gifted children and parents may have the most important role in developing giftedness of their child. P. D. Renshaw and R. F. Gardner (1990) studied the interaction of parent-child

diads working on novel tasks and found that parents interpreted the tasks and selected teaching strategies in two ways. Some considered the learning goals and used indirect strategies in support. Others considered performance goals and adopted direct strategies. These two approaches created very different learning environments. Parents who used the direct approach were concerned with accurate performance and therefore intruded promptly if the child made an error and corrected the mistake. Those parents who used indirect approaches gave more explicit guidance on how to correct errors and realise a solution so that the responsibility for the task remained with the child and errors were viewed as a natural part of learning. These children had a better capacity to problem solve and to regulate their learning.

In my study I could not identify these previously presented of approaches of parents' educational strategies. According to parents' answers about how they support their child's learning, I found that parents mostly used indirect strategies in support. Parents mentioned that they wanted to support their child's learning if the child needed help. They reported that their children also needed quiet for their own learning and that they came to ask for advice on more difficult problems. Parents wanted to be good listeners and they wanted to encourage their children in learning even in most specific or abstract tasks. All parents were also very interested in supporting their children's free-time pursuits. Finnish children had a lot of hobbies in arts and sports where they needed their parents support. Parents reported that they participated in transportation and encouraged their children to practice new skills several times a week.

In this study parents characterised their children with four aspects. Afterwards we combined the two middle dimensions and used three dimensions for the description of a child. Finnish parents characterised their children as more talkative (51,5%) were characterised as very talkative) and said that they speak about their activities at home compared to 35,3% of the Estonian parents who said that of their children were very talkative. Nevertheless, most Estonian children (64,7%) were characterised as not at all easily depressive. One reason for easily depressed Finnish children may also be that more parents of these children are divorced in Finland (24,2%) than in Estonia (13,9%) although the difference is not statistically significant ($p > 0.05$). The difference to Finnish children is significant ($p < 0.001$): 54,5% of Finnish children were characterised as more easily depressed. It is difficult to know why there is this kind of difference in parents' assessments; we only know that Finnish children were characterised as more talkative than Estonian chil-

dren. According to Joan E. Grusec and Norma Mammone (1995, 59) easily depressive behaviour may alter parental thinking by priming memories of difficult interactions with children. However, my questionnaires of parents' that kind of explanation could not be found.

It was also very interesting to see which kind of educational methods parents have used during the past year. It may also be the question of positive thinking and educational methods of Estonian parents. Estonian parents use significantly ($p < 0.001$) more rewards (36,44%) than Finnish (12,1%), who encouraged (66,7%) significantly more ($p < 0.001$) and use a confidential conversation (48,5%) significantly ($p < 0.001$) more often than Estonian parents (used encouragement 33,3% and conversation 12,1%). Perhaps there is a need for more positive conversations as referred to in the study of Grusec & Mammone (1995). Estonian families who have more economic problems have perhaps also developed models of surviving positively. On the other hand, children in both countries had social contacts and friends; Finnish children had more friends (59,3% in Finland had many friends, while 40,7% in Estonia had many friends). Estonian children also lived more often in closer connection with their grandparents, which gave them a more secure social network. According to Naomi Sankar-Leeuw (2002), parents of gifted children mentioned as beneficial additional information on raising a gifted child. Firstly, they needed information on disciplinary techniques for coping with anger and high emotional rage, frustration and the child's need for independence. Secondly they needed information about learning styles, thought processes, and types of intelligence needed to deal with a system which holds gifted children back.

All Finnish children watched TV at least one hour per day while 22,9% of Estonian Children spent more than two hours with TV programs. Estonian children watched statistically more TV series and music programmes than Finnish children; they also liked to watch more full-length features and news than Finnish children, who watch more children's programmes and children's animated films. The motivational aspects of media as an environmental catalyst it would need more deeply research. When reporting children's interviews, some descriptions of media are reported.

According to parents' descriptions and interviews with children, play was important for gifted children. According to parents, children in both countries enjoyed playing at home and outdoors. They also preferred older playmates although Estonian children preferred younger playmates (28,9%) more often than Finnish children. More than half of the Estonian children

were boys and this may be why Estonian parents more often describe car and computer games as favourite activities of their child. Finnish parents described more make-believe games while Estonian parents more often described games in which some rules are needed such as table games. It was interesting that many Finnish parents mentioned woods and nature in response to a question about the child's favourite place to play.

According to the Finnish parents' answers to the open-ended questions on the questionnaire all parents had noticed that their child had a special talent. Most parents said that it manifested as quickness in learning new tasks and interest and ease to solve problems. Parents described their children as active and independent learners who constructed plays, games, little buildings and all kind of constructions with their hands using different kinds of materials. As the most salient features in their child's developmental history they mentioned that many of these children had learned to read and write independently. *"At the age of 4 he called me with his father's mobile phone. He had selected the numbers by himself. He loved to look in the telephone catalogue and from there he learned numbers independently and he wrote them on all papers and napkins."* writes the mother of a Finnish 6-year-old boy. Parents also mentioned arts, and said their children shared an eagerness to paint, sing, dance and write. *"He draws wonderful pictures, with messages and he even writes his own stories about them"*, writes the mother of a 6-year-old Finnish boy. *"She has a natural skill for using colours and forming shapes in a very personal way. At music play school she also started to play kantele and she was very eager to play it every day; she created her own melodies and independently made harmonies for familiar songs"* writes the father of a 6-year-old Finnish girl. Parents also mentioned motivation and self confidence and said that children enjoy learning new tasks and are eager to participate in what adults are doing, learning or studying: *"He always wants to participate in whatever I'm doing. He is more eager to solve problems than I am; for example, if I'm repairing some machine, he helps and we both enjoy it."*

When parents were asked about their priorities regarding their child's school environment and teaching, most of them mentioned a safe and motivationally better learning environment. Some parents mentioned that they hoped the teacher would be friendly. They wanted quiet for working and they valued good, professional teaching. Many of them wished for a lot of arts and crafts in the curriculum of the first school years, while some of them hoped for foreign languages in the school program and at least so-called 'language

showers'. Some parents mentioned that they hoped for good friends for their child: *"I hope that the school climate is peaceful. I hope that they value new ideas and are given time to develop them. I hope that my child will find some good friends there"* writes the mother of a 6-year-old Finnish girl. Parents were also asked what hopes they had for the future of their child. They wanted their children to be healthy and to grow into balanced adulthood, with good values like honesty or helpfulness. They hoped their children would have self-respect. Some of them mentioned that they wanted their children to be good citizens. *"I really hope that he will grow to be a happy and balanced man, who would not have to face too many difficulties in his life, who, when older, would be grateful for his life and the things that he did."* writes the mother of a 6-year-old Finnish boy or *"I wish for her a happy family life in the future and I hope that she could maintain her creativity and sensitivity. I hope that she will be loved and respected as she is and for whatever she wants to do."* writes the mother of a 6-year-old Finnish girl. Some parents had high hopes for their child's future and they wished for them more than they had*: "I want him to be healthy and to be able to struggle for his own way in this life. I want him to be more successful than I have been",* writes the father of a 6-year-old Finnish boy, who had had some health problems and perhaps, due to that, some unfilled hopes in his own life.

4.1.2 Summary of the home environment of gifted children

If I summarise, what I have learned to this point about home environmental catalysts in Estonia and Finland, I would say that these two countries are close neighbours who share many cultural values. Nowadays it is very easy to travel between the capital cities and media like Finnish TV and radio was present in Estonia even when Estonia was part of the Soviet Union. One important difference is that Estonian families have experienced a great change in their society and these children are the first members of this new, independent Estonian society. Independence and freedom are experienced as a chance, in a very positive and motivational way in Estonian society and this is reflected in every family. There are, of course, many changes in economic circumstances because the whole ideology and financial policy in the country is changing. Families face new challenges and struggles to live in the new society. Finnish families have not faced this kind of upheaval in the whole society. Here we can talk more about structural change in the society, which

is similar to that experienced by Estonian families. Generally speaking, a family is made up of married or cohabiting parents and their unmarried children or a single parent with his or her unmarried child or children, and married or cohabiting parents who have no children permanently living with them. Although in both countries most of the families consisted of a married couple and children, some gifted children face many kinds of family settings and may be also involved with many other adults. Economic circumstances were harder for Estonian families; Finnish families more often lived apart and reported problems in their family social life. Economic circumstances, together with the objective fact of social life shapes family culture and environment. Changes in the Estonian economy have been a powerful vehicle for change at every level of society. Sometimes these aspects can change family cultures powerfully and sometimes they leave some aspects unaffected. In spite of all the opportunities for free-time activities, the child in both Estonian and Finnish families benefits most from the parents' attention. Parents reported a happy parent-child relationship and early attachment. According to the information from the parents' questionnaires, most of these gifted children stayed at home until the age of two or three years. After that over 88% of these gifted children in both countries had been in day-care, but remained at home with mother, father or grandparents until preschool. According to parents the home environment of gifted children in Estonia and Finland is caring and loving. Parents want the best for their children. They are willing to give their time and support for children's learning and free-time pursuits like sports and arts. They have observed their children's lives and they have many hopes and expectations for their children's futures. These expectations respect their child's personal needs and parents are willing to offer the best environment and education for their children even if it is an economic strain on the family, especially in Estonia.

When comparing parents' questionnaire answers to children's interviews I found much evidence that these Estonian and Finnish families do a lot to help their children to grow and learn in the best possible ways; their home environment is supportive and creative and parent-child relationships are reported to be warm and safe.

The parent questionnaire asked about their family situation, relationships, with their children, discipline problems, childrearing tactics, their values, beliefs and hopes in educating their gifted child. Analysing the parents' way of thinking and reporting the information and feelings through the questionnaire is only one way of looking at the home environment as a catalyst.

This is the method that I chose and I have complied the data. Through seminar meetings in Estonia and phone discussions in Finland I have also had personal contact with parents. I have had the same data about a caring, responsible and supportive home environment, which is safe and filled with creative activities to help gifted children to grow and develop. Knowledge of the influence of social background on a child's development provides the basis for elaborating the social and educational policy that aims to shape the child's upbringing environment to a more favourable direction from the view-point of the child's development. Pedagogically-focused activity can reveal high abilities and development.

In conclusion, from our articles and my reflections of this first part of this study where I have examined, the home environment as an environmental catalyst for gifted children in Estonia and Finland, I can report on the living conditions, parental education level and mental relationships of families of Estonian and Finnish gifted children.

Firstly, these gifted children live in flats where there is space for them. More than half of Estonian children live in flats whereas the same proportion of Finnish children live in detached houses. Thus, the living space of Finnish families is larger than that of Estonian families (in Finland on average 115 m^2, in Estonia 81 m^2). I observed that the IQ of the gifted children living in more spacious accommodation tended to be somewhat higher in both countries.

Secondly, parents of gifted children are well educated. The educational level of the Estonian parents who participated in the study appeared to be higher than that of the Finnish parents. More than half of the Estonian mothers and fathers had a higher education, including three fathers who had higher degrees. Among the Finnish parents a little less than one-tenth of the parents had only a primary or basic education. Almost half of the mothers from both countries are civil servants of higher rank (doctor, teacher, etc.). The Estonian fathers are mainly entrepreneurs, while the Finnish fathers were mainly civil servants of higher rank. It appeared from the Estonian results that children of parents with a higher level of education like reading books and their interests are more varied.

Thirdly, in birth order, the gifted children were often the first-born child in their families. More than half of the Estonian and Finnish subjects were first-born; more than one-third of them were only children. Generally, parents of gifted children did not reported significant quarrels or family problems. Research into the lives of gifted children has revealed that there are few

conflicts and divorces in their families. This was also proven by our research, where 81.1% of the Estonian and 75.7% of the Finnish parents of gifted children were married or cohabited. No statistically significant differences occurred in the comparison of marital relationships of Estonian and Finnish parents.

Fourthly, a noteworthy fact was that Estonian families spent considerably more time together than Finnish families ($p < 0.01$). The home of a gifted child was not poor. Parents in both countries (82% in Estonia, 62% in Finland) assessed their economic situation as moderate according to their monthly income. Although Estonian and Finnish salaries differ considerably, there were also differences between the countries in living standards. Thirty-five per cent of the Finnish families considered their living standards good; among the Estonian families only nine percent were of the same opinion. Nine per cent of the Estonian families assessed their living standard as poor, whereas the proportion in Finland was three per cent. From the point of view of the development of giftedness, gifted children whose parents have low incomes and educational levels may form a risk group.

Fifthly, according to the assessment of the prevailing majority (almost 80%) of Estonian and Finnish parents, their children are gifted in one area or another; music and art were highlighted most. Parents think that their children sing or draw well. Estonian children watch more television (especially series and music programmes) than Finnish children ($p < 0.01$). They also play more board and computer games. However, Finnish children engage in more make-believe games and spend more time outdoors. Finnish children also have more chores in the household. On the basis of the parents' questionnaire a strong correlation was observed between different indicators of musical giftedness and TV music programmes that the child had watched, which clearly implies the child's interest in musical activity and performance. The data analysis of the music test between Estonian and Finnish children exhibited differences in musical giftedness in favour of Finnish children, two-thirds of whom received the highest scores. Among the Estonian children, girls' results appeared to be better than boys'. There was no such difference among the Finnish children. Factors that facilitated the musical development of children in both countries appeared to be early hobbies, mother's lullabies and music appreciation. In homes where children are provided with more options and independence for problem solving, where parents are more enthusiastic about joint activities with their children, and where

parents praise and encourage their children, the result of children's creativeness appeared to be higher.

Finally, it was noticeable that the majority of the parents in both countries had noticed their child's giftedness. The home environment seems to be the most important motivation for gifted children. Gifted children seem to be loved and accepted individuals; their homes provide a safe and supportive environment for learning and development in both Estonia and Finland.

> *"We are born into relationships, we live our lives in relationships with others and when we die, the effects of our relationships survive in the lives of the living."*
>
> *(Berscheid 1999, 261–262)*

4.2 The Preschool and School Environment of Gifted Children

"If I had my own school to lead, I would create a school where teachers can enjoy teaching and pupils who want to learn can do so in a relaxed way together with the others." (Finnish 7-year-old girl)

The second part of my study concerns the learning environment of preschools and schools. Parent and teacher views about how children learn may differ, so it can be very interesting to study teachers' views of the environment where children study and their characterisations of these gifted children as learners, their prosocial behaviour and creative performance. This chapter consists of summaries of these gifted children from the teachers' evaluations. This information was presented at the Eecera-Conference in Alkmaar 2001. I will also present some interesting details from the evaluation results when examining and comparing parents' and teachers' evaluations and test results in some common areas.

When planning the evaluation questionnaire for teachers (appendix 2) I was helped very much by reading Hillevi Kääriäinen's (1986) study concerning children's survival as pupils and the development of their self-esteem and attitudes toward school during 1–4 classes through teachers' pupils' and parents' evaluations and measurements in two schools in the Helsinki area. Secondly, I also read Mirja Kalliopuska's (1983/1992) studies on empathy and prosociality, and I used Kalliopuska's (1981) evaluation scale for prosociality, as one part of the teacher's evaluation. The reliability of the Kalliopuska's scale has been tested earlier (Ruokonen 1997) tested with the Weir's & Duveen's (1981) prosociality evaluation scale ($p < 0.01$). I did not use a pilot study of the teachers' questionnaire because the different parts of it were used earlier in the Finnish studies such as those by Kääriäinen's (1986) and Ruokonen (1997). Also the forms of direct quotations support the results of the questionnaires. In this part of the study the gifted learner is observed through the eyes of teachers. According to Gunn Imsen (2000, 20–22) preschool and school is a mini-society or organisation in which the teacher has many tasks: professional planning, evaluating, educating and reflecting on the learning processes of each individual and the whole group.

In this study all Estonian and Finnish children were evaluated by their teachers in the preschool and first grade. In Finland half of the sample started school one year earlier at the age of six. This is possible if parents pay for the maturity test for their child and if the test shows that the child is ready to start

school. All talented children were studied in inclusive classrooms and teachers didn't know their IQ and were unaware of the fact that they were evaluating talented children. In Estonia, however, education is evolving to a system, in which only the most welfare families can develop the talents of their children in special schools. In Estonia all children start school at the age of seven. Although most Finnish children start school at this age, Finland has a flexible system that allows children to start school as early as age six or as late as age eight. The problem is that if parents and kindergarten teachers of a gifted child think that she/he is ready to start school at the age of six, the parents have to pay the costs of testing the child, whereas the costs of testing a child that will start later are borne by the state/communes. Neither Estonia nor Finland has an official educational policy programme for finding or supporting gifted children and educating them, despite the fact that the educational laws of Finland emphasise individuality factors in education and every school can plan its own curriculum in accordance with its needs. In both countries preschool education is possible for all children. The aims of each child's preschool year should be individually planned to support the child for starting school. According to Porter (1999) talented children may experience a mismatch between their needs to learn and the curriculum. Because the individual learning processes of the students vary remarkably, evaluation of the individual development of the children is important. According to Kananoja (1999) the evaluation of the students' development increases the teachers' knowledge of them and helps the teachers to become more effective at identifying and assessing skills.

According to Morelock and Feldman (1992, 302) gifted children are those showing sustained evidence of advanced capability relative to their peers in general academic skills and/or in more specific domains (music, art, science, etc.) to the extent that they need differentiated educational programming. Today, when many top educators cannot even agree on what 'gifted' means, there is a danger to leave gifted children alone in educational situations without the knowledge of how to teach them. According to Risto Hotulainen's (2003) study the gifted boys had exhibited lower academic interests and lower academic schooling and career aspirations than their female counterparts; he concluded that the gifted boys could benefit from the implementation of those curriculum and counselling modifications which could help them to consider their abilities valuable. Hotulainen (2003) is concerned that without special instruction in Finnish schools Finland may be in danger of losing the academic potential of gifted learners.

According to the results, in both Estonia and Finland the system of school education values individuality, but often in large groups and inclusive situations the everyday curriculum pushes towards equality and leads gifted learners to the mainstream. In theory teachers should tailor lessons to each child's needs, but in practice they often forget the special educational needs of the gifted. Because of the lack of money and for extra classroom assistants, teachers naturally concentrate more on children with other special needs such as those who have social or learning problems.

According to Collette Taylor (2001, 51) teachers who orient their behaviours around certain bases seem better able to support children's on-going learning and success. If children are competent learners, teachers can provide them with strategies and techniques to solve problems and regulate their own learning. If teachers construct their role around skilled motivation of the situation and environment, they are more effective in building children's learning and understanding. Good planning starts with assessing children's individual needs. Teachers are more likely to discover and understand children's strengths and capacities if they recognise that fair assessment of children's competence is not limited to their performance on set tasks (Taylor 2001, 51). The judgement that teachers make often depends on data they have received on the child and sometimes it may lead too much to the constructions of the learning environment. Therefore, in this study wanted the evaluation to connect more to everyday learning situations.

Different cultures may value different knowledge and roles in a society. In our study group, there was only one child who was coming from a minority culture, he was an Estonian boy from a Russian family. In Finland some of these gifted children studied in multicultural groups in kindergartens and schools. We asked teachers to pre-evaluate giftedness in a child at the age of six. In some studies identification started at an even younger age. For example, Naomi Sankar-DeLeeuw (2002) did a survey study in Alberta, a rich multicultural society, of both parents of gifted children and 44 preschool teachers of 3, 5–6-year-old children. Ninety-one percent of the parents surveyed, but only 78% of teachers surveyed reported that giftedness can be identified between the ages of 3, 5 or 6. Only 74% of the parents and 50% of the teachers thought that it should be identified at an earlier age. Teachers reported that they needed information on balancing differing development rates and supportive programming (both challenging and play-based), 'success rate' for acceleration-academically and socially.

Teachers reported the importance of play for gifted children. When parents and teachers were asked about the needs for a special curriculum, 76% of parents believed that their child required a different curriculum, but only 32% of teachers agreed. The educational option of early entrance was supported by 37% of the parents, but by only 7% of the teachers. The physical domain was superseded by both socio-emotional and intellectual domains in the levels of importance for early entrance consideration by both parents and teachers. Many professionals were mentioned by both respondent groups as information givers concerning giftedness, including school staff, medical staff, psychologist, the media and political lobbyist. (Sankar-DeLeeuw, 2002.) The gifted children in our study valued play in their learning environments and teachers had noticed that the imaginative learning setting motivated to learn. I assume that the variety in the learning environment and methods serve best also the multicultural groups.

Self-concept and social behaviour seem to be very important for gifted learners. Karen A. Waldron, Diane, G. Saphire and Sue Ann Rosenblum (1987) found a statistically significant relationship between self-concept and hyperactive/asocial behaviours in experimental subjects. Enrichment program teachers, who had received special education training identified experimental subjects as having learning problems. In the regular classroom the normally-achieving gifted children tended to be bored, more disruptive and less respectful towards others. The needs of these gifted children for a more stimulating environment where they could work creatively and solve problems was obvious. In contrast the learning-disabled gifted children usually demonstrated more passive behaviours which were not recognised by the regular classroom teacher. They may be masking failure through passive behaviours with lower self esteem and they might be unidentified at home or school without special, educationally-trained adults. (Waldron, Saphire & Rosenblum 1987.) The important question that arises from this study is how we can better adapt the classroom environment to meet every learner's needs. Is it less important that the child is above-average in all skill areas connected with intelligence than that the child copes successfully and gains pleasure from life.

Finnish preschool takes place at school or in the day-care, so it is a kind of mixed model Edu-care system, which fulfils both day-care and educational needs. The preschool activities in Finland are based on Friedrich Fröbel's and Uno Cygnaeus's pedagogical ideas. Cygnaeus ideologically linked preschool and school in Finland, so the educational backround and discussion in Finnish

preschool education has been child-centered. (Hytönen, 2002). The situation in Estonia has been different and educational change continues. For the last fifty years before independence, Estonian schools and kindergartens have educated 'an average person'. For a long time, a child's individuality and high abilities were not addressed properly. Recently theories of talent have been re-evaluated. Important developments have taken place in the study of factors that contribute to the development of talent; talent is shaped by the complex interplay of genetic and educational factors and a child's learning environment. Theoretically and psychologically experts in child development emphasise both the understanding of child development and the cultural/political factors in studying gifted children. According to Uusikylä (1998) the development of talent makes many cognitive, emotional and motivational demands on a gifted child even in early childhood. An important advantage of academic contests, talent searches and other extra-curricular learning experiences for gifted students is that they provide opportunities for interaction with equally able and motivated peers. This creates challenges for kindergartens, schools and society to support gifted children so that they can develop in their own way to fulfil their own goals. Gardner (1978, 1997) distinguishes seven factors of talent: linguistic, logical-mathematical, special, physical-kinetic, musical, personal and interpersonal. David Goleman (1995), who has studied emotional talent, considers empathy as one of the main characteristics of talent (see also Ruokonen 1997).

According to Tannenbaum (1986) there are five inevitable preconditions for a child to develop talent: high intelligence; high ability in a certain field; a certain combination of other abilities including temperament and motivation, an environment that provides motivation; and good luck at certain critical periods of life. The temperament and motivational aspects were also important in a study with young gifted children (Tassi & Schneider 1997) in which two different kinds of peer nomination techniques were developed. One was a task-oriented competition in which the main intent was to improve performance and the other was another-referenced competition in which the main intent was to win or outdo others. The researchers found that children detected their peer motivations in competition and these competitive styles had differential implications for peer relationships. Children nominated as other-referenced in the competitive style were considered aggressive and were disliked by the majority peer group, whereas children chosen as task-oriented in competitive style were viewed as pro-social and were preferred by their peer

group. Two other studies with an ethnically diverse sample of Canadian elementary school children showed similar results (Tassi & Schneider 1997).

Characterisations of preschool gifted children made by teachers show a two-dimensional conception of giftedness to be held by primary teachers: classroom performance e.g., extremely unusual intellectual and/or academic ability, and affective style e.g., intensity, high visibility and/or uniqueness (Rocher 1995). A strong similarity (91%) has been found in parents' and teachers' characterisations of the early abilities indicative of gifted children (Sankar-DeLeeuw 1995, 1997). However teachers brought up more traits than parents, including discordant development, emotional immaturity, socialisation difficulties and a tendency to be pushed by parents. Also in this study there are similarities between teachers' and parents' characterisations of gifted children. The questionnaires were different for both groups for relevant quantitative comparative analyses, but still similarities can be found in their assessments of children's abilities, personal and social features.

According to Mikko Ojala's (2004) study concerning pre-school education in Helsinki, pre-school teachers' aims related mostly to altruism, tolerance, socialisation, ethical education, and movement. Teachers placed little importance on the aims concerning motor and manual skills, art and music, health and religious education. Ojala (2004) seeks an explanation for that from modern Finnish child-centered, pre-schooling culture in which goal-based teaching and the teacher's own pedagogical thinking may be difficult to combine; another explanation may be that the terminology in the core curriculum is too abstract for teachers to understand. There were also interesting findings of what educational objectives are considered to be important by pre-school teachers in Estonia and Finland. Finnish teachers found socio-emotional goals very important while Estonian teachers placed more value on academic objectives (Hytönen, Krokfors, Talts & Vikat 2003).

Teacher assessment is the method most widely used to identify gifted children although much criticism of this system has been reported. Some teachers may not always have positive views of giftedness or they may want to leave the identification to special educators or psychologists (McBride 1992). In this study project we had a positive experience of teachers' pre-evaluation for finding the potential giftedness both in Estonia and in Finland and the correlation of teachers' pre-evaluation and results of Raven's IQ-test was significant. It seems that Estonian and Finnish teachers are well able to recognise advanced development and they have methods and time to observe children in practice. We do not know how many children with gifted potential

were not recognised because we did not test all of them. Our aim was to find those 10% who, according to Gagné (2003) belong to the group of gifted children with an IQ 120 or more. Porter (1999, 103–104) proposes an assessment model and a program for identifying early giftedness. The program is not altered in response to the identification of giftedness; rather the identification of giftedness occurs when teachers or caregivers recognise the advanced way in which a child responds to the curriculum or tasks.

4.2.1 Teachers' Assessments and Educational Challenges of Gifted Children

The Estonian and Finnish teachers in this study had pre-evaluated gifted children in their preschool settings. Half of the Finnish school teachers did not do this pre-evaluation because the data on their gifted children came from school psychologists.

Teachers were later sent an inquiry for assessment of the gifted children of our study group. On this form there was one blank item. Teachers were asked to list the five most important criteria for identifying giftedness. Teachers wrote five criteria of giftedness into the five blank spaces. The results show great similarities in conceptions of identifying giftedness between Estonian and Finnish teachers. Creativity is the criteria most often named in both countries. Estonian teachers named more conceptions of excellence in learning and motivation compared to Finnish evaluators, whereas Finnish teachers listed more special skills in some area as being a noticeable criteria of giftedness comparing to Estonian teachers.

Firstly, the criteria of creativity found, consists of mentions creative, curious, problem solving, artistically creative or imaginative. It was surprising that creativity was such a common criteria in both countries considering the fact that Raven's IQ-test is not a test for creative thinking. In Renzulli's (1986) three-ring model of giftedness creativity is one important trait. He reports that research on creative or productive people shows that those who have achieved recognition possess traits of above-average ability, task commitment and creativity. According to Renzulli (1986) these three traits constitute giftedness. Creativity requires a continuity of concern, and intense awareness of inner life combined with sensitivity to the external world. Renzulli (2003) points out the meaning of intensity and the relationship of curiosity and creativity in giftedness.

Secondly, the teachers mentioned the conception of excellence as a criteria for identifying giftedness. They mentioned excellence, speed in learning new things, or above all the others in learning, brilliant memory, competent and skilful. We find the criteria of excellence in Sternberg's (1993) pentagonal implicit theory of giftedness, which describes excellence as productivity. According to Sternberg (2003) excellence can be seen as superiority in some dimension/s relative to peers; it is defined in terms of the ability to achieve success in life in a personal and socio-cultural context.

The third criteria mentioned was motivation to learn new tasks, eagerness to learn, willingness to explore, eagerness to extra work individually, and a commitment to tasks. We can see the role of motivation in Gagné's (2003) model connected to intrapersonal, environmental or chance catalysts which may play a motivational role in the developmental process of the gifted child. According to Terry McNabb (2003, 422) motivation to learn gives one explanation for the gap between gifted children's potential and their performance. Renzulli identified task commitment as one of the components of gifted behaviour, and Winner (2000) emphasises a deep intrinsic motivation to master domain as a feature of giftedness.

Fourthly, teachers mentioned 'noticeable behaviour'. They mentioned terms like "charismatic behaviour, energetic in all, just to be noticed, eagerness to lead and develop projects, inspiring person". This conception may be understood through Stenberg's (1986) assertion that giftedness cannot be understood independently; the majority of the behaviours in this category are overt or noticeable. According to Sternberg (1986, 2003) in order to understand practical giftedness three behavioural goals in shaping intelligent thought have to be observed: adaptation to an environment and shaping and selection of an environment. In our case the environment is preschool or school. According to the teachers' opinions giftedness is manifested somehow as a noticeable interaction between a gifted child and his/her environment.

Fifthly, teachers mentioned that gifted children demonstrate special skills in some area. This was surprising because special talents are seldom seen in the early years of children's development. Teachers mentioned special skills in some area -mathematics, reading and writing, sports or even research. We assume that teachers did not mean special talent in the same sense as in Gagné's (2003) model, but spoke more about their experiences observing a gifted child and comparing his/her skills to those of others. Gardner's (1983) multiple intelligence theory and the research findings may be seen as

similar to the conceptions of 'specialist in some area' held by teachers. Teachers usually saw excellence only in academic areas, like mathematics, reading or writing; they did not report excellence in social skills as a criteria of giftedness. Giftedness may also be manifested as a high intelligence in a single ability.

There were some other criteria mentioned by teachers, but they are not classified with the above five most common conceptions. Among the other criteria are still very important and noticeable concepts such as "sensitivity, special or rare, courage, optimism and perfectionism". From these conceptions rareness as a quantifiable construct is a fact, according to Gagné's (2003, 67) metric-based system of levels within the gifted/talented in the population. Ten percent of the same-age general population has an IQ $\geq$120 which was the criteria we used to select the study group of gifted children. If we think of rareness as a qualitative construct it may be seen in teachers' opinions 'unusually good' in something. Sensitivity is also a very interesting criteria. According to Sal Mendaglio (1995, 2) sensitivity as an affective characteristic belongs to the emotionality of giftedness. Emotional intensity is presented as a mixture of intensity and sensitivity. Gifted children experience emotional reactions at a deeper level than their peers. Sensitivity is the ability to be more aware of subtleties in interpersonal communication. Also Renzulli (2003, 81) speaks about sensitivity to human concerns and uses the concepts of moral courage and empathy. He also discusses courage in connection with the emergence of creativity. We assume that there are several intrapersonal traits that can be used to describe a gifted person.

Previous experience of the children and learners the teachers had probably experiences connecting to those five criteria, teachers mentioned most important for identifying giftedness. I believe that the fact that teachers placed such high value on creativity as a criteria of identifying giftedness shows that teachers emphasise creativity in daily learning situations. The exceptional generation of knowledge involves creative thinking, curiosity and energetic self-expression. Exceptional motivation, as mentioned by teachers, involves intensive work commitment, perfectionism and reflection. Exceptional acquisition abilities include quick and easy learning, good memory and advanced understanding.

According to Arja Puurula (2000) teachers from different countries have demonstrated that they have surprisingly similar structures of opinions about their teaching responsibilities. According to Puurula's (2000) study concerning teachers' opinions on affective education and arts education in Finland

and Estonia, there was a significant difference between arts teachers and other teacher groups as to their views on affective education. The arts teachers were most positive about the development of students' personal lives while classroom teachers aimed to develop more social and moral characteristics. The classroom teachers also contacted parents more and were more willing to notice and take actions to prevent the abuse of children and to develop students' autonomy and tolerance. In my study the preschool and classroom teachers showed through their evaluations that they valued both affective and creative behaviour of children.

One of the main tasks of the school is to create an environment that enables a child to encounter and solve many complex cognitive and social problems and situations. Teachers need to recognise the developmental level of individual children. According to this and the data in Ruokonen's & Vikat's (2005) article there was a higher correlation between competence in arts and the social and emotional competence of the gifted children in Finland than in Estonia (Tables 1–2).

I divided the competence areas of gifted children into five areas (see tables 1–2) based on items of teachers' assessments (appendix 2). Items 10, 30, 31 and 32 showed a random of competence in the arts. Items 1, 7, 12, 37 showed a random of working at school. Items 3, 26, 34 and 35 showed a random of social and emotional competence. Items 8, 11, 13, 23 and 24 showed a random of cognitive competence. Items 2, 14, 20 and 28 showed a random of using one's skills independently of instructions. This result can not be generalised outside from this study because of the small number of teachers and students.

Table 1. Correlations between Competence in Arts and other School Life Skills of Gifted Children in Estonia

		Competence in Arts	**Working at school**	**Social and Emotional competence**	**Cognitive Competence**	**Use one's skills independently of instructions**
Competence in Arts	Pearson Correlation	1	,418*	,314	,618**	,489**
	Sig. (2tailed)	,	,016	,075	,000	,005
	N	33	33	33	33	32
Working at school	Pearson Correlation	,418*	1	,700**	,787**	,338
	Sig. (2tailed)	,016	,	,000	,000	,059
	N	33	33	33	33	32
Social and emotional competence	Pearson Correlation	,314	,700**	1	,548**	,204
	Sig. (2tailed)	,075	,000	,	,001	,263
	N	33	33	33	33	32
Cognitive competence	Pearson Correlation	,618**	,787**	,548**	1	,715**
	Sig. (2tailed)	,000	,000	,001	,	,000
	N	33	33	33	33	32
Use one's skills independently of instructions	Pearson Correlation	,489**	,338	,204	,715**	1
	Sig. (2tailed)	,005	,059	,263	,000	,
	N	32	32	32	32	32

*. Correlation is significant at the 0.05 level (2tailed).
**. Correlation is significant at the 0.01 level (2tailed).

Table 2. Correlations between Competence in Arts and other School Life Skills of Gifted Children in Finland

		Competence in Arts	Working at school	Social and Emotional competence	Cognitive Competence	Use one's skills independently of instructions
Competence in Arts	Pearson Correlation	1	,816**	,790**	,759**	,527**
	Sig. (2tailed)	,	,000	,000	,000	,001
	N	34	34	34	34	34
Working at school	Pearson Correlation	,816**	1	,801**	,850**	,570**
	Sig. (2tailed)	,000	,	,000	,000	,000
	N	34	34	34	34	34
Social and emotional competence	Pearson Correlation	,790**	,801**	1	,850**	,491**
	Sig. (2tailed)	,000	,000	,	,000	,003
	N	34	34	34	34	34
Cognitive competence	Pearson Correlation	,759**	,850**	,850**	1	,579**
	Sig. (2tailed)	,000	,000	,000	,	,000
	N	34	34	34	34	34
Use one's skills independently of instructions	Pearson Correlation	,527**	,570**	,491**	,579**	1
	Sig. (2tailed)	,001	,000	,003	,000	,
	N	34	34	34	34	34

*. Correlation is significant at the 0.05 level (2tailed).
**. Correlation is significant at the 0.01 level (2tailed).

Referring to the results presented in tables 1–2. Maybe there is a need an order for more arts education or integrative education with arts. There were no reports of underachievement in the arts in teachers' assessments or descriptions. Arts are not assessed at the pre-primary-level, which is a good thing. Children have space for individual creativity and opportunities to use their imaginations at play. In later school years it might be a good question to de-

velop a curriculum with play and creative activities and ask for resources for more imaginative learning settings. The problems that teachers mentioned in the open-ended part of the evaluation form were connected to the classroom instructional environment. Most of the teachers had not planned for a multi-dimensional learning environment in the classroom and only wanted to work toward differentiation in a situation where all children were engaged in the same task at the same time. Teachers recognised that talented children need a learning environment in which they could be involved in the planning of their individual learning process. Teachers mentioned three problems they face: firstly, excessively large learning groups and, secondly too little space in which to work with smaller learning groups or to create a multidimensional learning environment. Thirdly, teachers mentioned the fact that they would need at least one classroom assistant to work with children. The results show that those talented children who had higher prosocial skills had significantly less underachievement, started to help their neighbours or lead the teamwork.

We must look at each child as a unique personality with a unique style of communication before we start to plan for his or her special needs. The curriculum goals should include the construction of cognitive, socio-emotional and psycho-motoric learning. Children should build a safe and confident self-identity and be capable of empathetic interaction with pupils with diverse backgrounds and skills.

When looking at the descriptions of teachers of preschool I noticed that in both countries the giftedness of these children was identified by teachers although it was not told to them when they received the questionnaires. One Estonian teacher wrote about a 6-year-old boy: *"He is verbally talented and reads very well, but his writing needs to be practiced to have it more stylish. His learning speed is fast and he seems to be always busy, but he can concentrate when necessary."* Some Estonian teachers were especially worried about those silent children and there was a real concern for this 6-year-old Estonian child about going to school: *"She is almost invisible, not perhaps shy but she is not looking for attention and she does not actively come to me. She can do everything alone, but is with the others when needed. She acts positively when I pay attention to her. She reads and writes a lot and she doesn´t have any problems in learning, She is a great thinker and needs extra attention at school where there are many children in a group, new tasks and a new teacher"*.

Those Finnish children who had started school one year earlier were evaluated very high according to their teachers. This proves that the testing

and earlier school enrollment was a good choice for these gifted children. One Finnish teacher writes about a 7-year-old girl: "*She is a very positive and wise girl. She can listen and actively takes part in learning and discussions in the classroom. It was a surprise for me that she was one year younger than the others, as I thought the opposite. In a large classroom there is not enough time for such gifted personalities because I have to take care of those who have learning problems. I think she could be able to study much more in a different, more individualised environment*".

In my article with Professor Vikat (2001) we assumed that perhaps the prosocial skills are the most important skills in avoiding underachievement at school. According to teachers' evaluations gifted children with good prosocial skills had significantly fewer problems in working groups. Prosocial behaviour is an interesting and important aspect in the classroom learning environment, as it forms a part of the social learning environment at school for a child. There were commonly no differences between the level of prosociality between Estonian and Finnish children although Finnish children seemed to be evaluated as more empathetic and had better skills to help and encourage others, and be companionable. Finnish children were also evaluated better in keeping up community spirit, while Estonian children had more consideration towards others and were significantly better evaluated as responsible persons (0,899** $p < 0.01$). Estonian children were evaluated as more responsible, as they are expected to perform more duties in classroom situations and they are more willing to obey orders and remember them independently. Or we may ask if the Finnish children are expected to have more responsibility in our democratic child-centered learning environment than they can take.

According to teachers' assessments (appendix 2) there were also significant connections between prosociality (prosociality is a random of items 1–10 concerning teachers´ evaluation of a child's daily behaviour, appendix 2) and creativity generally, item 11 (0.252*, $p < 0.05$), and especially between creativity in artistic activities, item 10, (0,299*, $p < 0.05$). One interesting finding concerning prosociality was the significant correlation found with the musical ability measured with the imitation test (0.304*, $p < 0.05$). The musical ability correlated also with teachers evaluation of creativity (0.304 *, $p < 0.05$). This may be in connection with children's hobbies in free–time and perhaps there is a place for a discussion of connections between social behaviour and creative artistic skills at school. Arts as individual subjects or in integration to theme learning offer an active child-centered, social form for learning.

When comparing different evaluation sources I found interesting differences that show how different the views of different evaluations can be. When comparing parents' and teachers' evaluations I found no significant similarities in characterising a child's social personality concerning a tendency to be a leader or to seek a company. Neither were there any connections between the teachers' evaluation of co-operation with parents and parents' evaluations concerning problems at home or between child's attitude towards teacher and punishment behaviours at home. Both parents and teachers saw the special giftedness of these children. When comparing the teachers' evaluations of creativity to the creativity test results, I found no significant similarities between teachers' evaluations and creativity test results. The creativity test results were in positive connection with teachers' need to differentiate. The higher points that a child had in the creativity test the greater need there was to differentiate teaching. Estonian teachers had a significantly (0.739**, $p < 0.01$) greater need to differentiate teaching than Finnish. In both countries, according to the teachers, the gifted boys needed significantly more differentiation (0.479** $p < 0.01$). The teachers' need for differentiation was not connected to the level of academic giftedness/ Raven IQ, but the teachers´ need to differentiate teaching was significantly (0.432* $p < 0.01$) connected to those gifted children who had some special problems in learning situations (mostly social). The number of gifted children with special problems in learning situations was significant (0.437**, $p < 0.01$) in connection with underachieving.

There is a question concerning the most reliable way to evaluate a gifted child and determine the causes of differences. Perhaps children behave differently in different environments; perhaps evaluators have different views in their evaluations or perhaps the tests do not show everything that is happening at preschool or school. To find the right answers we have to be aware that there are many 'right' answers are always connected to different environments or respondents.

4.2.2 Summary of the Preschool and School Environment of Gifted Children

In conclusion**,** in my description of preschool and school environment of these gifted children I presented some environmental aspects that may be motivationally important for developing talents. Teachers know their children and can evaluate them well in the preschool/school setting. All teachers had noticed the giftedness of these Estonian and Finnish children and they realise the needs for program and curriculum modifications. The Finnish system of allowing for a flexible school starting age is one step for acceleration. The pre-school curriculum can also offer many possibilities for enrichment, extension and acceleration when needed. In order to provide a nurturing environment, preschool and the first school year curriculum should recognise and honour diversity and individual differences. Developing social skills seems to be an important goal for gifted children as well as all others. Teachers should ensure that children have a warm and accepting relationship with both the teacher and with the other children in a group. Gifted children in Finnish schools reported about teasing problems (see part IV), but the teachers did not. This problem was not reported in Estonia, either where all these gifted children were in kindergartens or preschools. Perhaps it is not acceptable to be gifted or manage well at school in the Finnish school culture. Is our school accepting only average competence from every child? It seems that those gifted children who were in kindergartens did not reported being teased, I assume that teasing exists in both countries in kindergartens and in preschools but these gifted children in the kindergarten environment did not experience it or did not report it either in Estonia or in Finland. One important reason for preventing teasing may be that preschools and schools as learning environments do not demand conformity, but tolerate and encourage creativity and differences between individuals. Teachers were willing to identify the appropriate level of learning for each child and offer proper teaching for all individuals in their groups. They criticised the large groups, the physical environment and the lack of assistants in the preschool and school environments as deficiencies in offering better education for gifted children. The differences between the evaluations show how important co-operation and discussions with parents and teacher are. Many times parents may already be familiar with the individual needs of their gifted child or, on the other hand, some parents may be confused about their child's skills and need support from a teacher. In all situations adults needs to be aware of how gifted children be-

have in different environmental situations so that they can encourage and understand them in their learning and development.

> *"The gifts of nature are infinite in their variety, and mind differs from mind almost as body from body."*
>
> *(Quintilianus)*

4.3 Gifted Children's Experiences of Their Learning Environment

> *"I like to study by myself or together with my friend. Then we can decide what we want to do. We are free and we decide where we want to go to learn our tasks in the proper way…"*
>
> *(7-year-old Estonian boy)*

The third part of the study introduces the section that is personally the most exciting, the children's own thoughts and descriptions of their learning and learning environments. I interviewed all 64 children in the Helsinki region (Helsinki-Vantaa-Espoo) and in Tallinn when they were 6–7 years old. I used a thematic interview protocol and the interviews took place in their kindergartens or schools. I will report on the articles and my Eecera-conference presentations in Nikosia 2002 and in Malta 2004.

David Wood (1998) criticises the research on childhood which is based only on adults' voices, (teachers', educators' or parents'). He emphasises that the main issue is to study children's ideas, experiences, and world views in developing an educational environment. The article number four (Ruokonen 2001) concerns the methodology of the children's interviews in my study. In the article I emphasise that the research interviews always have to take into account the child's level of development, experiences and skills and call for special preparations by the interviewer. In child interviews, the adult must have the ability and will to learn about the child's world (Brooker 2001, 162–177; Lokken & Sobstrand 1995, 108–114; Doverborg & Pramling 1992, 7–11). Hirsjärvi & Hurme (2000, 128) underscore the importance of taking the child's age into consideration when designing interviews, since the age of "child interviewees" may range from 4 to 18. In this study the children were six or seven years old. Hirsjärvi & Hurme (2000) compare the efforts needed in child interviews to those in comparative cultural studies: the values and methods of adult researchers must be assessed in view of the values and methods of the children's world or culture. Taking the child's viewpoint into account was an essential goal for me to achieve reliable and successful interviews. Based on their high IQ levels, I assumed that the children could handle interaction in the form of an interview and were capable of formulating their thoughts. As a result, I chose a semi-structured interview (a thematic interview, see Appendix 3) as my method of approach. The interviews were complemented by tasks related to pictorial and musical expression, which were

also discussed during the interview. The interview topics were related to subjects familiar to the children, such as the description of learning environments and experiences, to determine their sources of motivation and learning. According to Peter Banister et al. (1995, 68–69, 149) reflexivity is the most distinctive feature of qualitative research. In the interview situation the child's personal activity makes every interaction different and affects the reflective process of the interviews.

This part of the study concentrates on the dynamic interplay of the motivational aspects within the learning environment in particular within the field of the arts. The core of this study consists of the observations of 64 gifted Finnish (32) and Estonian (32) children, whose research interviews are particularly comprehensive. Unfortunately, I could not reach all members of the study group for interviews. Of primary importance is gaining significant information about the cognitive and thinking processes of children as well as their conceptual world and opinions. In addition, my study interviews enabled children to describe their preferences and experiences concerning learning in different environments. My interviews involved factors related to the cultural environment, values and language. While the language used in interviews should be the children's mother tongue, lack of financing made it impossible for me to employ a native Estonian interviewer so I also interviewed the children in Estonian. My goals were the same in both Finland and Estonia: to get the children to talk about their own world. In the case of the Estonian children I also gave my interviewees the role of a unique informant and competent language user. Making the children language experts and honouring them as language speakers had a certain impact on the success of the interviews.

For this study thematic interviews were the primary method of evaluating the environmental factors that might be connected to the growth of children's motivation. The themes of the interviews were based on Allan Wigfield's and Jacquelynne Eccles's (2000) expectancy-value theory of achievement motivation. Theorists in this tradition have argued that individuals' choices, persistence and performance can be explained by their beliefs about how well they will carry out an activity, and the extent to which they value such an activity. Wigfield and Eccles (2000) constructed a model (see figure 12) in which social cognitive variables, are, in turn, influenced by individuals' perceptions of their own previous experiences along with a variety of socialisation influences. To their way of thinking, expectancies and values are influenced by task-specific beliefs such as ability beliefs, the perceived difficulty of tasks and individual goals, self-schema and affective memories.

The three sections of this part of the study are based on an analysis of the children's interviews. The introduction includes name, gender, age and the child's self description. In addition socialisers, such as family, the child's perceptions of the socialisers' expectations, gender roles, activity stereotypes and descriptions of learning situations with socialisers are discussed. The child's goals and general self-schemata, such as favourite possessions and activities, important goals, self concept and perceptions of task demands comprise more items and discussion along with the cultural milieu, preschool, school, free-time activities and the role of media in learning. I also consider the child's experiences of music, musical activities and musicians, expectation of success and subjective task values in her or his special interest. The interview portions of the study deal with the child's perceptions, descriptions, and affective memories of meaningful learning situations as well as the cultural and environmental factors that art presents in a child's everyday life.

The interviews with the children in the study demonstrate that the various fields of individual differences in interests and development take divergent paths. The interaction between one's capacities and the environment begins with innate abilities, and one's learning competence will depend on available educational resources and the quality of the circumstances and teaching models available. Through the interviews with these gifted children, I was able to ascertain the meaningful conditions of their learning environment and in turn encourage the children's natural developmental process with respect to the possessions they find in intrinsically interesting learning areas.

4.3.1 The Interplay of the Learning Environment and Motivational Aspects as Observed in Interviews with Gifted Children

This section concentrates on the dynamic interplay of motivational aspects as they bear on the learning environment of children in particular within the field of the arts. These interviews highlight the ways in which the fields of individual differences in interests and development exist. During this study, I found that the ability to communicate with a child depended to some extent on my awareness of her/his family, cultural, personal and intellectual background. I had obtained a significant amount of information regarding the background of these children from their parents and teachers. I had also previously met with the Finnish children in the IQ-test situations.

In analysing the interview material I initially conducted numerous readings of my data with the purpose of providing a generalisable structure that I

could use as a working model for the entire data set. Eisner (1991) speaks about 'the enlightened eye' in describing the process of reading data while carefully looking for both what is *in the data* and what *the data sets off in the self*. I wanted to reflect on questions about the ways in which my view of the status of young children in our culture shape the ways that I as a researcher approach the interview material, as well as the ways in which I report the data, so that the children's voices are always present. Children can offer information which, particularly in combination with other evidence, enables us to see and discover various aspects of their lives which no other research method can give (Brooker 2001, 177).

After numerous readings of the data material, I started to pre-organise the information into more conceptual settings. At this time, I became familiar with QSR N5 Viewer as a tool for organising interview data (see example, Appendix 4 a), although for practical reasons I carried out most of the conceptual analyses of the data as it applied to my constructed themes manually. For analysing my thematic interviews, I manually applied the systematic analysis technique, but then I decided to construct the material with the help of QSR N5 Viewer. Using QSR N5 Viewer in this fashion helped me to build a so-called 'tree-model' for analyses which I also used manually during the period I did not have the possibility of using QSR N5 Viewer. The nodes (see an example Appendix 4 b) I constructed involved a) the introduction: name, gender, age and child's self-description; b) socialisers like family or others and the child's perceptions of socialiser's expectations, gender roles, activity stereotypes and descriptions of the learning situations with sosialisers; c) the child's goals and general self-schemata like her favourite things and activities, important goals, self concept and perceptions of task demands; d) the Finnish and Estonian cultural milieu, preschool, school, free-time activities, and the role of the media; e) the child's experiences regarding music, musical activities and musicians, expectation of success and her subjective task values regarding her/his special interests. One example of the analysis of my material can be seen in Appendix 4 c. This interview deals with the child's perceptions, descriptions and affective memories of meaningful learning situations as well as the cultural and environmental factors present in the child's everyday life.

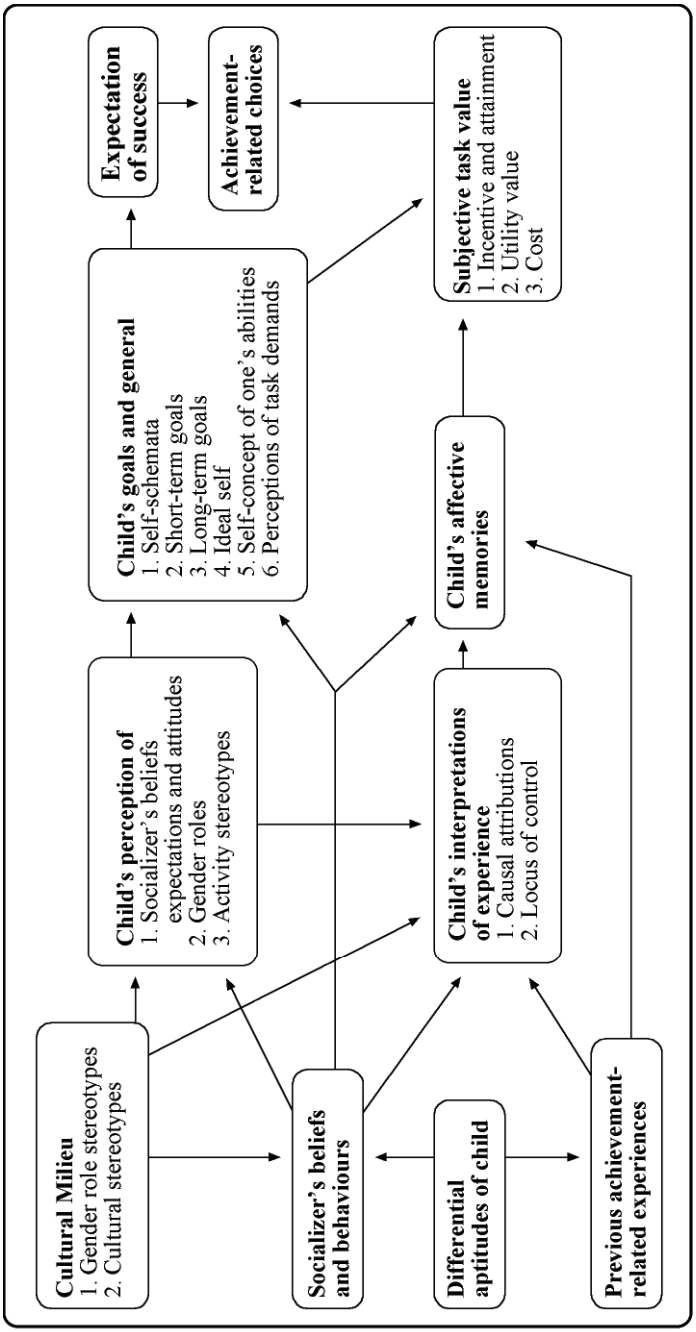

Figure 12. Expectancy-value model of achievement motivation (Wigfield & Eccles 2000)

I was also interested in the environmental factors that might be connected to the growth of inner motivation in children. In using the theme interview and the themes of the interview (Appendix 3), I selected ideas from the expectancy-value theory of achievement motivation developed by Wigfield and Eccles (2000). Theorists in this tradition have argued that an individual's choice, persistence and performance can be explained by his/her beliefs about how well he or she will carry out an activity, and the extent to which they value the activity. Wigfield and Eccles (2000) constructed a model in which social cognitive variables, in turn, are influenced by individuals' perceptions of their own previous experiences, along with a variety of socialisation influences. In Wigfield's and Eccles's view, expectancies and values are assumed to be influenced by task-specific beliefs such as ability beliefs, the perceived difficulty of different tasks and the individual's goals, self-schema and affective memories. According to their model (see Figure 12) expectancies and values are assumed to directly influence achievement choices. They also influence performance, effort and persistence. Wigfield and Eccles (2000) suggest that expectances and values are assumed to be influenced by task-specific beliefs such as ability beliefs, the perceived difficulty of different tasks and individual goals, self schema and affective memories. These social cognitive variables are influenced by individuals' perceptions concerning their own previous experiences and a variety of socialization influences.

Eccles et al (1983) investigate three different components of achievement values: the attainment value or value of importance, intrinsic value, and the utility value (or usefulness of the task). During the children's interview session, we also discussed these subjects, and children in this age group mostly reported strictly intrinsic values such as the enjoyment gained from pursuing their interests. I did not use the actual theory of achievement motivation in my research work as I was not focused on motivation or its measurement or development, but was more interested in exploring the connection between the learning environment and children's descriptions of themselves as learners and the variety of social connections that might lead to the growth of their inner motivation, as defined by Deci (1985).

According to Deci (1985) the process through which one's interest develops (=Intrinsic motivation) initially begins with interests that are primarily relatively undifferentiated but gradually become more differentiated through accumulated experiences. Secondly, the differentiation in motives or activities that children find intrinsically motivational involves the function of two factors: a child's innate abilities, and the child's performance. The interaction

between one's capacities and the environment begins with innate abilities—and one's competence depends largely on the educational resources available, and the quality of the surrounding circumstances. Through interviewing gifted children, I was able to define the meaningful conditions of their learning environment, and to ascertain what will allow children's natural developmental process to occur with respect to the possessions that children find intrinsically interesting. Communicating with parents and teachers through questionnaires and discussion provides one with valuable information about the child and his or her home and preschool, or school environment. Interviewing each individual child provides a micro-level opportunity to obtain very personal information on how a child describes the various aspects of his or her learning, social interaction, and learning environment.

For evaluating the quality of early childhood education, Airi Hautamäki (2000, 19) combines these two theories into the child's task commitment in relation to her/his involvement (based on intrinsic motivation) and goal-direction (based on achievement motivation). In this study I expand this model to include the learning environmental aspects or catalysts (according to Gagné), which motivate gifted children towards special talents (see Figure 13).

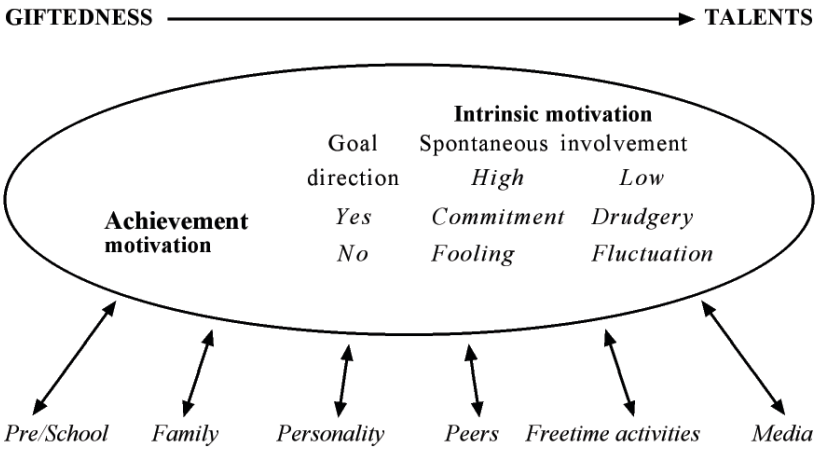

Figure 13: Child's task commitment in relation to his/her involvement (based on intrinsic motivation) and goal direction (based on achievement motivation) (Hautamäki 2000, applied by Ruokonen 2004)

The significance of research interviews with children is related to the comprehensive information they offer. It is important to get information about the children's cognitive and thinking processes, as well as their conceptual world and the opinions. In addition, interviews should allow children to describe their preferences and experiences regarding learning. In these interviews, children speak about their learning experiences in a variety of learning environments and situations. The interplay between motivational and environmental factors becomes evident in the children's descriptions.

There are methodological problems that typically occur within the cross-cultural comparison of the quality of learning and environmental factors as they apply to gifted children. According to Bronfenbrenner (1986) the inclusion of the chrono-system highlights the relativity of the concepts of quality that relate to contextual factors, such as the existing traditions of child rearing in respective countries. Bernstein (1992) criticises the deficit model of thinking that often takes place when comparing outcomes from different educational systems in different countries. He emphasises that researchers should be sensitive to the unique features of the country that they are researching, to the ethnic diversity within a country, as well as to the cultural variation between the countries that are compared.

Hautamäki (2000) emphasises that the quality of childhood education in each country should be analysed on its own terms. My purpose in this study is to speak about the world of gifted children as they themselves describe it through their interviews. My purpose is not so much to compare the Finnish or Estonian educational systems; rather I will discuss how gifted children describe aspects of their learning and learning environments in the two neighbouring countries. Most of all in this part of the study I want to give space for children's own voices and commentary as it was during the interview sessions. At the beginning of every categorised section of interview material I summarise the main idea of the section and after the children's reports I summarise some ideas. The interview material was large and these examples in the articles and here are my subjective choices. I want to reserve my conclusions about interview material quite open and give more space for the children's descriptions of their learning in different kind of environments. The interview material has been translated to English because it is the language of my thesis. Of course the absence of the original language is a drawback, but I translated everything as carefully as I could, and I do not think I have changed the sense of their comments.

4.3.1.1 Self Reports from Gifted Children

According to Porter (1999, 131), a researcher who has extensively studied gifted young children, it is important for gifted children to have a realistic picture of themselves. Because many young children see themselves in black-and white terms, they often describe themselves as either totally hopeless or totally wonderful.

In my interview I wanted the child to be the specialist and to feel that I as an adult was really interested in the child's world and thoughts. I said that this would be an interview in which there are no right or wrong answers, and that it was important that the child say exactly what she or he thinks. I also stated that the reason for the interview was so that adults could learn what children think about life, and the things that are important to them. The presentations started with the questions "what's your name?", "how old are you?", and "tell me something about yourself?" Most of children started to speak immediately, but some needed to be prompted with questions such as, "what would you say about yourself to someone who doesn't know you?" Additional questions were: "what did you do today?"; "what did you learn today?", and "what have you enjoyed today"?

The children spoke mostly about their favourite activities at school, or during their free time. They also described their personalities, and their ways of reacting or showing their feelings during interactions in their family, or in communicating with their peers. Gifted children spoke about themselves in a social and environmental context (see Figure 14).

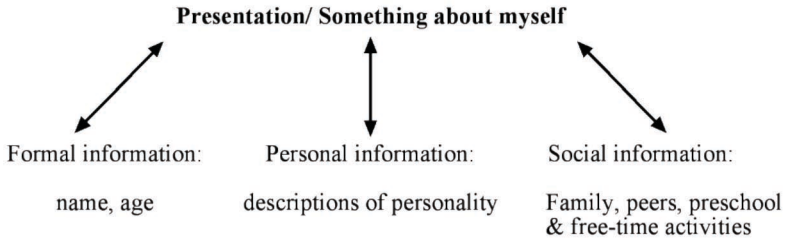

Figure 14: Gifted children's presentation of themselves

One Finnish 6-year-old boy began his introduction by discussing his birth date and his personality as well as his most important activity: playing with his peers and his sister:

C: I was born in December, and I'm nice'.
I: Nice, in what kind of way?
C: I don't fight so much.
I: Tell me, what do you do?
C: I play a lot.
I: Which kind of play?
C: I like to hide and run.
I: With whom do you play?
C: Sometimes with my little sister, usually with my friends.

Many children wanted to say that they are nice and understanding, or that they are nice because they understand the situation, and they have empathetic feelings toward the other persons in a situation. Another Finnish 6-year-old boy explained that he is a nice boy, and when I asked "in which way?" he answered:

C: I'm not the complaining type. Even if I have to wear my muddy trousers I understand that I have to wear them because I want to play in the mud and my mother doesn't want to wash my normal trousers every day. You know, this is springtime and if it is rainy you can easily get wet.

Some children also spoke of their negative feelings, but they always wanted to explain the reason for such negativity, in order to make it more understandable. One Finnish 7-year-old girl stated:

C: Recently I have been irritable.
I: Can you tell me why?
C: Usually it is because my older sister always comes into my room, even though I have said that I want to be alone or with my friend.
I: What happens then?
C. Yesterday, we were recording our music with my friend and my sister came in, and we told her to go away.
I: Did she leave?
C: No, she came in and started to record music with us, the tape recorder was hers.
I: How did you feel about continuing together?

C: I had to accept it, and then it started to feel better and we started to laugh, and laughed a lot, and made even better recordings together.

When introducing themselves, most of the children described their favourite activities, for example, one 7-year-old Estonian girl said:

C: I'm seven and I like to draw and do hobby crafts.

I: Why?

C. Because I'm good at doing them.

I: In which way?

C: I have ideas and I like to construct something new. I can sew and glue and draw very well, and do all that is needed.

4.3.1.2 Children's Descriptions of their Socialisers

Gifted children's social surroundings and social interactions are connected to their emotional resources and awareness of how to act in different types of social or problem-solving situations. Socialisers can be excellent motivators, and can inspire creative thinking. According to Susan Gomme (2000, 54), the creative responses of the gifted child are typically enabled by a family culture of open discussion.

The questions involving the social environment of children were "Who belongs to your family?" and "Who else is important to you?" Gifted children mentioned many important people in their lives. Estonian children often mentioned more that grandparents lived with the family, while Finnish children mentioned new members of their family (step-sisters or step-brothers of spouses of their parents' new marriages). Estonian and Finnish children mentioned both adults and children as the people they value in the context of learning situations (see Figure 15). In both countries the social network of the gifted children was quite rich.

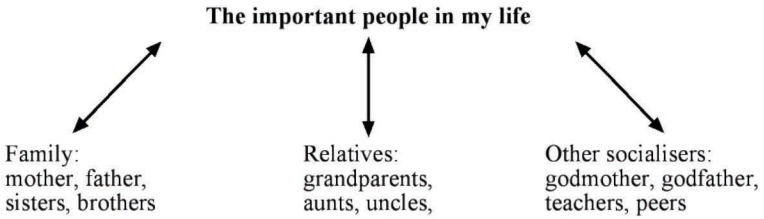

Figure 15. The presentation of socialisers by gifted children in the context of learning situations

After collecting and organising all of the learning descriptions that the interviewed children mentioned, we can see how rich their learning environments are, especially regarding social contacts. An important point is that gifted children also mentioned reflective learning situations, which are connected to the social environment. This came out in response to the questions "What do you do with your mother?" "What do you do with your father, with sisters and brothers?" "What have you learned with them?" and "What do other adults or your friends teach you?" The special focus on learning environments was emphasize in the children's descriptions of their preschool and school environment.

Children learn much in family situations, from parents, sisters and brothers. They also learn values and attitudes about life, and practical skills that are needed every day at home. Most of the children's descriptions show that mothers usually take care of the household, and children learn household skills from their mothers, −yet mothers also teach music, arts, languages and computer skills. There were also some descriptions which demonstrate that role models are changing, for example, one mother was laying a parquet floor and a father was baking a cake. Estonian children in particular spoke of ethical or moral values as comprising a substantial part of their parents' educational expectations:

I: What do you learn from your mother?
C: She wants me to be a good boy, and to learn well.
I: Which kind of boy is good?
C: The one who helps his mother and father, and learns everything well.
(Estonian 7-year-old boy)

I: What have you learned from your mother?
C: I have learned to make food.

I: Really! What kind of food you can make?

C: I can make carrot salad. It was tasty… and we have a machine for all kinds of baking, and my mother told me how to use it in different ways.

I: How does your mother teach you?

C: She shows me what to do and usually I learn when she doesn't even notice it, because I always watch how she works in the kitchen.

(Finnish 7-year-old girl)

I: What have you learned from your mother?

C: She taught me how to read and write..

I: How did you learn reading and writing?

C: My mother drew me picture and asked me to say what it was. Then she asked me to write the names under the pictures.

I: How old were you?

C: I was five.

(Finnish 7-year-old girl)

I: What have you learned from your mother?

C: Well, my mother does not teach me anything other than to play cello.

I: Can your mother play cello?

C: Yes, she plays a lot and we play together.

I: How do you feel about it?

C: I just love it; I love new pieces.

I: How does she teach you?

C: By showing me, and asking questions and she gives me easier melodies and plays more complicated music herself.

(Finnish 6-year-old boy)

In many cases parents would like their children to learn numerous special skills such as reading or writing, but they also teach many valuable attitudes and skills simply through daily living. According to children's descriptions, there were no gender-based differences in what fathers teach their children. For example, fathers were eager to teach computer skills and sports to girls as well as boys. Many Estonian children described playing with their fathers, and also valued the fact that parents had the time to play and spend time with them.

I: Tell me about what kind of people you like and why?

C: I like my father.

I: Tell me why.

C: Because he tells jokes and is nice all the time … and my mother is nice because she always prepares our meal and lets father play with me.

(Estonian 6-year-old girl)

C: My father tells me about many countries; he travels a lot.

I: What have you learned from your father?

C: I have been with him in many countries, and we have had good times together.

I: Where have you been?

C: I have been in America, Germany, Sweden and Estonia.

I: What do you like most?

C: I like America. My father is nice because he gives free glasses to those who can't see and don't have money… and it is quite dull if you can't see!

I: What do you mean?

C: My father is a doctor and he travels a lot and provides glasses for poor people in China and Africa.

I: What have you learned from your father?

C: I have learned that it is good to help people and tell them nice jokes.

(Finnish 7-year-old girl)

I: What do you do with your father?

C: We surf on the net and go bicycling together.

I: What have you learned from him?

C: Sports.

I: What kind of sports?

C: Running, football and long-jumping.

I: How do you learn from him?

C: My father shows me what to do, and I follow him.

(Finnish 6-year-old girl)

I: What do you do with your father?

C: I make noises in the evenings and play animals or do another imaginative voice and he tickles me.

I: What do you learn from your father?

C: I learned to read. We read together, and I learn difficult new words from him, and then we laugh!

I: Why?

C: Because those difficult words are so funny!

(Estonian 6-year-old girl)

Children often mentioned their sisters and brothers in learning situations especially if their siblings were older. From sisters and brothers the children learned many free-time activities, including games and sports. Many children also watched television or spent time with their older sisters and brothers using computers. Four children from Finland and five from Estonia children mentioned that they had learned to read and write by watching their sisters doing their homework. Descriptions of play scenarios were gender-based. Sisters played together with dolls, while brothers played more outdoor games, such as constructing small cabins or playing football together. If a girl had an older brother, she also used to take part in such activities, but when a boy had an older sister he typically refused to take part in playing with Barbie dolls or similar activities, and usually played table games, outdoor games and computer games with her. The children in this study mentioned in particular that their older brothers or sisters advised them on how to use computers.

I: What do you do with your sister?

C: We play together.

I: What kind of playing?

C: We pretend that we are designers in a fashion house. My sister has taught me how to draw new clothes.

I: How does that happen?

C: First I watch how she draws, and the I try to make the same kind of drawing and then I start to make my own designs.

I: How do you do your designs?

C: I have the model and the colours in my mind. I am good at drawing, even my sister says so.

(Finnish 7-year-old girl)

I: What is your favourite game that you play with your little brother?

C: We have many.

I: Tell me about one of them.

C: We pretend that we are the builders of a house.

I: Tell me about this house building.

C: We decided to build a house in our sandbox, and we used sand and water and my little tractor to make the foundation and walls. Then, we took knives and cut some small trees for walls and tried to build a roof, but it was a difficult job and we couldn't put the roof on, because the walls were too low and we couldn't go in.

(Estonian 6-year-old boy)

The role of other relatives in children's descriptions of their learning process depended on the time that the individuals spent together. In Estonian families the grandparent/s lived in the same household and spent a lot of time with their grandchildren. In both countries grandparents were important as artistic role models. Children also mentioned their grandparents when they described themselves as actors helping others in social situations or in wanted to demonstrate a skill that they had mattered to their grandparents.

I: Tell me what is important for a person who works with music. For whom is this kind of work suitable? What do you think?

C: It is important to my grandpapa.

I: Is he a musician?

C: He plays music at home.

I: What kind of instruments do you have at home?

C: We have a piano.

I: Do you play it?

C: My grandpapa is teaching me to play it.

I: How often do you think it is good to practice?

C: Every day.

I: Do you practice every day?

C: No, only on Mondays and Thursdays, but my grandpapa plays every day.

(Estonian 7-year-old boy)

I: Tell me about your grandparents.

C: I have two grandmothers. One is not feeling very well, her leg is … and she lives far away.

The other grandmother often takes me to the swimming hall and she taught me to swim.

(Finnish 6-year-old girl)

I: What do you do with your grandparents?

C: We often go to the sauna at grandmother's and grandfather's house. She is my step grandmother. She always gives me new toy cars. My real grandmother lives in a different town.

I: Tell me about you and her.

C: She plays violin and loves red flowers, and often asks me to sing with her.

I: What do you sing?

C: I like Ultra Bra but grandma plays Elvis.

(Finnish 7-year-old boy)

I: Tell me what you would like to do when you grow up.

C: I want to become the conductor of an orchestra.

I: Tell me about this conductor? (the child is drawing)

C: This is a woman. She is famous. It's me.

I: She is conducting an orchestra. How is she feeling?

C: She thinks that her grandmother likes this music.

I: Which kind of music are you playing?

C: Soft and kind of quiet or gentle.

I: What else?

C:I think my grandmother is very proud of me.

I: And you?

C: I think music is a good hobby for me.

(Finnish 7-year-old girl)

When children were asked to mention important adults in their lives besides their parents and grandparents they mentioned other relatives such as their aunts and uncles, and especially their godmothers/fathers. In Finland in particular godparents seem to spend time with their godchildren typically in the places that the children enjoy a lot, such as amusement parks or other learning environments such as the countryside.

I: Tell me, do you have other important adults in your life besides your parents?.

C: Yes, I have both my grandparents and godparents.

I: What do you do with them?

C: My godparents also have children, and the other godparents live in Helsinki and the others in Southern Savo.

I: Aha…

C: … yes, I can't go there very often.

I: Would you like to tell me about your visit to Savo. Is it different there, compared to Helsinki?

C: Yes, the scenery is different. There is forest, and a lake, and a place for swimming. I learned to swim with my godfather.

I: Aha...

C: Yes, and I learned to know all the plants and animals. You know, there are cows and a cow-shed. You have to milk the cows twice a day.

I: Can you milk a cow?

C: No, I only watch and I can go into to the room where the milk goes.

I: So, they have machines for milking. How many cows do they have?

C: Twenty-eight.

(Finnish 7-year-old girl)

All children mentioned their teachers as important adults, and they had many different descriptions of learning situations mostly at preschool or in school settings involving languages, mathematics, sciences, arts and sports. The children also had very similar opinions about the traits of a good teacher: understanding, beauty and handsomeness, competence and a person with a sense of humour.

I: Tell me, what kind of a teacher is a good one?

C: A kind one, one who laughs.

I: Is laughing important?

C: Yes. If you can't laugh, or your teacher is not laughing, how can you learn anything? It is very sad if you haven't learned to laugh. Think about what a sad adulthood you would have!

I: You are right!

C: Yes, if you laugh now, everything will go better later.

(Finnish 7-year-old boy)

I: Tell me, what kind of teacher is a good one?

C: One who is not complaining all the time, and one who is kind.

(Estonian 7-year-old boy)

I: Tell me, what kind a of teacher is a good one?

C: Lea.

I: Lea? Tell me about her. Why is she a good teacher?

C: She has short hair, and she speaks softly and looks nice.

I: What else?

C: Well, she is good at teaching us poems, and how to sing.

I: How?

C: She is good, and she smiles when she is singing.

I: What do you like most at your preschool?

C: I like to play and draw.

I: Why?

C: Because this happiness will soon end.

I: What do you mean?

C: School.

I: Aha… is there still something more you would like to do at preschool?

C: I would like to climb.

I: To climb. Why?

C: It is important that climbing in different places is allowed, if it is not dangerous.

(Estonian 6-year-old girl)

Children also mentioned their peers in learning situations and it was obvious to them that a child can learn many skills from another child, sometimes even better than they can learn them from an adult.

I: You are a boy scout? Tell me why you like scouting.

C: I learn a lot of new skills from other boy scouts.

I: New skills?

C: Well, I learned to orienteer in the woods, and to use a compass and a knife and to make a firepit, and you know we sleep outside, and hike in the forest, and have a camp… and we must have all kinds of equipment with us.

I: Where do you need these skills?

C: They are very useful. If I become lost in a forest I can use my compass and map, or find out from the sun where I am. I also learned to make a fire, and I can run fast and do all kinds of knots, … I will be able to find my way out of the forest.

(Finnish 7-year-old boy)

The children also frequently described situations in which they took an advisory role in a child-to-child learning situation.

I: Can a child teach something to another child? What's your opinion of that?

C: Yes, certainly.

I: What, give me an example!

C: Well, for example, a child can teach another child to play, to play, like I did today. I taught Anu how to play.

I: You taught your peer to play. How did she learn?

C: Well, I showed her on a kantele where to locate do, re, mi, fa and so and that's how this song goes, with notes,… then she learned it.

(Finnish 6-year-old girl)

Children also described those situations in which they learned new skills by themselves. These learning moments were connected to reading skills, sports like biking or roller-skating, or arts such as dancing, making craftwork or practising music. They also described play situations that were connected with problem solving and creative thinking:

I: Can you read already?

C: Yes.

I: How old were you when you learned to read?

C: I was six,… no five.

I: How did you learn? Who taught you?

C: I learned by myself.

I: How did you learn?

C: I know all of the alphabet, and I am very good at listening, and I notice how words sound.

I: Well if you are good at it, is there something more you would like to learn?

C: Yes, I like to calculate, so I want to learn multiplication and division.

(Estonian 7-year-old boy)

I: You said that you like to dance. Why is it so exciting for you?

C: I like to go round and round and once when we were in town I saw a ballerina dress and wanted it to go round and round, and I asked my mother to buy it.

I: Well, did your mother buy it?

C: It was so expensive, and my mother didn't know that I like dancing so. She only thought and thought, and said perhaps another day.

I: Why doesn't your mother know that you like dancing?

C: I dance alone.

I: Do you dance at home?

C: Yes, I put music on… and if there is nobody at home I dance. It is fun.

I: You do just fine. How do you practise dancing?

C: I find out new dance steps, and practice them in front of the mirror.

I: Which kind of steps?

C: A kind of light step.

I: How do you create them?

C: I have seen them on TV, and my older sister can do a kind of cartwheel on the floor—and make up steps just by dancing.

I: I think you should show your mother how important dance is to you.

C: Hmm … yes, I will practice a while, and perhaps put on a show for the whole family.

(Finnish 7-year-old girl)

Media was very present in the children's descriptions, and it was surprising to me that the children's favourite programs in Finland were not Finnish children's programs. Rather the Finnish girls were especially fond of "Secret Lives" a Finnish soap opera that is not really intended for children. Finnish boys mostly said that their favourite programme was Pokemon. The moral values set forth in these programs are often intended for older children or even adults and are often very questionable in my opinion. Estonian children mentioned different kinds of programmes; most Estonian boys mentioned "Tom and Jerry" or "Police Dog Rex" as their favourite television shows.

I: Tell me, what do you watch on TV?

C: Sports, news, all kinds of films.

I: What is your favourite film?

C: Rex, "Police Dog Rex".

I: Why do you like it?

C: Hmm…because Rex is always hopping around and running after bad people and it scents so well.

I: Can you learn anything from it?

C: Yes, I learn that dogs are wise, and I learn to search well.

(Estonian 7-year-old boy)

I: Tell me what is your favourite programme on TV?

C: Pokemon.

I: What do you learn from watching Pokemon?

C: I learn that you can never trust anyone

(Finnish 6-year-old boy)

Interview material shows that gifted children in Finland watched TV—programs which were not designed for children. Children avoid thinking of the scenes which made them confused. The emotional development of a child is often in different phase from the cognitive development so the need for media education is obvious .

I: Tell me what do you mostly watch on TV?

C: I watch "Secret Lives", and all the rest.

I: Do you watch "Secret Lives" alone?

C: I watch it with my pal from the neighbourhood.

I: Well, what do you think about it?

C: It is a nice program.

I: Yes. In what way?

C: Because it is a little bit silly, and always something always happens.

I: What do you remember about it?

C: Once there was a man named Saku. He does't have a driver's licence and he has to drive a car, because Mika, whose car it was, he was a little, hmm…unconscious. So Saku had to drive, and he drove into a tree and Mika died. He didn't even know anything about it.

I: Well, what did this make you think of?

C: Hmm… I didn't want to keep it in my mind, and I tried to think about all kind of other things so I could forget it, because it made me feel bad.

I: Do you watch "Secret Lives" everyday?

C: Yes,when it comes on and if I stay with my friend until eight we will watch it…, but sometimes, if we haven't had enough time to play, we play and don't watch …. and I think it is better that way.

(Finnish 7-year-old girl)

Children from both countries also mentioned many videos and computer games that were a part of their learning environment. The videos that the children watched usually involved classical fairytales, but he computer games were variable in educational or aesthetic quality.

I: Do you watch videos at home?

C: Yes, I have "Alice in Wonderland" and "The Villain and the King" … and at Chistmas I got "Thumb Lisa" and "Snow White."

I: Which is your favourite?

C:"The Villain and the King."It is really good.

I: Why?

C: Because there is this villain who changes into a prince, and everything changes all the time. It is really funny.

I: Do you have computer games at home?

C: Yes, I have "Mummi Game" and two "Ready Fish", one "Ready Fish 2" and " Ready Fish 3" and that's all I have.

I: How often do you play with these computer games?

C: I remember, I have one called one "Paks Laffy" and I don't know, perhaps I have still something else. I play every day and many times.

I: Do you play alone or with somebody?

C: I can play alone.

I: What do you learn from them?

C: I learn to use the computer, I learn to find out different things and I learn … many different things.

(Estonian 7-year-old girl)

The interview material shows that gifted children live in a social environment with many different types of meaningful contact both with adults and with other children. Gifted children are also aware that they learn much during these interactive sessions with different people. They mostly learn from a model using their constructive thinking skills and creativity. They are also aware of the role that they have in their environment which is connected to their self-esteem. These socialisers, the people that are meaningful for gifted children, are important for developing their personalities, skills and talents. They provide the initial learning experiences for the children, whose gender

roles and stereotypes are also learned from their early interaction with their own environments.

My opinion is that gifted children at the age of six and seven need guidance with selecting TV-programs they watch. Media is a powerful educator and parents should follow and advise their children's media behaviour. The socialisers within a child's family, relatives, peers or teachers are also the first people to notice whether a child is gifted and may also play an important role in increasing a child's inner motivation regarding his/her special interest.

4.3.1.3 Children's Goals and Self-concept

Children learn about themselves from the reactions of the people who are nearest to them. An individual's self-esteem is largely established during the very early years of his/her life. Children judge the degree to which they measure up to the ideal person that their socialisers want them to be. Self-esteem can be developed by expanding children's self-concepts, and helping them to adopt realistic ideals for themselves (Porter 1999, 118). Through these interviews, the self-concepts or self-perception of the gifted children involved in the study can be characterised. Children's self-concepts become more comprehensive as they grow older, mainly due to their accumulated self-knowledge. This process can be anticipated to begin earlier in gifted children because of their possible earlier awareness. The global self-concept has five distinct facets: social, emotional, academic, familial, and physical (Hoge & McSheffrey 1991; Sekowski 1995; van Boxtel & Mönks 1992). Children also have beliefs about how they *should be*. These beliefs stem from the actual or implied critical judgements of significant people in their lives, or through a process known as "social comparison", in which they compare themselves to other children and evaluate themselves accordingly. These ideals can be explicit such as wanting to carry out only a certain task in one's studies or implicit with standards that the individual hardly recognizes and which, therefore, can be more difficult to identify and challenge (Pope, McHale & Craighead 1988).

According to Porter (1999, 121) the self-esteem of a gifted child is multi-dimensional. It is a comparison of her or his performance with certain ideals and has both an intellectual and an emotional component. Therefore the way in which a child thinks about his or her achievements affects how he or she feels about them. If a child highlights his or her deficiencies and ig-

nores achievements, his or her emotional reaction to such supposed deficiencies is likely to be extreme or unrealistic. Child's self-concept contains many descriptions of oneself and the ideal self ranks these traits according to how highly each one is valued. Self-esteem is a measure of the extent to which person's self-concept and ideal self overlap (see Figure 16). In this interview, all observed material of self-esteem and self-concept of these gifted children is connected to the learning situations as the children describe them.

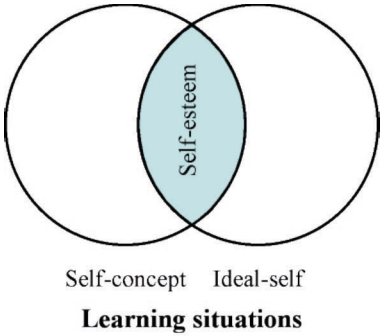

Figure 16. Self-esteem as the congruence between self-concept and ideal self as connected to learning situations

The child's goals and general self-concept in terms of learning was ascertained through the following questions: "What do you like to do most of all?" , "What is your favourite game?", "What do you already know how to do?", "What are you really good at?", "What would you like to be good at?", "What do you want to learn?", "Do you have a hobby?" and "Why is this hobby important to you?"

Through each interview I tried to reach the situational self-reflections and self as subject—for example the child's self-concept as a learner in different social situations—from the child's descriptions of her or his experiences, functions and motivational sources. From the interview sections introduced in Chapter 2 it can be seen that gifted children often have a good concept of themselves as learners in different types of social situations. From the collected data I can conclude that most of these gifted children have developed the ingredients for good self-esteem from their early interactions and social learning situations. When gifted children in Estonia and Finland were asked what they were really good at, they had no problems answering. Gifted children had good self-esteem in many areas and they are eager to do many

activities. According to the data, Finnish parents in particular have more opportunities and money to offer many free-time activities to their children, while Estonian children typically report only one hobby or free-time activity in the home environment.

I: What are you good at?

C: I'm good at mathematics, football, basketball and long-jumping.

I: Where have you learned all these things?

C: From my dad, and from sport school.

I: Do you go to sport school?

C: Yes and I also go swimming and to visual art school.

I: What do you learn there?

C: We learn to make pictures, shape clay, and paint silk and glass and paint with an ox-hair brush. You know this is quite difficult, but I do it well.

I: Why is it difficult?

C: Oxhair is quite big for small pictures, and I have to be very careful.

(Finnish 7-year-old boy)

The example of others seems to be connected to a gifted child's own musical self-esteem as the next example shows:

I: What are you good at?

C: I'm good at drawing and playing the recorder.

I: Aha.

C: And I would also be good at playing the piano if I could practice it. I would like to play it.

I: Have you played it?

C: Yes, I always play my recorder homework on the piano.

I: Do you play notes, or do you play by ear?

C: I play by ear and also by note. It is the same: do, re, mi fa, so, la ti, do on the piano and recorder, but it is a different way of making the sound.

I: Yes indeed, are you going to play the piano?

C: No, I will begin to play a cello at the music school.

I: Tell me what would you like to learn more and be good at?

C: To play the cello, because all of my cousins play something. One plays the drums and two cello, one plays the basso and one even plays the piano.

I: Why the cello?

C: Well, because you have to learn a nice body position and how to make a deep soft sound.

(Finnish 6-year-old girl)

Children also valued harmony as part of their competence:

I: What are you good at?

C: I am good at being happy. I mean that I am always in a good mood.

I: Mmm, is there something else you want to be good at?

C: I would like to be good at many things, but most of all I want to be happy and not in a sorrowful mood.

I: Yes, it is important. Is there something else you would like to learn?

C: Yes, I would like to learn to ski better.

(Estonian 6-year-old girl)

Gifted children face the same situations that other children face with their older sisters and peers, and feel the same kind of frustration when their ideas are not taken seriously in social contexts.

I: Tell me what you do with your older sister.

C: We play together and also with one other girl, a real disgusting girl named Julia, from our neighbourhood, who comes to play along with another girl named Sirpa. My sister and Sirpa like to go off and play together, but then Julia comes in and asks if she can join in. After that I always stay alone, because Julia doesn't want me to come along and it is not nice.

I: Well, don't they take you with them?

C: Twice.

I: How did you succeed?

C: Well, because they needed some other child along or they wanted to pretend that I'm their child or dog.

I: Do they listen when you tell them what you would like to be?

C: Yes, but they don't like my ideas.

I: Tell me about your ideas.

C: I would like to be an astronaut, and play more interesting games than just "playing house".

(Finnish 6-year-old boy)

Many gifted children seemed to have more than one hobby and some of them managed to be involved in very many activities:

I: What are you good at?

C: I'm good at almost everything I do.

I: What do you do?

C: On Mondays, I go to the girls' club and we do all kinds of craft work, art and drama. On Tuesday there is sports school, where there are also only girls, and we play volleyball. On Wednesday I have music school and go to sauna.

I: What do you play?

C: I play piano at that music school (points out the window).

I: Aha…

C: Then, on Thusday, I have 'Kidmix', where we play and do physical exercises. On Friday, I have nothing special, and on Saturday I have sauna again, and then on Sundays I go to circus school. We practice all kinds of acrobatics.

I: Well, you have a lot of hobbies. How do you feel about that? Do you have enough time for everything?

C: Yes. Sometimes in the evening when I'm reading a book and it's already a quarter past eight, I think about how fast time goes. I have to be in bed at half-past-eight and I'm in a hurry.

I: If you think about all these hobbies, which of them is your favourite?

C: Sports school.

I: Why?

C: People need to move around.

I: Is there something you would like to do better?

C: I want to learn to read notation better.

I: How often do you practice the piano?

C: Every day after doing my homework. I can read notes, but not as fast as I would like.

(Finnish 7-year-old girl)

Fascinating skills or imaginative playful situations were also common especially in descriptions of gifted boys in both countries:

I: Tell me, what are you good at?

C: I'm good at fighting, and I can jump high.

I: Ahaa, and what else?

C: Then I'm good at hiding and following somebody behind his back. Then I come nearer very silently and say "PÖHH!" It is funny, and I laugh.

I: Yes… is there something else you would like to do better?

C: Everything. I would like to jump up on to the roof.

(Estonian 6-year-old boy)

Imaginative thinking is connected to their ideal-self, and shows their omnipotential wishes and expectations, as in this interview:

I: Tell me, what you would like to learn?

C: To fly a space ship.

I: Why?

C: I want to go to Pluto.

I: Why you are interested in Pluto?

C: Nobody has been there, and I would like to know what it's like there, and how I could live there because it is so cold.

I: Have you imagined what there could be on Pluto?

C: No …hmm… or yes, a little bit … I draw this icy planet in my drawing book.

I: Do you think that you would be able to find the way there?

C: Absolutely. I will develop a special space ship and a space suit that keeps you warm.

I: So you are interested in space. What do you know about it?

C: I know a lot. Tthere are many planets, stars, galaxies, gas-balls; you know those colours come from gas.

I: What have you learned about space?

C: I have learned from my dad that space is neverending and we are tiny.

I: What else do you learn from your dad?

C: To pretend, to play spacemen.

(Finnish 7-year-old boy)

Those Finnish children, who had started school reported teasing problems at school. In these situations, they still felt a strong sense of self-esteem, and tried to find solutions. The reason why Estonian children didn't report any teasing problems was that all the children studied were still in Kindergartens or pre-schools. From Estonian News I have learned that teasing also exists in Estonian schools although it might not be a problem for these Estonian gifted pre-schoolers. The following examples of teasing problems in Finnish schools make me question how common it is with gifted or other exceptional children and what we really should do to change our school culture to become more tolerant for all individuals.

I: What would you like to change at school?

C: I would like to ban teasing.

I: Tell me about it.

C: During the breaks the older pupils tease me outdoors.

I: What can you do about it?

C: I say nothing. It is no use to discuss with them, hmm... you know, even teachers have difficulties sometimes… so I just try to go somewhere else, and continue playing with my classmates.

I: What should they do about the teasing problems at school? Tell me.

C: They should organise different break times for the people who tease.

I: What do you mean?

C: I mean that when we go indoors they could come out, so they could tease each other, so they could feel what it is like.

…

I: Does anything good happen outside during the breaks?

C: Yes. Almost all the time. We went out after the 'god pupils' … and once they noticed, and ran after us … and gave us a big hug.

I: How did that make you feel?

C: It was nice, and my 'god pupil' is always there for me when I need her.

(Finnish 7-year-old girl)

The gifted child's goals and general self-concept in terms of learning seemed to be very positive and high. Gifted children in Estonia and Finland positively evaluated their own efforts and achievements. According to Roberts (2002, 105) high self esteem is the possession of a secure sense of identity: "High self-esteem is promoted by positive self-experiences … and provides confidence, energy and optimism"; this was also observed during the interviews in my study. Gifted children believed in their inner potential and are interested in the world around them. Children had high expectations of themselves and they believed in themselves as learners. During this developmental stage (and with these children) it seems obvious that each child seldom has only one interest or hobby. Parents guide their children towards various obtions, and children love both sports and arts as their hobbies, even while they are also skilful in generally accepted academic areas such as reading, writing and mathematics. Parents also encourage and challenge their children in creative thinking and play. Gifted children need attention in all fields of development although they seemed to be very confident in both social and learning situations.

4.3.1.4 The Role of Cultural Milieu in a Child's World

The relationship between one's personality and the larger dimensions of culture is a recurring focus of social sciences, and particularly concerned anthropologists, such as Margaret Mead, Ruth Benedict and John Whiting, among other pioneers. This study concerns the world of gifted children in two neighbouring countries and it is my opinion that the differences between the cultures of these countries are connected to the rapid political and economic changes that are taking place in Estonia.

From an anthropological point of view, man can not understand culture without accounting for the ways which culture operates through individuals (Super & Harkness 1982, 2). So the knowledge, skills and values of a culture are held by the individuals who live in it.

One important aspect of understanding how cultures work is understanding how individuals learn to use their cultures. A child's learning experiences within his/her cultural milieu (e.g., in families, preschools, schools, during free-time activities or play) fundamentally center on the development of motivational aspects. Motivation and practice lead a child's development in the arena of multiple talents. Differences may be found within the different cultures. Each microcultural situation brings together individuals who possess sets of assumptions about learning strategies and practices, the value of change, and appropriate communication patterns. They form shared cultural assumptions that shape what is valued in a learning environment, or define individuals' actions and responsibilities. The role of one's cultural milieu inside one's own culture (and also between two neighbouring countries) can be characterized through the childrens' interviews. Estonian gifted children did not speak about the lower socio-economical situation compared with Finland. I assume that they were not aware of the difference and it did not disturb them. These gifted children form their cultural world in interaction with the important persons in their significant learning environments.

Children also make distinctions between preschool and school, or even day-care and preschool. Those children who had not yet begun school had many interesting expectations about school life, some of which were quite humorous.

I: You will start going to school next autumn. What do you expect from school?

C: I will wait for my summer holidays.

I: Yes, I think it's nice. Is there something else?

C: I hope that I can have new friends. I'm waiting to see what my school 'god pupils' will do.

I: Are there 'god pupils'? What do they do?

C: They give you advice, and may be a card or a rose, or something.

I: What would you like to learn at school?

C: I want to learn more skills in reading, writing and mathematics.

(Finnish 7-year-old girl)

In Estonia, day care and kindergarten are more divided from pre-school education, or that is what gifted children think. They really comprehend the dif-

ference between their preschool time and years spent in kindergarten. In Finland, preschool was already a part of day care for those children who had not begun schooling at the age of six. There is also a flexibility in the Finnish school system starting from six to eight, and one-half of the Finnish gifted children who took part in this sample began their schooling at the age of six. Both Finnish and Estonian children seemed to need more individual space for learning both in preschool and kindergarten. This is especially evident in the interviews with Estonian children and perhaps the cultural milieu at preschool and kindergarten is somehow more authoritative in Estonia than in Finland. Gifted children in both countries are willing to learn more and faster than is typically expected in the average preschool curriculum.

I: You started your school one year before it usually starts and you now have almost completed the first year studies. How do you feel about this school?

C: I like it.

I: What is important for you here at school?

C: That I have good friends, and we are all friends here.

I: So, you have a good climate for studying. What have you learned here?

C: I have learned mathematics and how to write like an adult, like my mother does, she writes very fast, and it is quite difficult to read sometimes.

I: And now you can write too, and what do the others do?

C: They write normal letters, but I practice my own writing style at the same time.

I: What do you like most at school?

C: I like to write stories and draw pictures for them. I have my own little book for them, and I always write when I am waiting for the others to catch up.

I: Is there something else you would like to learn at school?

C: Yes, I would like to learn to create a real drama. I could write a story, and I have imagined all of the roles in it for my classmates.

I: That's a wonderful idea. What is the theme?

C: The name of it is "Dino Divers". They find the real bones of Dino, and it is exciting.

I: Have you said anything about it to your teacher?

C: Not yet. She is so busy helping the others to count and read.

(Finnish 7-year-old girl)

Gifted children need to be noticed and many times their ideas remain hidden if the teacher cannot give special attention to those who are doing their tasks without any problems.

I: Tell me what you have learned from your teacher.

C: She teaches me a little bit of this and that … how you can sing even higher. We make trills du-du-du-duu, it goes really high, the sound was light and easy, but really high, can you hear it?

I: Yes. Tell me what kind of teacher is a good one.

C: A good teacher is kind, and says: "Please, be kind and do so and so." There are not that many kind teachers. They usually say,: "Please, start your work!" And we do.

I: What do you think about your preschool?

C: I think that it would be better without any school work.

I: Why?

C: I would have only a little schoolwork and then play. Now there is too much schoolwork, and when I have finished it all it is boring.

I: Well, what do you think about your preschool?

C: We read the Bear Spelling Book (Karu Aabits). We read by rows, and the teacher says:" No, try again!" if somebody can't read well. But many of us read quietly, and she can't hear us. For example, my friend Merit had read so quietly that only I could hear, but not our teacher. It takes time, and it is boring.

I: What do you learn there?

C: Waiting.

I: What is your favourite thing about preschool?

C: Music. I would like to have it more… and then I like my school desk.

(Estonian 6-year-old girl)

According to both parents' reports and children's interview material most of these gifted children learned to read at a very early age and so learning through reading was one way for them to learn. In the next interview session a child is waiting for a more challenging learning environment.

I: Can you read?

C: Yes, I learned when I was a 4-year-old.

I: Well, you are a good reader. What do you read?

C: I read "Tammetoru" and many other books.

I: Did you read in kindergarten? Tell me what was your favourite activity there?

C: Well, I read sometimes. There was nothing that interesting. All of the people were familiar and kind, but some teachers said that I had my hand up all the time to ask something.

I: What changes would you like to make to your kindergarten?

C: Well, they should ask more difficult questions.

(Estonian 6-year-old boy)

I: Tell me, what do you learn at preschool?

C: I learn mathematics, reading, doing reports, performing, drawing and music.

I: Is there something else you would like to learn there?

C: Yes, I would like to learn foreign languages.

I: What languages?

C: When I grow up I would like to learn French, but now at preschool they should have English, so it will be familiar to me before I go to school.

I: Why do you want to learn languages?

C: Because I want to understand people. Well, when I grow up, I want to work in a shop and sell all kinds of things and when customers from different countries come in I want to speak with them.

(Estonian 6-year-old girl)

When focusing on the cultural role stereotypes, or occupational characteristics I found that there were no significant traditional gender roles found in the environment of gifted children in Estonia and Finland. Many of the fathers participated in household chores and some of the mothers built houses. Neither set of gifted children had culture-based occupational gender stereotypes; they could imagine themselves in occupations that have traditionally been gender-based. One 6-year-old girl wanted to become the conductor of an orchestra, so it is obvious that the environment does not restrict the thinking of these gifted children in a gender stereotypical way. Of course, there are a few examples of other types of behaviour as well.

When asked, children were very eager to describe the situations when they felt happy. These situations were connected with various matters: playing, travelling, taking care of pets, succeeding in music performance or arts, eating or preparing tasty food with parents, eating ice-cream, spending time together with parents or friends or having lonely peaceful moments. A 7-year-old Finnish girl explained: *"I enjoyed riding bareback with my father and them we brushed our horses"*. An Estonian boy noted: *"I was very happy when I heard that I could study at music school"*. One 7-year-old Finnish girl said*: "Sometimes I just love to be alone at home, I just lie down, and imagine all kinds of things or draw something"*. These pleasurable moments were connected to children's social worlds and experiences, but through the descriptions I can see that gifted children value their own time to think and practice their hobbies or they enjoy being alone without doing anything. Their moments of pleasure consist of the joy of being together with the most important people in their lives without any stereotypical or culturally popular

aspects and the moments alone for self, which is, I think as valuable for self-development.

4.3.1.5 Children's Experiences of Musical Activities and Expectations of Their Special Interests

It is important for educators to learn which type of music-making or activities in the arts gifted children pursue. The values and aims of arts education are often realised through artistic activity through artistic thinking and knowing in action. Because so many of the children (especially in Finland) mentioned music as their hobby, children's descriptions of their musical activities have been reported. In his praxial philosophy of music education David Elliot (1995, 274) emphasises that making music is a logical and viable educational end for all of those who study music. Performing, improvising, composing, and practising music are rich and complex forms of cognition, exquisite types of human thinking and knowing. According to Elliot (1995) they are not only 'learning activities' that children dip into occasionally. Most of all musicianship is needed to achieve self-growth, and this flow is not achieved through incidental and superficial dabbling. Growth, self-knowledge, musical enjoyment and self-esteem regarding children's deepening involvement in cultural and musical ways take place when the child practices and there is gradual, sustained and systematic development of musicianship. During this interview gifted children told me about their personal experiences in music and arts learning situations, as well as their beliefs concerning their ability and expectations regarding the future.

I: Tell me your opinion. Why do we need music in this world?
C: Otherwise, it would be too silent.
I: What do you learn from music?
C: I learn to listen, and I learn music skills.
I: Like what?
C: That I can't put my fingers too far away from the others.
I: What do you play?
C: Cello.
I: How do you learn best?
C: I learn best when I practise and practise.
I: Tell me in which way you are good at music.
C: I'm good at practising alone.

I: When do you think learning happens best?

C: It happens only when I want to learn, and then it happens right away.

(Finnish 7-year-old boy)

The Estonian children reported more often that the music education in their kindergartens was their favourite area of learning. Compared to Finnish children in my study or to the children in Brotherus' (2004) study where they reported that most favourable activities were playing outdoor games and learning their mother language. In my study the musical learning situations of Finnish children mostly took place at homes or in music school settings, while in Estonia there is a specialised music teacher in every kindergarten.

I: Tell me your opinion. What was best about kindergarten?

C: Our music teacher was the best and she also teaches at the Old Town School.

I: What have you done with music there?

C: One day we went to the Estoniale, and we all sang there, and we sang a lot in kindergarten, and we presented a lot of concerts.

I: Tell me, do you like performing music?

C: Yes. I do. It is a good feeling when all of the folks are clapping for us.

I: What you have performed?

C: Mmm. Many songs" Ûkski lill ja pilv ei ole näinud oma ema" I or we were the soloists: three girls and one boy. At the beginning and the end there was a common part, and at first I sang alone. Then we sang together at the end.

I: Is there something difficult about performing music?

C: Yes, it can be. To perform really well is quite difficult and you must practice, so that you start playing the music together or alone at the right moment and so that you can sing the notes and words by heart.

I: Would you like to have music as your hobby?

C: Yes.

I: Why?

C: Because I want to become a singer or a ballet dancer.

I: What use do you get from this?

C: All kinds things .Time goes nicely and joyfully.

(Estonian 7-year-old girl)

I: Tell me about your musical performance.

C: Well, I played four-handed pieces at Aino Acté's Villa. It was nice because I was playing with my friend.

I: What did you play?

C: One Rondo.

I: What did you think about this music?

C: I liked it, because it is so lively and fast.

I: What the most important about this performance?

C: Flowers! We got roses.

(Finnish 6-year-old girl)

Gifted children valued their teachers as mentors for practising or performing in properly.

I: Why is teaching important in music?

C: The teacher tells me when to correct my wrong notes.

I: How?

C: Well, first I play them a lot, and then he corrects me and my practice and make fewer mistakes.

I: Have you learned to correct your mistakes when playing?

C. Yes. Well, last time when we had a band, I played one note too late, but I just jumped forward and played the next one right.

I: And … who noticed it?

C: My teacher.

I: What did he say to you?

C. Well, he said it was well done!

I: Tell me which kind of music teacher is best?

C: A teacher who teaches fast so that learning is fun, and notices everything quickly and says what I should do.

I: Do you think that you could learn faster?

C: Yes, I do.

I: How often do you practice at home?

C: Every day.

I: How often should you practice in order to learn well?

C: As often as I like.

(Finnish 7-year-old boy)

Performing situations were fascinating for gifted children and they seemed to enjoy them as we can see from these interviews:

I: Have you ever performed music?

C: Yes, I have.

I: What you have done?

C: I have sung.

I: Tell me about that. Where did it happen and how did you experience it?

C: There was a music house in Old Town.

I: And?

C: Cats! We were singing and presenting those… I and two other children.

I: Tell me about that!

C: I was in the middle of these three pieces and many children were watching us; mothers and fathers alike. And my father filmed us when we sang and did our presentation.

I: What do you think about your presentation?

C: Mmm … It was fun and exciting … a good song … we sang it well.

(Estonian 7-year-old girl)

I: Have you ever played music in public?

C: Yes.

I: Where? Tell me about the situation.

C: It was at a Christmas party, and I played "A phone in Africa" with my cello.

I: "A Phone in Africa" How did you feel this situation?

C: It was exciting.

I: Tell me more. Was it exciting all the time?

C: Yes from the beginning to the end but mostly at the beginning.

I: Did you like performing at all? Was there something good?

C: Yes, it was good that I performed.

I: What was the best part of it?

C: Playing … that I can play; it is nice and exciting at the same time.

(Finnish 7-year-old boy)

The gifted children's comprehension of music as a profession was surprisingly very deep; they seemed to understand both the mental and practical levels of a skilful musician's work.

I: Tell me your opinion. What are good abilities for those people who want to work with music?

C: They have to take music seriously.

I: What do you mean?

C: You must listen a lot, and be a friend of music.

I: Yes … is there anything else?

C: Yes. You can't just play this and that, or make a joke out of it; you have to practice seriously, and if you sing you must have a good voice.

(Estonian 7-year-old girl)

Gifted children gather ideas from different environmental situations to build their world view or images for their future goals.

I: Tell me, what do you play?

C: I play the five-string kantele.

I: What would you like to learn in music?

C: I would like to learn to play an organ.

I: How did you get this idea?

C: I was at a church wedding ceremony.

I: Why do you prefer the organ?

C: The sound is wonderful, and there are many sounds … and you can also, play with your feet.

(Finnish 6-year-old girl)

4.3.2 Summary of Children's Experiences of Their Learning Environment

In conclusion I would emphasise that in both Finland and Estonia music education has been historically valued within the culture. Music and other forms of art have had an important role in establishing the cultural identity and development of independence in both countries. In Estonia, this role has been more visible recently. There are, however, some differences in the role of music as a subject in schools and preschools. Every kindergarten in Estonia has specialised music teachers, and their society values music and singing more as a school subject. In Finland, music education is especially valued as a form of free-time activity in special music schools or in special music classes at schools. In recent years, the idea that 'music belongs to all' has unfortunately decreased in our society. In every school and kindergarten (or preschool) there are not enough teachers who can teach music. The interviews show that gifted children learn music or other artistic activities in their environment—in many ways, while the family seems to be a very important motivator and activator for a child's hobby. Gifted children, like all other children, need individual attention every day.

In the article "Children's ideas of good leaning" (Ruokonen, 2002) I reported on interviews concerning children's ideas of good learning and their motivational aspects in connection with their different learning environments at preschool and school. I classified the children's descriptions connected to good learning into four groups concerning learning by doing: attitudes and feelings, the time factor in the learning process, learning environment situations and teaching practices. According to the children's opinions learning by doing was the best way to learn.

According to the children's interview material effective learning seems to be connected to the state of mind and to good self-esteem. The motivation to learn is connected to a positive and happy mood. A positive mood was also connected to a subject or learning area in which a child had a special interest. These gifted children also had good self-esteem and they often mentioned how many things they could do and how happy they were about their skills in reading, maths, science, sports and arts.

The enjoyment and excitement that children feel as they gain competence and autonomy are the rewards for motivated behaviour and effective learning. Children's self evaluations give relevant information and support the intrinsic motivation of children to find their own area of talent and to enjoy their learning. The time factor means the length of time for a learning process. Many of these gifted children, who studied in inclusive classrooms, said that learning is most exciting at the beginning. One reason for this may be that they are quick learners who get tired of long learning processes in inclusive classes if they are not given extra tasks. The place and learning environment are also important factors for children when they speak about effective learning. They would like to have more individual space and peace in the classroom. They also value trips and excursions to the outside world as effective ways of learning. These gifted children are also very conscious about the fact that effective learning takes place in different kinds of environments, not only at school. In interviews, gifted children brought up the question of different kinds of teaching practices and learning styles. Children emphasised the role of imagination and play in learning situations. Most of the children valued individual learning situations, but they also valued good teaching. The role of chance (see Figure 1) is a contributing factor in talent development (Gagné 2003). The chance of excellent teaching, or the possibility to study and perform publicly are meaningful for developing talent.

Children need creative play and the arts in their learning. They need experiences and challenges, both in the academic and artistic fields. The results collected from the teachers show a significant connection between gifted children's emotional skills and interests in the arts and maths (Ruokonen & Vikat 2001; see part three).

From the children's interview material gathered in both countries, I have concluded that their learning environments are rich in a variety of ways. Gifted children have a rich social network. Many adults are really interested in the children's world, and take care of their needs. Parents teach their children, or support their hobbies in many ways. Gifted children also have good

sibling and peer relationships, and a rich play culture. The play reality and the use of imaginative thinking is engaged in gifted children's creative potential as well as in their musical activity, like practising or interpreting music. Finnish children spoke more about their hobbies, perhaps because they had more opportunities to participate in different kinds of free-time activities, while Estonian children spoke more about the quality of music education in their kindergartens. Children in both countries had many experiences performing and they enjoyed these moments. Some even found them exciting. Gifted children in this study group also seem to have strong self-esteem. They believe themselves to be learners, and it seems that their inner potential and interest in different kinds of activities guides their learning. Every child had some special area of interest, and it was quite common that children reported many areas of interest and could also have one free-time activity during almost every evening. The study group of children mostly had a positive relationship with their schools, and teachers and the learning. They valued the teacher's personal and effective methods of learning and teaching.

Uusikylä (1998, 2001) points out that a good, encouraging and supportive learning environment is the best resource for creative work. These interviews showed that gifted learners need and receive special support and a variety of challenges, and that optimal environmental conditions are very important during childhood.

> *"I want to learn new… it is more than a school-life, it is something … as a food that I need when I'm hungry … or a joyful wave in my body in the moment I understand something important."*
>
> *(Finnish 7-year-old boy)*

4.4 Creative and Musical Aspects in Gifted Children's Development

"I got an idea to build an aeroplane inside my piano."

(Finnish 7-year-old boy)

In this section I will reflect on the musical and creative motivational aspects of gifted children. In the sixth article (Ruokonen 2003) which I deal with the views of evaluation and identification of artistic giftedness and in the seventh and eighth articles discuss the musical ability and creativity of these gifted children, from a learning environment perspective. I will also summarise the children's interests two years after the interviews were made. Estonian and Finnish Children who had been interviewed two years earlier were asked to write a letter about those hobbies they found very interesting and of which they were fond. They were also asked to give the reason why they find their hobby so fascinating. Through interviews and letters they describe learning music or other arts or whatever they found interesting as well as the information about the social environment and other forces in their surroundings that influenced the development of creativity and especially music education.

The developmental stages of creativity in early childhood vary from study to study, according to the kinds of performance admitted as evidence of creativity by researchers. There are a number of factors in the home environment, school program and free-time activities which lead children towards creative thinking and activity in arts. According to Susan Hallam (2002) the extent to which an individual is motivated to pursue musical activity will depend on the interactions between their characteristics, self concept and goals and the characteristics of the immediate environment, including cultural and historical factors, the educational environment and the support received from family, teachers and peers. Environmental factors that interact with individual considerations play an important role in Hallam's (2002) model (see Figure 17).

Susan Hallam's model has connections with Eccless' and Wigfield's (2000) model in motivational aspects as well as Porter's (1999) model in environmental and intellectual points of view. Although all of these models have different meanings, they show the importance of environmental aspects in the development of an individual's creativity and talents.

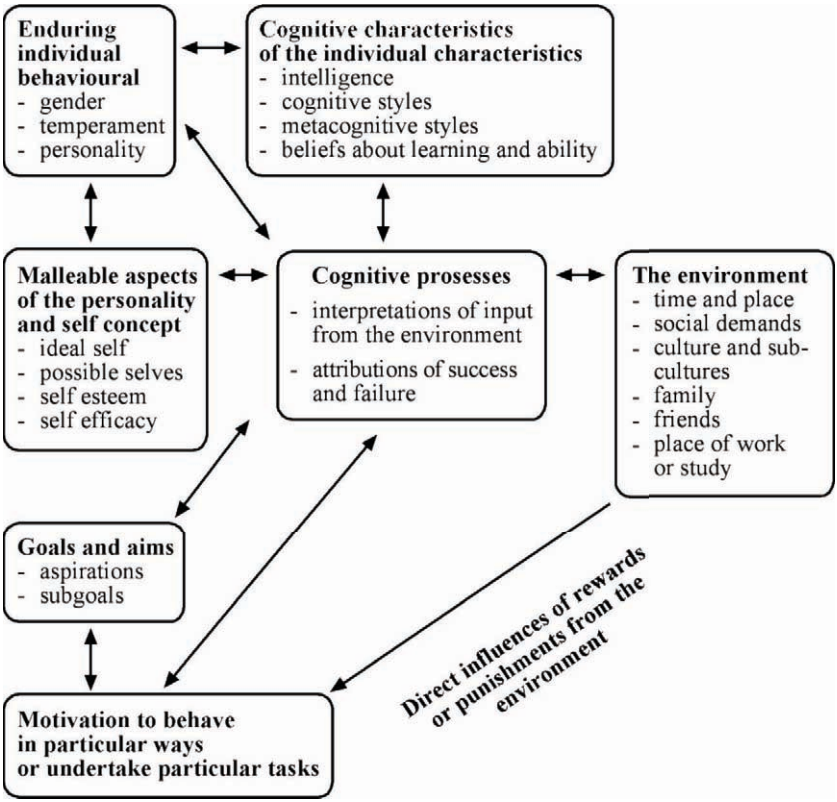

Figure 17. Hallam's (2002) model of interactions between the individual and environmental factors in determining motivation

Creativity is a broad and abstract concept and it is bound to lead to a number of interpretations. Later I refer to Torrance's (1962, 1964) and Heikkilä's (1977, 1982) concepts, but first I want to present the concept of creativity according to Florence Beetlestone (1998). Her construct of creativity has six key strands: creativity as a form of learning, representation, productivity, originality, creative problem-solving skill and a nature of universe/creation.

We can examine creative thinking as a form of learning through teachers' evaluations. Creativity is a vital part of cognitive thinking and it can help to interpret abstract concepts by involving skills such as curiosity, inventiveness, exploration, wonder and enthusiasm. Creativity involves expressing ideas and feelings in various ways such as through the expressive arts, Fryer (1996) says this is the way creativity is popularly perceived and what most

teachers learn during their university studies. Creativity covers many symbolic elements such as role play, imagination, acting, imitation, description and arts. Creativity is often also seen as emotionally therapeutic and self expression is central to this strand while a person expresses his/her inner feelings about the outside world. According to Beetlestone (1998, 2–3) creativity also involves activity, imagining, creating, composing, performancing, planning, constructing and building.

She connects problem-solving skills to creative thinking and speaks about selecting elements in the creative processes. Beetlestone (1998) does not mean that thinking creatively do not imply that creative thinking is qualitatively different; she means that the reflective processes is an integral part of the creative thinking process. She also links creativity to creative drive, energy, wonder and beauty and she writes philosophically about the awareness of natural order, procreation, and the cycle of birth and death. All our views of the world are bound by definition to be subjective and coloured by our response to nature as a whole (Beetlestone 1998, 3–4.).

4.4.1 Creative Aspects and the Learning Environment of Gifted Children

The evaluation of creativity or the creative environment is not at all a simple or one-sided task. It may be impossible, but still the matter may be viewed from many angles. According to Julian Sefton-Green (2000, 3) creative work is an integral part of children's personal development and it facilitates both cognitive skills and emotional growth. Then she speaks about the cultural dimension of creative activities. Arts perform two kinds of ideological work; firstly, they develop a liberal understanding and empathy with people and society. Secondly, arts show ideas of self-expression and imagination in studies concerning children's and young people's cultures in different times. Thirdly, the creative work performs the role of cultural transmission in the curriculum. Creative work helps to develop an understanding of a society's artistic heritage (Sefton-Green 2000, 2–5.). We can also value creative work as vocational training; children who live in an environment where they see people in creative training or work have a model and maybe some inspiration to start their own creative experiments.

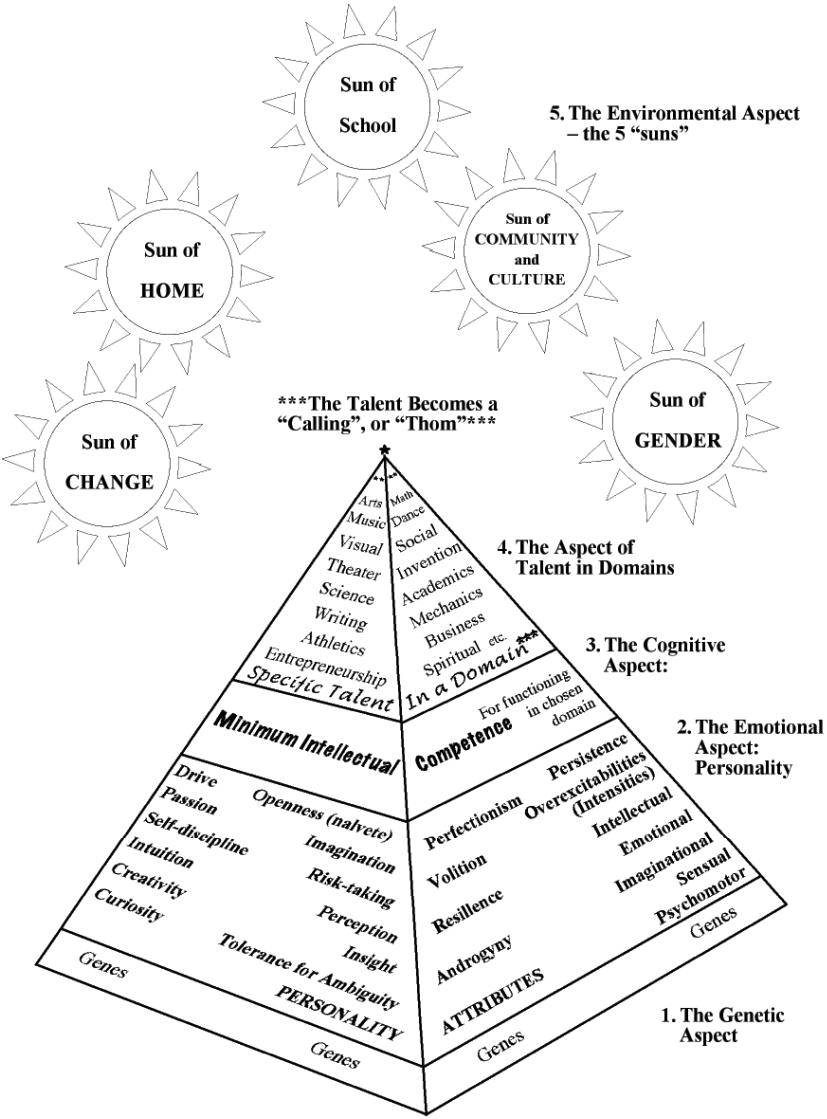

Figure 18. The Piirto Pyramid of Talent Development (Piirto 2002, 22)

According to Piirto (2002, 21–27) creative people have certain characteristics in common. She has constructed The Pyramid of Talent development to illustrate this.

First, at the base of Piirto's Pyramid is the level of genes, she prefers that talent is much inherited, but the environment has an important role in working what is inherited. Secondly, there is the emotional aspect which is important for creativity. Among these personality attributes she mentions willingness to do risk-taking, self-discipline, willingness and motivation to practice and work, the sense of openness, un-convention-ability or the ability to inure oneself against pressures to conform. Thirdly Piirto (2002, 23) writes about cognitive aspect as means of IQ test results of several sections (the verbal and the spatial and quantitative tests). Piirto (2002, 24) defines 'talent' differently compared with Gagné. According to Piirto (2002, 24) talent is enborn, innate, mysterious, connected with creative produces and it is the tip of the Piirto's Pyramid.

The most interesting parts of Piirto's Pyramid concerning my study are the five 'environmental suns'. These suns are certain factors in the environment which everyone is influenced by. The tree major suns are the sun of home, the sun of community and culture and the sun of school. The other smaller suns are the sun of chance and the sun of gender. In her study of the psychology of creative writers, she focuses on the creative process of writers through the five environmental suns of her pyramid model.

In the perspective of this study the effect of five environmental suns seems to be obvious to the development of giftedness and creative thinking. I describe some examples from my data associated with these environmental suns related to creative thinking.

Relating to creative environmental home 'sun', parents were asked open questions: "Do you think your child has a special talent, if … how does it manifest itself? …in what way do you try to support your child's learning and free time activities?" In both countries, all the parents had recognized that their child is a gifted or 'more able' to learn than generally. Usually, parents described their child's giftedness in two different ways, others lifted up some areas of giftedness for example: *"she is very talented in mathematics, she asked and learned to multiply when she was 5-year-old, she learns easy the rules of difficult games and she is also verbally gifted with a large vocabulary"* or in a more holistic way, for example: *"He is a social person, both girls and boys like to be his friends and even those of different age. He is very imaginative and creative in all his activities, drawing, his own stories, his own songs, his own circus performances etc"*. The parents of these gifted children really wanted to create a supportive and motivating home environment for their children to learn in creative ways, for example: *"We always try*

to encourage her new creative ideas and we are always there if she asks help or needs our support. We hope that she could live a happy life and be content for her choices, we want to give her much freedom." or *"We try to answer all to his questions even with help of an encyclopedia. We try to offer him those free time activities he is interested in and we spent a lot of time together for example by playing, swimming, ice skating etc."*

The creative environmental school 'sun' can be reached for example when teachers were asked an open question: "On the basis of your own experience, how would you say this child can best be motivated?" the possibility to study in creative ways came were commonly reported for example: *"She is eager to learn especially when she is able to use her imagination in drawing, crafts or writing her own stories."* The constructive learning settings were also motivating children, for example *"He enjoys the problem-based learning situations, everything new is motivating for him and he is always interested in researching phenomenons and the contexts in the meaning of a word."* According to the teachers gifted children need variation in their learning environmental settings for example: *"This child is very motivated in working groups where he can use his imagination and creative thinking freely in planning and implementation. Sometimes he likes to work alone solving some problems or drawing his plans. So I think that all kind of variety in learning environmental settings at school is good for him."*

The creative environmental 'sun' of community and culture can be reflected best through the interview material of these gifted children. The play culture of children seemed to be the most important source for the creativity. The children described their play situations in a way where they use their imagination and creative thinking, for example: *"we built our space centre under the big spruce and thought that the three was our space ship waiting its' journey up to the sky, then we climbed to the higher branches and thought that we were really flying*. The other important source for creativity in their free-time environment seemed to be related with their artistic hobbies. Through their artistic hobbies they learned to concentrate on problem solving and used their imagination to create performances and interpretations, for example: *"I got an idea to build an aeroplane inside my piano, the lower sounds were the wheels of an aeroplane, the soft higher sounds were like the huge wings and the medium sounds were like an air under the wings and the most highest sounds were the sun shining in the sky… "* or *"I had a dream about an orange field and I wanted to do the same colour, I took red and yellow to make this bright orange, but it was not at good, then I took an egg*

from a fridge and mixed a little bit of its yellow part with my colours and painted the whole cloth with this beautiful orange."

The environmental 'sun' of gender seemed to be in most cases very modern and androgyny, for example children described their parents to do home activities of all kind of, not based on a gender. When they draw musicians or told about their future dreams they were not traditionally gender based, for example some girls draw women conducts and some of them wanted to study pilots or astronauts, for example: "*When I grow up I want to be a pilot of Finnair and in some destinations I can give performances with my violin and orchestra if I have time to stay there for a while."*

According to Piirto (1998, 41) creativity takes certain habits of mind and it is not separate from intelligence or artistry, but part of the whole: "creativity is the underpinning, the basement, the foundation, that permits talent to be realized." According to Piirto (1998) all people are creative, but those who are more creative have learned to take risks or value complexity to see the world or their own environment with naiveté. In the research material of this research work, I can see that the environmental suns are acting mostly as positive catalysts for their creativity and talent development. The creativity of these gifted children has not been pushed down or diminished by sarcasm, the descriptions of environmental suns show that gifted children can learn to be creative in their own surroundings when they are encouraged to be curious, open minded and free.

There is no simple solution for validity, reliability, representativity of evaluation or the assessment of creativity. However, often too little data is used for too much interpretation; we need assessment, evaluation, self-evaluation and discussions to better understand the importance of the creative learning environment for children, and especially gifted children.

4.4.2 The Choice of Testing

In Finland tests of creative thinking was done with children in their first school year by Jorma Heikkilä (1972, 1982). According to Heikkilä (1982, 3–4) potential creativity can be tested through Torrance's Tests of Creative Thinking (TTCT). Performance creativity can be measured by teachers' assessments. Heikkilä analyses different aspects of creativity independently. In his study he found a great significance between intelligence and creativity; he found no such connection between potential-tested creativity (Torrance) and

intelligence (WISC and ITPA). There was a connection only in some details like verbal understanding, active vocabularity, number series or ability to notice similarities (Heikkilä 1982, 204). Performed creativity is more connected to school readiness than to tested creativity.

David J. Hargreaves (1989) cites Eisner's (1985) critique of the tendency in arts education for teachers to become amateur psychologists and to overvalue children's work for its supposed artistic merits at the cost of utilising evaluative criteria developed within the arts. Eisner (1985) argues that evaluation about quality requires some expert knowledge from the relevant arts field. Sefton-Green (2000, 9–10) emphasises, that the primary value of arts work is to facilitate personal growth and individual development and asks what there is left for a teacher to evaluate other than the moral worth of the children themselves. A good question is, how can we ever reach the really amount and quality of the pleasure, the personal investment or the motivational power of creative thinking or projects for valid evaluation of creativity.

We used Torrance's Minnesota Tests of Creative Thinking for measuring the creative thinking, especially divergent production of our study group. The test's non-verbal tasks are comparable in cross-cultural studies. The Incomplete Figure Task is an adaptation of the Drawing Completion Test developed by Kate Franck (Torrance 1962, 214).

The test consists of an ordinary sheet of paper divided into six squares, each containing a different stimulus figure. I only used the four-figure model, because Estonian children had been tested before the Finnish children and they had chosen the same four figures adapted by Heinla (MV2) that Heikkilä had used in 1982. This Heinla's adaptation of TTCT is commonly used in Estonia and as participant in the Estonian project, the Finnish study group was also tested with TTCT. The Heinla's adapted TTCT-test is based on the Torrance's Test of Creative Thinking from 1966. The following instruction is given for this task: "By adding lines to the four figures below, sketch some object or design that no one else in the class will think of. Try to include as many different ideas as you can in your drawing. In other words, don't stop with your first idea for completing the figure; keep building on to it. Make up titles for each of your pictures and write one at the bottom of each block next to the number of the figure" (Torrance 1962). Children are allowed to work for ten minutes on each form. All children do not need so much time, but those who want to develop more complex ideas must have enough time to do so. Drawings or responses are evaluated according to Torrance (1962) along

four different dimensions: originality, closure (penetration), complexity (elaboration) and productivity.

In this task originality is defined as uncommonness. Complexity refers to elaboration of the basic idea by the addition of supporting ideas, that is the person's capacity to implement and build onto the basic idea. The concept of closure comes from assuming, that an incomplete figure of any kind makes an individual feel tense, and to reduce this tension the subject tries to close the figure in the simplest way possible. Those who can resist the tendency to closure in the simplest way possible are assumed to be able to overcome the pressures toward closure completely. It has been found that older children are better able to resist pressures to premature closure or delay gratification, so this scale has a developmental aspect. (Torrance 1962, 216). The number of incomplete figures attempted is the productivity score. In individual cases it provides a key to a person's tendencies to sacrifice productivity for elaborating or originality, mental blocking and the like.

The other test we used from Torrance was the Picture-Construction Task; it is also a nonverbal test in which subjects are required to think of a picture in which the given shape is an integral part. Material used for this task is a blank sheet of paper with a jelly bean shape on it (MV-1). Data have been collected with the following instruction: "You have been given a piece of paper in the form of curved shape. Think of a picture or an object which you can draw with this form as a part. Draw it as you imagine it. Try to think of something that no one else in this class will think of. Keep adding things onto it, putting into your picture as many interesting ideas as you can. When you have completed your picture, give it a name or title and write it at the bottom". A time period of 10 minutes has been found to be sufficient for this task. During this test I noticed that there are differences between the working styles of Finnish gifted children. Most of the children started to draw their ideas quickly and intensively; some of them wanted to look at the picture and perhaps they did the design work in their head before they started to draw. Most of the children were ready before the time was up, but some of them wanted to use all the time allotted. Gifted children were quite capable of writing titles for their drawings. The responses were scored according to Torrance (1962) for originality, elaboration, sensitivity, communication and activity. Elaborating means the number of different ideas or details. The most common products for the curved shape were boat, hat, human body, cloud, dog, animal, car or roof. Elaboration or complexity refers to the number of different ideas used to build the particular picture. The more complex or better the

elaboration of a child's response, the higher will be the score in the five different scale points. Torrance (1962, 219) assumes that the person who operates on a relatively high level of differentiation and integration concerning his environment is able to draw more complex ideas. Sensitivity is based on the following considerations. The person may respond to the task in such a manner that he/she may or may not use the shape in such a way that the shape, colour or proportion is consonant with the object or picture sketched. Torrance assumes that the stimulus includes tendencies to produce associations, objects or pictures which are in harmony with the different aspects of the shape. Torrance assumes that the person who is able to overcome the limitations of the stimulus figure can use limitations creatively and can resist the tendency to produce unusual associations. Communication means the degree to which the drawing created by the individual communicates an idea, story or situation. The degree of communication is scored according to a number of specified rules. Activity means that the person who is able to perceive his environment dynamically will be able to express movement in his responses to a greater extent than an individual who perceives his environment as static way.

The line test (MV 3) is also a non-verbal test of ideational fluency and flexibility. The test also gives information about originality and elaboration. Children are given a sheet of paper with six pairs of lines. The instruction is quite minimal: "In ten minutes see how many objects you can sketch which have these two lines as the main element in their design. Two lines should be the main part of whatever you make. With a pencil add something to the lines to complete your picture. Try to think of things no one else in the class will think of. Make as many things as you can and put as many ideas as you can in each one. Add labels or titles to your pictures".

Heikkilä (1977, 64, 119) used this test to describe the development of creative thinking during the first school years. He chose to evaluate the following aspects: the originality of the structure of the product, the originality of the colours, the artistic value of the product, spontaneity and drawing ability. He noticed that generally the Finnish first class pupils were better than the pupils of the fourth school year in all other characteristics of creative thinking except flexibility. The boys' products were more in originality and artistic than girls'. Girls were better than boys in making complex drawings and in using colours. Fourth class pupils had naturally better drawing skills, which is not a measurement for creative thinking.

Estonian testers (Heinla 1993; Vennik 2001, 37–38) used the following aspects of the Torrance-test parts: originality of the structure of the product and ideas, especially MV-1 and MV-2; fluency, productivity of ideas refers to the speed and number of different ideas streaming in the same picture, especially MV-3, and flexibility means the tendency to produce in a flexible way different artistic ideas in the same picture, especially MV-2 and MV-3. Elaboration means the tendency to seek several detailed and complicated solutions to create the product. In co-operation with the Estonian researchers I used the TTCT-tests and evaluation forms in Finland.

Egle Vanarum (2002) did her research on creativity of Estonian gifted children and came to the conclusion that more creative children grow in the families where they are encouraged, supported and nurtured. The same kind of relationship can be seen between Finnish gifted children and the various free-time activities and hobbies and the development of their creativity. As comparative results of this study show, the differences between teachers' evaluations of creativity and test results can make evaluating creative thinking is a complicated task. Here I want to stress the difference between the aim of the Torrance test, and the teachers' evaluation concerning creative performance at preschool or school. Naturally creative thinking is behind every creative act, but the evaluation of creativity was at a different level with the teachers' evaluation compared to the test evaluation. That is the reason why the Torrance test and teachers' evaluation results cannot be compared directly. There can also be some criticism of the analyses of the creativity test results. One reason for the differences of test results between Finland and Estonia may be that there was an age difference in the children. Another possible reason may be that there was no reliability testing of the second evaluator in Estonia or in Finland. The evaluators were different in both countries, so there may be some subjectivity in the results, although we have had excellent co-operation during our regular research meetings.

Many resent creativity researchers like Piirto (1994/2004) refuses to use Torrance Tests as being too 'experimental'. Piirto (1994, 185–197) discusses about TTCT measuring mainly divergent production but not the whole creative potential in young children. Piirto (1994) describes many validity and reliability problems of this kind of paper pencil test. She stresses that the content of the test is divergent production but it can be translating itself into creativity and asks for using measures how the people achieve creatively in the real world. Piirto (1994) discusses also the reliability problems of scoring even if the scorers are highly trained, according to Piirto (1994, 1992) there

will still be individual differences that affect the final scores in the areas of originality and elaboration. The most reliable way is to send the test to be hand–scored by the publishers but usually it is not done even in USA with the financial reasons. I have also been quite critical of the results of TTCT and prefer more holistic methods to describe the creative thinking of gifted children. I report the results of TTCT tests referring to my article with Professor Vikat (2005), but I do not want to generalise the differences in significant way. TTCT-testing was one part of the whole study project and I will report the test results only concerning our study groups knowing their limitations. In this chapter I want to give the more holistic view to the learning environment of these gifted children also in the role of the creative environmental catalyst.

4.4.3 Artistic Skills as a Part of Creativity

Musical and artistic skills may be seen as part of human creativity. Arja Puurula (2001) has formulated a theory of basic experiences of childhood connected with arts and culture that are the sources of growing creativity in later years. It was interesting to learn how gifted children describe their experiences in arts and music. According to Swanwick (1992, 113) music is not only a mirror of its time or place, it is also a world of windows that opens up to many possibilities and individual alternatives. It was interesting to discover how children described the meaning of music for themselves and their learning processes in music. Primary school children are able to develop skills and their ability to think analytically and to conceptualise and use language as a research tool increases. According to J. Glover & S. Yong (1999, 209) individual children through the age of 7–11 can draw upon the musically diverse and differentiation as their own cultural experience, which enables children to investigate music in whatever sense. This greater ability to reflect and understand social contexts which are beyond the child's own experience and motivation to study music offers more possibilities for other contacts which will be focused on music and other children's interests.

Music has an important role both in Estonian and Finnish culture. Every fourth year Estonian people get together with an international audience for Dancing and Singing Festivals. I think that it is such a success because of the excellent music education in Estonian kindergartens and schools which provides everyone the equal right to have a good music education. The development of artistic talent relies on learning basic skills in kindergartens and

schools and further specialised training by other arts teachers. It is important that arts educators in pre-schools and schools are skilled at teaching children with a wide variety of abilities and interests. Teachers can observe potentially gifted children and provide advanced instruction or performance experiences for them. Teachers should seek opportunities for more individual talent development programs for these children in the curriculum. We used also Lottis' C-test (1988) to test the children's musical ability (Vikat, Ruokonen, Noorma, Toro & Vennik 2001). The reliability concerning Lotti's C-test (Spearman-correlation between the points given by two evaluators) was significant (0,9985***, $p < 0.001$) in an earlier study (Ruokonen 1997). Teachers and parents who observed children daily filled out questionnaires and rating forms and through them evaluated and described their experiences of children's behaviour and abilities. The nature of the evaluation process of artistic talent is complex and multidimensional. It is meaningful collecting information for evaluation from different sources and by various means. The subject of reflection in arts itself is valuable to teachers and children alike. In my study children reported their pleasurable activities in learning, playing and the arts (Ruokonen 2001).

According to Jorgensen (1997, 89–90) there is a danger that musical understanding lends itself to product-oriented, outcomes-specified approaches, including music achievement tests and other forms of evaluations so that delight in the process is forgotten. We have to work to find ways to promote accountability without prejudicing pleasure; this goal necessitates ensuring a wide array of assessment procedures. We combined a free singing performance (which meant that they could sing any song they wanted) with this musicality test, which is based on imitation of rhythm patterns, tunes, intervals and melodies. During children's free singing, we observed artistic underpinnings, such as musical perceptual discrimination, aesthetic appreciation and creative interpretation. Every child was interviewed and during the interview he or she also presented artistic work such as drawings and songs.

In our results there was no connection between intelligence and musical ability when comparing the results of the Raven test and Lotti's musicality test. Girls were better in musicality in both countries and according to Lia Toro (2001) there also was a high correlation found between a child's musicality and his/her television viewing habits. It was interesting that those children whose mothers spent more time with them got better results in performing a song ($p < 0.05$). A child's performance was also better if the child was evaluated as more sociable ($p < 0.05$) or willing to be a leader in a group (p

<0.01) according to his/her parents. Early interaction with music seemed to be very good for the sense of rhythm because those gifted children who started their musical hobby before the age of three had better results in the rhythm test ($p < 0.01$) compared to those who started after the age of three. According to the interview material, those children who had started their musical activity at an early age usually in music baby groups or music play schools played an instrument or planned to start a more intensive musical hobby by school age.

Therefore, the conclusion of my research is that the positive factors in developing both musical skills and a child's interest in music and musical activities are first the encouragement of parents and shared, musically interactive moments with important people such as parents and first teachers and playful music education even as early as age even before three. Also according to Heikki Ruismäki & Tarja Tereska (2004) the most important influence in encouraging a child to play a musical instrument proved to be the learning environment for example, the playing of family members or access to a number of instruments. Their research results proved the importance of early childhood musical experiences through a significant correlation with the individual's musical progress and his or her self-concept in music and personality even as an adult.

According to Sosniak (1985) the development of a special talent is a long process with different kinds of qualitative and developmental changes. Sosniak stated that at first learning takes place during play and pleasurable moments with the instrument without any specific understanding of musical goals. The specific talents could not be seen in this first phase; it was most important that a gifted child was motivated to continue his/her musical studies.

According to Airi Hirvonen (2003) talented musicians in her study group had begun their playing early, before starting school, but for a long time it had been one hobby among others. At the beginning of soloist studies the main motivation for continuing to develop their talent was the pleasure of playing, supportive teachers and parents, not any professional mission. Thus, motivational aspects in the learning environment seem to be the most important factor in developing talents.

Two years after the interviews I asked both Finnish and Estonian children to write me a letter and tell me about their current important interests. I received 16 letters and one e-mail from Finland and 15 letters from Estonia. Children wrote the letters themselves; many of them were decorated and il-

lustrated with drawings, but the most important information that came from the letters was that children were interested in various kinds of hobbies from academic skills to arts. The letters show that the children value their activities at school, arts and other hobbies during free-time as well as time spent together with their families.

A letter from a 9-year-old Estonian girl:

> *"I practice swimming, dancing, singing and bicycling. I also like to go to the movies. I like my hobbies because I can make new friends. I practice flamenco dance.*
>
> *I like to swim during summer time; winter time not so much because my eyes get red from chlorine,*
>
> *Riding my bicycle is my favourite thing and I like to sing because I want to become a singer. I also play the piano, but I have to work a lot to learn to play it. I like also drawing and reading. And of course plays and games are my favourites."*

A letter from a 9-year-old Finnish boy:

> *"Hello Inkeri! I´m no a 9-year-old boy. I am in the third class and my class is a music class. I am in this school because I sing in a Cantores Minores choir. I already sing in A-choir. There are only two 9-year-old boys in the A-choir. I started to sing when I was six. Besides the choir my hobby is playing the cello at conservatory. I have played cello for three years. The most important people in my life are my family and friends. I like school a little and my hobbies and playing. Singing and playing the cello are important for me because they are music. Although music is my favourite hobby I still have time to collect small animals, I already have a rhinoceros beetle (male), a scorpion (female), butterflies, a diving beetle (f), a pine hawk moth (f), a common grasshopper (f), and a giant wood wasp. I also like to travel and I have been to Sweden, Estonia, Latvia, Germany, Bulgaria, Turkey, Greece, Spain and Egypt. And the most exciting experience was being in Egypt."*

(During the interview this same boy had said that he wanted to study archaeology.)

> *I am also interested in history especially Egyptology. How are you Inkeri? How long are you going to study?*

Now we cannot see the developing talents, but we can definitely see that these gifted children have many hobbies and they get pleasure from different kind of interests. For us as researchers it could be an interesting challenge to

continue studying these children perhaps for another 10 years. We have planned to continue our study later.

4.4.4 Summary of Creative and Musical Aspects in the Learning Environment of Gifted Children

In our seventh article (Ruokonen & Vikat 2004) we concluded that there were no significant correlations found between giftedness and musicality of the 6–8 year old children in Estonia and in Finland. We reported many connections between the musical ability of gifted children and their creativity and home environment. The role of the media and teachers also seemed important. Gagné's model is a particularly good description of the factors that influence motivation, which ultimately leads an artistically gifted child towards a special hobby. This is exemplified by two children from my research (Ruokonen 2003), both of whom achieved maximum points in the imitation test measuring musicality. One of the children attended music school at the age of six and talked about music and playing in a very mature way thanks to the home environment where music was a natural part of everyday life. The child's parents were top musicians capable of identifying and supporting the special aptitude of their child, which was also detected by the teachers. The other child sang expressively and in tune, but was clearly unaware of this special talent. The child's parents did not mention this aptitude and even the teacher focused instead on evaluating the child's mathematical and verbal giftedness. Horse-riding was the child's most important hobby and involved the whole family. The child was also interested in story-writing. Although this child would certainly pass the entrance exam to music school, the child will probably not be taken to one. It would be interesting to know whether the child will develop a need to study music later on in life. An important musical experience might lead the child to develop his/her talent.

Many children are multi-gifted and their environment has a significant influence on their motivation and hobbies. The preschool age as a basis and beginning phase of a child's development deserves more thorough investigation in research into the complex phenomenon of giftedness. Children need encouragement and rewards that reinforce creative thinking, behaviours and imagination. When thinking about those motivational aspects in the relationships of gifted children and their environment Piirto (1998, 383–386) emphasises using humour in the classroom. She stresses that parents and educators should monitor the ways in which they deal with creative children and enjoy

more time with children. In creating learning environments we should provide our gifted children with a private place and materials for creative work, encouragement and we should model acting in creative ways. Piirto (1998, 386) speaks about valuing the creative works of others and avoiding stereotypical sex-roles as important in directing teaching. She stresses that talent is only a small part of creative production whereas practising and learning processes are more meaningful.

> *"Creativity is in the personality, the process, and the product within a domain in interaction with genetic influences and with optimal environmental influences of home, school, community and culture, gender and chance. Creativity is a basic human instinct to make that which is new."*
>
> *(Piirto 1998, 41)*

5 General Discussion and Conclusions

The general outline of the research project was divided into four different sections. The collected data material is large and this study reflects on only some aspects of the project. I could have chosen to focus on only one part of this project, but because I have followed the entire journey I wanted to report on it as a whole. As a doctoral student it has been a privilege for me to be able to participate and plan such a holistic project in which the learning environment of gifted children is studied in so many ways: firstly through the home environment, secondly through the school environment and teachers' descriptions, thirdly through the thoughts of effective learning of gifted children and fourthly through the special interest focused to the creative and musical environments of gifted children in Estonia and Finland.

When looking at the results of this study to see which kind of environmental catalysts (positive and/or negative motivational aspects) associated with the development of gifted children are found in the learning environments of Estonian and Finnish gifted children, we can be generally satisfied that there are many learning environmental aspects which need developing and improvement. This study has shown that gifted children in both Estonia and Finland have mostly positive motivational impacts in their learning environments. There were not many significant differences found between these two countries and the basic problems were actually the same in Estonia and Finland dealing with the need for more specific learning possibilities in the school environment.

The differences in home environments between Estonia and Finland were mostly economic, and related to the size of apartments and the money situation of the home economy which restricted children's options for their own space or free-time activities in Estonia compared to Finland. According to the children's interviews, they did not suffer and were unaware of this so called economic deficiency in their home environment. The families in both countries reported only a few problems in their family situations and they were not serious or had already been resolved. In Finland parents were more often divorced than in Estonia, but generally children lived in whole families or new families. In Estonia some grandparents also lived with the families.

In both countries children described their relationships with their parents and other family members as very warm and safe. They had learned the most important academic skills at home such as reading, writing and the first

mathematics as well as sports, arts and practical skills. I concluded that parents are interested in their children and give opportunities and support needed for early learning. Estonian children reported more about learning situations which were connected to moral values such as being a good citizen, while Finnish children reported more about practical learning situations connected to learning some specific skills such as riding or learning languages. The social atmosphere and interactions with family members were described as very positive and safe. Children in both countries valued and wanted time together with their parents and they were also aware of those many opportunities for learning that they have at home alone or with their family members. Generally the home environment in both counties can be seen as a very positive motivational aspect.

Gifted children in both countries managed generally well at preschool and school, according to both teachers' and children's evaluations. Both children and teachers reported the need for extra curriculum. Gifted children suffered because of their fast learning in group situations, even if they had started a school one year before the others. Teachers in both countries reported their need for classroom assistants and space for creating a more multidimensional learning environment for individual needs of different children. Children hoped for more variation in their learning environment arrangements especially in Finnish schools. Only Finnish school children reported teasing problems at school, although they did not mention teasing to be a great problem for them. Many Finnish children, both in preschools and schools, reported that noisy group situations had a negative motivational impact in their learning environment. Children valued their teachers and friends and saw them as positive catalysts for their motivation and learning.

Between the ages of six and seven children undergo a major developmental transformation that generally includes increases in cognitive processing skills, a growth spurt, and changes in brain size function. This transition and the accompanying changes allow children to undertake many major changes in responsibilities, independence and social roles. The time at preschool and starting of the first school year involves the young child having internalised or automated much of what could previously be accomplished only with conscious effort. Gifted children can use their inner speech and imagination; they are able to think through problem situations and to anticipate their occurrence. While researching the learning environmental aspects in this study I observed that the cognitive processes are likely to be effective only if a gifted child has accurately processed the emotional context of a par-

ticular situation. Empathetic and prosocial skills seem to be important for good learning according to teachers. For example, if a child misidentifies his/her own feelings or those of others he or she may have social problems and may generate maladaptive solutions to a problem, regardless of his or her intellectual capacities. Finnish and Estonian gifted children enjoyed learning situations with different kinds of people and different kinds of learning environments. Gifted children report that they have a need to calm down and have their own time for learning and problem solving; they also value peaceful, free and relaxed learning settings. Language plays a key role in learning situations and gifted children can use their language and imagination in various ways depending on their learning environment. For example, they may need to facilitate self-control and learn cognitive planning in frustrating learning situations.

When examining how gifted children are described and characterised by their parents and teachers in their environments I noted that in both countries both parents and teachers had noticed the giftedness of these children. There are many similarities found when evaluating the characteristics of gifted children, but there are also differences found in these evaluations mostly concerning the behaviour in group situations (see section one). It may show that gifted children behave differently at home than at preschool or schools. Alternatively the reason for the differences in evaluation may be the learning environments which are different at home and at preschool/school or even that the evaluators have different roles in observing a gifted child.

When I studied how gifted children themselves described their learning and growing environments, I observed the dynamic interplay of the learning environment and motivational aspects in children's lives. As a positive environmental catalyst these gifted children have rich social networks in both countries; they have adults who are really interested in the children's world and motive learning and support free-time activities. They had good family and peer relationships. Finnish children reported more learning situations connected with their hobbies than Estonian children. Estonian children valued and wished for more foreign languages study. Children in both countries valued play and imaginative problem solving in different kinds of learning situations. Through children's interviews I learned that they have a rich play culture.

When thinking about how the learning environment of these gifted children is connected to their musical environment and creativity, I saw that these children can use their creative thinking and their imaginative potential when

practising or interpreting arts. Children in both countries had many experiences of performance situations which they used to reflect on learning and which they usually enjoyed a lot. Children's thoughts about themselves show that both in Estonia and in Finland gifted children seem to have strong and healthy self-esteem. Every child reported some special area of interest and it was common that a gifted child had many areas of interest. They valued their teachers as both professionals, but also as good personalities. Gifted children looked at encouraging and supportive learning situations. Most of these gifted children did not receive much verbal praise, but in healthy interactions they felt they were accepted and respected as important individuals. Most of them had been offered many different kinds of opportunities to try an interest area that was most motivating to them. In this stage of development many possibilities are open for these gifted children. To attain creativity and talent in the future a high value has to be laid to the environment to encourage children to pursue such activity and work. According to children's opinions this kind of environment is relaxed and playful and had an atmosphere characterised by humour, kindness and tolerance. Children also realised the need for and value of their own peaceful solitary moments to creative work such as music making. Children were filled with positive energy towards learning.

Figure 19 shows some subjectively-gathered motivational aspects and developmental challenges concerning the main domains from this study material of Estonian and Finnish gifted children in their learning environments. Firstly, the education level of parents of these Estonian and Finnish children gifted was mainly better than average in the society, so the gifted children in this study had a good quality of close educational interactions and home environment, but still they wished for more time and attention especially from their parents. Gifted children were eager to learn new skills and had many hobbies, which require financial support especially for Estonian families. Gifted children needed special enrichment and acceleration at school. All gifted children of our study group were on a high level in thinking skills and general giftedness. Every child has his or her own area of specific interest, or even many of them, which may later develop to become talents. The role of significant people seemed to be an important motivational environmental catalyst for all these children; they described most of their effective learning situations in connection with some important person. According to the results of this study not much can be said about the influence of the parents' child-rearing behaviour on developing talent. These issues were not brought into the discussion as meaningful situations for children, although the children

were aware of their parents' values of acceptable behaviour. As an interesting example I mention that two identical twins took part in this study and I could not find any significant similarities in teachers' assessments concerning them, neither during their interviews nor observations in test situations. Gifted children's measured abilities in creative thinking and musical skills varied and there are many domains of intelligence (referring to Gardner) that were not evaluated in this study. This study is a description of my part of our whole study project and shows how important, although difficult, the assessment and support of gifted children is.

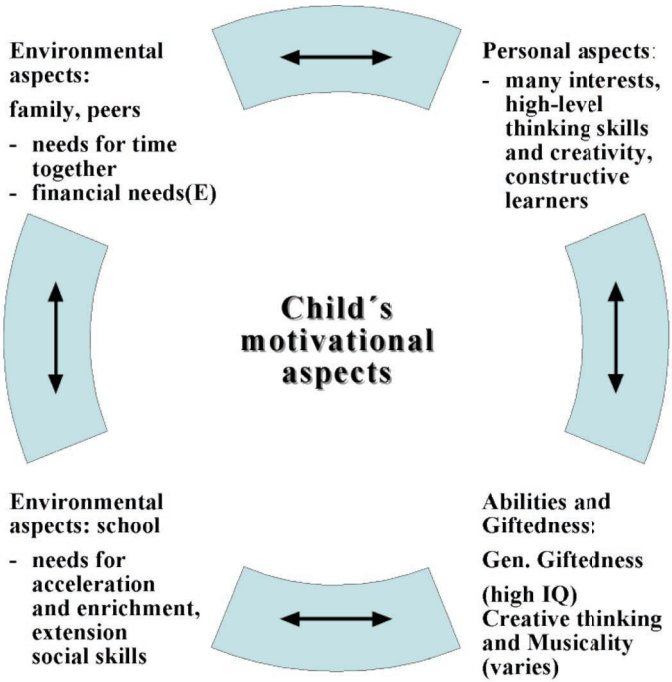

Figure 19. Some environmental and intrapersonal catalysts in an interactive developmental process with motivational aspects of Estonian and Finnish gifted children

It was useful to note that socialisers in different learning environmental settings, such as parents, teachers, peers and other important persons for gifted children probably play a great role in teaching children how to manage socially and emotionally in different situations. Parents need special support and information on giftedness. They can foster positive attitudes for learning

and encourage a child's self-confidence in the first place; they can also encourage or give models for creativity even in everyday situations. It is important to realise that some kind of positive or negative learning happens in all environmental situations, and gifted children are especially quick to learn and are sensitive to the atmosphere. A significant value should be placed on creating a culture that supports reflection and inquiry, especially at schools. The curriculum of gifted children should tap into the vast reservoir of their interests and concentrate on their areas of strength in each preferred learning style setting. This is an educational challenge for schools, but in smaller groups it should be every child's right. In such settings a spirit of cooperation exists, collaboration occurs, curiosity is valued, mutual respect is practiced and support is provided. This may lead to more willingness to try new ideas.

By researching and reporting the motivational aspects of the environment of Estonian and Finnish gifted children through many different sources I wanted to conduct a valid study. Richardson (2000) writes about the validity of the review of alternative texts the way which I found important for me to present this data of the written articles in four different sections. First, I wanted every chosen article to contribute to the understanding of social life of these gifted children. Second, I wanted to open up the different kind of views and invite interpretative responses. I wanted to combine the quantitative data to the qualitative information to generate new questions and to give expression to the lived experience of these gifted children in their learning environments. My aim was to summarise some results and reflect on my thoughts concerning this study project; as a researcher I have certainly made my reflective ethical choices and tensions to make this research visible.

5.1 Discussion of Reliability and Validity

To reach better reliability in this study project we decided to use standardised tests. The reliability and validity of mixed method design according to Onwuegbuzie, Jiao & Bostick (2004, 189–234) has both quantitative and qualitative threats, where the data reduction, data display and data transformation, data consolidation, comparison and integration are important in reflective evaluation. My aims for reliability and validity of this study project were stability, equivalence and internal consistency. The significance of the quantitative or qualitative results cannot be generalised because of the small group size. The mixed method design gave me richer data and opened the more ho-

listic view to the results of this research project to interpret. The thoughts of every reader are also valuable in data interpretation. In this study project I have had the opportunity to use systematic member checking and collegial feedback with Estonian partners.

In the Raven's test reliability was easiest to reach. Someone can criticize that we used the Raven's group-test individually, but it was due to the fact, that every child was in a different preschool and school (except the two twins) and our aim was to meet the children in their familiar environment.

I have to be critical of the reliability of Torrance Tests of Creative Thinking as I earlier have reported in section four. Different testers in Estonia and in Finland can be seen in both negative and positive ways. I personally valued discussions with Professor Vikat about the test results, but if we had had two testers testing and scoring the test results in both countries, we could have reported more information about the reliability of testing through the correlations of those scoring results especially concerning the creative thinking test and the musical ability test. Unfortunately, this was not possible for financial reasons. I assume that the results of both questionnaires are reliable because they were used in earlier research and we co-operated when collecting and presenting results between Estonia and Finland.

In my article about interviewing children I wrote about the reliability problems concerning the language. The decision to write my thesis in English somehow doubled this problem. I have felt sorry for about not presenting my study in my mother tongue all during in this writing period. I chose English because it would be more accessible view for both Estonian and Finnish readers. During the interviews of Estonian gifted children I succeeded very well with children by making them language experts and honouring them as language speakers. I translated all the interviews into English very carefully without changing the sense of their comments. Of course, the absence of the original language is a drawback in all translated interview sections and in other written sections. I can always ask how significant this collected research data is or is not, for me, for the educators and the parents of these gifted children or for the gifted children themselves, but I'm sure that this study tells something essential for those who are interested in educating gifted children. I have presented and reflected on this qualitative and quantitative data to represent real descriptions of the environments and lives of 64 gifted children in Estonia and Finland during 1999–2003.

Through the collected material I also found the importance of emotional intelligence and (all multiple intelligence) that exists in different ways in

every child. According to John D. Mayer and Peter Salovay (1997, 22) the adaptive use of emotion-laden information is significant aspect by anyone's definition of intelligence, although it is not yet studied systematically by investigators of intelligence nor included in the traditional school curriculum.

5.2 Concluding Comments

This comparative study between Estonia and Finland shows that in spite of some differences and 'historical cap' while Estonia was a part of the Soviet Union, the important motivational aspects connected to learning environments are mostly common and connected to good, safe social relationships between a gifted child and his or her important people. I often think that the change in Estonian society to independence gave us the chance to begin this study project; so it became an opportunity for us as neighbour countries to start the study project concerning gifted education in our countries. Estonia as a society has developed considerably during the years of this research and now we are partners in the European Union. According to Pertti Alasuutari (1995, 37) co-operative studies between cultures reflects our so-called 'the post-war or post-modern' era and because of migration and the world economy, different cultures interact and mix with each another, not least through the mass media. This kind of continuing movement towards internationalisation will certainly affect cultural interpretations, meanings and identities. Similarities and differences can be found in one culture as well as between two cultures.

Hopefully these shared experiences of gifted children in two neighbouring countries will encourage researchers and practitioners to develop and design common projects to become more aware of others' concerns and cultural needs and to notice the great mutual understanding between individuals living in different environments. Writing this study report has been for me like writing a report from a journey. I am thankful for the many shared moments with different people and in various situations. I have learned a lot, most of all from the gifted children in Estonia and Finland. A gifted child is an exceptional individual as is every child in this world. In every culture and in various learning environmental settings they all need most of all acceptance, understanding, care, support and love.

> *"Keeping in mind that developed talent exists primarily in adults, I propose a definition of giftedness in children to denote their potential for becoming criti-*

cally acclaimed performers or exemplary producers of ideas in spheres of activity that enchant the moral, physical, emotional, intellectual, or aesthetic life of humanity."

(Tannenbaum 2003, 45)

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Appendix 1: 1 (12)

Inquiry to parents of pre-school/first-form pupils

Directions for filling in the questionnaire. You can answer most of the questions by **ringing the appropriate alternative**; in some questions **you can write the answer on the line.** Please answer all questions. All information will be handled with the strictest confidentiality. Thank you!

BACKGROUND INFORMATION:

1. Date of birth of this child:_____
2. Sex of this child: 1 girl 2 boy
3. Your years of birth: mother_____father_____
4. Your family's domicile:_____
5. How many years has your family been living in the present locality?_____years.
6. How often has your family moved since the birth of this child?_____times
7. Are the parents of this child:
   1 married
   2 cohabiting
   3 divorced or legally separated
   4 one of the parents is dead
8. Has one or both of the parents of this child been married or cohabiting before?

	Mother	Father
a) no	1	1
b) yes	2	2

9. Are there children from different marriages or cohabiting relationships?
   1 no
   2 yes, how many?_____How old?_____
10. Who have the custody of this child?_____
11. Who of the following belong to the child's family?
    1 father
    2 mother
    3 stepfather
    4 stepmother
    5 brothers and sisters, how many?_____how old?_____
    6 grandparent(s)
    7 others, who?_____

Appendix 1: 2 (12)

12. Who live in the same home with this child?_____

_____

13. What is your educational background?

	Mother *)	Father *)	*) = other person who has the custody
a) primary school	1	1	
b) middle/comprehensive school	2	2	
c) matriculation examination	3	3	

14. What is your vocational education?

	Mother	Father
a) no vocational education	1	1
b) vocational course or on-the-job vocational training	2	2
c) school-level education	3	3
d) post-secondary-level education	4	4
e) university-level education	5	5
f) other, what?	6	6

15. Which of the groups below do you belong to?

	Mother	Father
a) student	1	1
b) worker (e.g. cleaner, porter)	2	2
c) lower-level employee (e.g. clerk)	3	3
d) higher-level employee (e.g. teacher, doctor)	4	4
e) entrepreneur/ self-employed person	5	5
f) full-time mother/father	6	6
g) unemployed	7	7
h) pensioner	8	8
i) artist; which art form:_____	9	9
j) other, what?_____	10	10

Appendix 1: 3 (12)

16. Are you gainfully employed at home?

	Mother	Father
a) no	1	1
b) yes, in what kind of work?	2	2

17. Are you gainfully employed outside the home?

	Mother	Father
a) no, why?_____	1	1
b) yes, how:		
regular daywork	2	2
regular evening work	3	3
irregular working hours	4	4
other working-hour arrangement,what?	5	5

_____

18. Is your home located in

1 a city centre
2 a suburb
3 a municipal centre
4 other population centre
5 a sparsely populated area, countryside

19. What kind of house are you living in?

1 block of flats
2 one-family house
3 terraced house
4 other, what?_____

20. Are you living

1 in an owner-occupied house
2 as a tenant
3 as a subtenant;
4 in a dwelling provided by the employer
5 in another type of dwelling, what?_____

21. The size of your dwelling:_____square meters

Appendix 1: 4 (12)

22. What has the income of your family consisted of during the last 12 months?

1 wages
2 entrepreneurial incomes
3 property incomes
4 pensions
5 sickness benefits
6 unemployment benefits
7 maternity benefits
8 subsistence benefits
9 student grants/loans
10 home care allowances
11 elsewhere, where?_____

23. How well do you think you live on your family's income?

1 we scarcely get by
2 we manage
3 we are quite well-off

24. What is your family's monthly net income (income after taxes)?

1	0 – 3000 FIM	6	11 001 – 13 000 FIM
2	3001 – 5000 FIM	7	13 001 - 15 000 FIM
3	5001 – 7000 FIM	8	15 001 - 17 000 FIM
4	7001 – 9000 FIM	9	17 001 - 19 000 FIM
5	9001 – 11 000 FIM	10	over 19 000 FIM

25. Give an estimate of the total debt of your family (e.g. housing loans, study loans, consumption credits, business loans and other such debts):_____FIM

26. Until what age did this child stay at home in the care of his/her parents? Until the age of_____

27. If your child is in day care outside the home, since when has he/she been there? Since the age of_____

28. What kind of day care has your child received during the years:_____

_____

_____

_____

_____

Appendix 1: 5 (12)

29. How many times has this child changed day-care place? _____ .

30. Have you encountered any of the following problems in connection with your child's daycare?

	Never	Some-times	Frequently	Very often
a) difficult to get a day-care place or a dayminder	1	2	3	4
b) difficult to get all children to the same day-care place	1	2	3	4
c) long way to the day-care place	1	2	3	4
d) difficult to fetch the child in time	1	2	3	4
e) the child was not happy at the day-care place	1	2	3	4
f) day-care place has changed	1	2	3	4
g) dayminders have changed	1	2	3	4
h) difficulties when the child is ill	1	2	3	4
i) difficulties when the dayminder becomes ill	1	2	3	4
j) day care has been too expensive	1	2	3	4

31. How do you find the general health situation in your family?

	Mother	father	this child	other children
a) excellent	1	1	1	1
b) fairly good	2	2	2	2
c) average	3	3	3	3
e) fairly bad	4	4	4	4
f) very bad	5	5	5	5

32. Does this child have a doctor-diagnosed illness or disability ?

1 no
2 yes, what?_____When was it discovered:_____

33. During the last six months, has this child suffered from:

	not at all	a little	a lot
a) eating disorders	1	2	3
b) headaches	1	2	3

Appendix 1: 6 (12)

c)	stomachaches	1	2	3
d)	sleeping disorders	1	2	3
e)	general apathy	1	2	3
f)	tiredness	1	2	3
g)	other troubles, what:	1	2	3

34. Up to what age did the mother breast-feed the child?

35. Is there enough time in your family for:

		never	some-times	frequently	very often
a)	the mother's personal pursuits	1	2	3	4
b)	the father's personal pursuits	1	2	3	4
c)	the personal pursuits of this child	1	2	3	4
e)	the mother and child to be together	1	2	3	4
f)	the father and child to be together	1	2	3	4
g)	the mother and father to be together	1	2	3	4

36. What are the interests and hobbies of the child's mother?

_____

37. What are the interests and hobbies of the child's father?

_____

38. What are the interests and hobbies of your child?

_____

39. At what age did your child start his/her free-time pursuits and hobbies.?

_____

40. What things does your child like and what are his/her favourite activities?

_____

Appendix 1: 7 (12)

41. Has your family encountered any of the following problems after the birth of this child?

	not at all	some-times	frequently	very often
a) your family has had economical problems	1	2	3	4
b) there have been serious conflicts between family members	1	2	3	4
c) there have been marital problems in your family	1	2	3	4
d) a person close to the child has become ill	1	2	3	4
e) there has been a case of death in the immediate circle of the child	1	2	3	4
f) there have been problems in the immediate circle of the child because of alcohol	1	2	3	4

g) other problems, what?_____

_____

42. If there have been problems, are they settled now?

1 yes, entirely 2 partly 3 unfortunately not

Thank you for your help! I hope that you have time to answer all the questions that apply to you.. The questions are comprehensive and they also try to chart the socio-economic situations of the families, since this study is also a cooperation project between two countries and cultures. All information will be handled with the strictest confidentiality, and your identity will not be revealed at any stage. Please return all the questionnaires in the return envelope enclosed.

Appendix 1: 8 (12)

EVALUATE THE BEHAVIOUR OF YOUR CHILD_____(name):

1. Has starting preschool/school affected the child's behaviour at home?
   a) no
   b) yes, how:_____

2. In the morning, the child usually wakes up:
   a) energetic
   b) sometimes tired
   c) usually tired

3. In the morning, the child goes to preschool/school:
   a) willingly
   b) unwillingly
   c) reluctantly

4. When the child comes home he/she is usually:
   a) happy
   b) ill-humoured
   c) depressed
   d) energetic
   c) tired

5. The child cries because of what happened at school:
   a) never
   b) sometimes
   c) often,
   d) often why:_____

6. he child is afraid:
   a) my child does not seem to be afraid of anything
   b) of not knowing his/her lessons at school
   c) of another pupil
   d) that other people laugh at him/her
   e) of school breaks/outdoor activities
   f) of what might happen on the way to preschool/school
   g) of the teacher
   h) of being bullied, why:_____

7. Does your child like to tell you about what happened at school/preschool:
   a) often
   b) sometimes
   c) never spontaneously

Appendix 1: 9 (12)

8. What does your child like most at school/preschool?_____

_____

9. What does your child like least?_____

_____

10. Do you compare your child's learning to that of the older siblings or yourself in the presence of your child?
    a) no
    b) yes, in what respect:

_____

11. Does your child have friends at preschool/school?
    a) many
    b) a few
    c) none. What does your child tell you about this:

_____

1. How would you characterize your child?

	very	fairly	not very	not at all
a) balanced	1	2	3	4
b) bold	1	2	3	4
c) fast	1	2	3	4
d) thorough	1	2	3	4
e) active	1	2	3	4
f) ponderer	1	2	3	4
g) companionable	1	2	3	4
h) talkative	1	2	3	4
i) quick to take offence	1	2	3	4
j) easily depressed	1	2	3	4
k) inventive	1	2	3	4
l) sensitive?	1	2	3	4
In what way:	1	2	3	4

(please continue overleaf if necessary)

Appendix 1: 10 (12)

2. Which of the following educational methods have you used during the past year?

	Often	quite often	infrequently	never
a) confidential conversation	1	2	3	4
b) advice	1	2	3	4
c) encouragement	1	2	3	4
d) reward	1	2	3	4
e) prohibitions	1	2	3	4
f) reprimand	1	2	3	4
g) confinement (to an other room etc.)	1	2	3	4
h) corporal punishment	1	2	3	4

3. Are there special problems with the child at home?
   a) no
   b) yes, what:_____

4. What kind of responsibilities does your child have? He/she must
   a) pick up his/her toys after playing
   b) help in cleaning up his/her room
   c) get dressed independently
   d) take his/her morning and evening washes independently
   e) help in other domestic work
   f) apologize and make up quarrels with his/her brothers/sisters/friends
   g) other:_____

5. What is the attitude of your child towards preschool/school?_____

   _____

   (please continue overleaf if necessary)

6. Does your child like to play?
   a) no
   b) yes, where and how:
      1 at home 2 at school 3 outdoors 4 with cars 5 something else

Appendix 1: 11 (12)

7. How much time does your child spend on watching television daily?
   a) not at all
   b) about an hour
   c) 30 minutes in average
   d) more than two hours

8. What kind of programs does your child view and listen to?
   a) childrens' programs
   b) music programs
   c) plays
   d) TV series
   e) full-length features
   f) news
   g) something else, what:_____

9. Where does your child like to play outside the home?
   a) in the backyard of your house
   b) in a playground
   c) in a park
   d) in the neighbourhood streets
   e) elsewhere, where?_____

10. How old are your child's playmates?
    a) younger
    b) the same age
    c) older

11. What is your child's attitude towards other children of his/her age? The child
    a) seeks their company
    b) withdraws
    c) is submissive
    d) is their leader

12. Do you think your child has a special talent?

How does it manifest itself:_____

_____

13. Regarding this talent, what do you think are the most salient features in your child's development history?

_____

_____

(please continue overleaf if necessary)

Appendix 1: 12 (12)

14. In what way do you try to support your child's learning and free-time pursuits?

15. What wishes do you have regarding your child's school environment and teaching?

16. What hopes do you have for the future of your child?

THANK YOU!

Please return the questionnaires in the enclosed return envelope at your earliest convenience, not later than the end of April, however. All information will be handled with the strictest confidentiality, and your identity will not be revealed at any stage. During the spring I will also interview your child_____in connection with this research project.
(One of the themes of the interview will be your child's experiences concerning learning and free-time activities.)

With kind regards:
Inkeri Ruokonen, phone 050-560 6209 or 191 40947
Teacher education department
P.O.Box 58 (Nilsiänkatu 3) 00014 University of Helsinki

Appendix 2: 1 (7)

Inkeri Ruokonen phone 050-560 6209 or 191 40947
Teacher education department
PB 58 (Nilsiänkatu 3)
00014 University of Helsinki

INQUIRY TO A CHILD'S TEACHER

Ring in the appropriate alternative and answer the questions. Your opinions and evaluations will be handled with the strictest confidentiality, and your identity will not be revealed at any stage:

1. The need for differentiation in this year's teaching is
   a) very great
   b) fairly great
   c) differentiation is seldom necessary
   d) differentiation is not at all necessary

2. What are the two most important reasons for the differentiation of teaching
   a) _____
   b) _____

3. Give five of the most important criteria for identifying a talented pupil!

   1. _____ 2. _____ 3. _____

   4. _____ 5.

4. How much and in what way do you differentiate the education of a talented pupil?

5. Are there problems and obstacles regarding the differentiation of the education of a talented child?
   What are they, and what do you think should be done about them?
   _____
   _____
   _____

(Please continue overleaf if necessary)

Appendix 2: 2 (7)

THE TEACHER'S ASSESSMENT OF THE CHILD:

NAME OF CHILD:_____

ASSESSING TEACHER:_____

name of preschool/school etc.:_____

	poor	average	good	excellent
1. Attentiveness: retains interest and works concentratedly	1	2	3	4
2. Ability to work independently (only little help from the teacher)	1	2	3	4
3. Ability to take responsibility	1	2	3	4
4. Sense of humour	1	2	3	4
5. Anticipation, ability to guess what might happen in a story, scientific experiment, game etc.	1	2	3	4
6. Ability to notice and correct one's mistakes	1	2	3	4
7. Reliability, ability to perform tasks in time and finish them	1	2	3	4
8. Achievements that exceed the class or group level	1	2	3	4
9. Ability to finish a task	1	2	3	4
10. Creativity in artistic activity, imaginativeness in science	1	2	3	4
11. Creativity, original problem solving capacity, ability to discover short-cuts	1	2	3	4
12. Adaptability, tendency to not deviate from the usual patterns in work and play, receptivity to the directions and orders given by the teacher and the school	1	2	3	4
13. Watchfulness, ability to notice details and things that are new and unusual	1	2	3	4

Appendix 2: 3 (7)

	poor	average	good	excellent
14. Curiosity, wide range of interests; wish to know how, why and when	1	2	3	4
15. Memory, ability to remember earlier learned rules, directions, detailed information	1	2	3	4
16. Discriminative faculty, understanding what is important and significant	1	2	3	4
17. Speed of learning new things	1	2	3	4
18. Persistence, ability to continue despite obstacles and missing equipment	1	2	3	4
19. Diversity of interestsabundance of free-time activities ability to find pastimes	1	2	3	4
20. Problem solving skills, Skill to pose new questions and solve those that occur during the day	1	2	3	4
21. Vocabulary, the skill to express oneself by understanding and using descriptive words correctly	1	2	3	4
22. Ability to accept challenges, readiness to do more than the minimum, willingness to try, and ability to accomplish a seemingly insuperable task	1	2	3	4
23. Ability to understand abstractions, understanding new things and concepts without plenty of concrete experiences	1	2	3	4
24. The skill to generalise, the ability to formulate a principle and test it	1	2	3	4
25. Initiative	1	2	3	4
26. Judgement, sense of values	1	2	3	4
27. Examples of the ability to acquire skills and absorb knowledge	1	2	3	4
28. Ability to use one's skills and knowledge indepently of instructions	1	2	3	4
29. Good quality of the content and form of the work	1	2	3	4

Appendix 2: 4 (7)

	poor	average	good	excellent
30. Interest in books and reading	1	2	3	4
31. Interest in music	1	2	3	4
32. Interest in an arts and crafts subject especially: _____	1	2	3	4
33. Tendency to be rather a leader than a follower	1	2	3	4
34. Developed emotional life, ability to receive new ideas and accept challenges and changes without frustration	1	2	3	4
35. Popularity, ability to get along with age mates and one's seniors	1	2	3	4
36. Readiness and willingness to take on new tasks, even unpleasant ones	1	2	3	4
37. Class attendance	1	2	3	4

Other things worth mentioning: _____

_____

_____

_____

Appendix 2: 5 (7)

EVALUATE THE CHILD'S DAILY BEHAVIOUR WITH RESPECT TO THE FOLLOWING CHARACTERISTICS ON A FIVEGRADE SCALE. RING IN THE MOST APPROPRIATE ALTERNATIVE:

1.	empathetic	1	2	3	4	5	unempathetic
2.	considerate towards others	1	2	3	4	5	not considerate towards others
3.	encourages others	1	2	3	4	5	does not encourage others
4.	friendly and kind towards others	1	2	3	4	5	not friendly and kind towards others
5.	helpful	1	2	3	4	5	does not help others
6.	companionable	1	2	3	4	5	uncompanionable
7.	polite	1	2	3	4	5	impolite
8.	tries to keep up community spirit	1	2	3	4	5	does not try to keep up community spirit
9.	can place him/herself in another person's position	1	2	3	4	5	cannot place him/her self in another person's position
10.	responsible	1	2	3	4	5	irresponsible

Questions for the teacher:

1. Does the child that is being evaluated have special problems with learning
   a) no
   b) yes. What kind of difficulties?_____

2. Do you think the child that is being evaluated is an underachiever in some field:
   a) no
   b) yes. In which field and how :_____

Appendix 2: 6 (7)

3. Does the child that is being evaluated have special problems concerning acting in a group.
   a) no
   b) yes. What kind of problems?_____

4. Do you think that this child has special skills or a special talent in some fields? What are they:_____

5. Do you support the child in this field of special talent? How?

6. What is the child's attitude towards you as a teacher:

7. The cooperation with the children's parents is:
   a) very good, confidential and open
   b) OK
   c) formal
   d) difficult
   e) Does not work. Why not:_____

Appendix 2: 7 (7)

8. Do you have in mind special challenges or goals as regards the education of this child?
   a) no
   b) What kind of challenges and goals:_____

9. On the basis of your own experience, how would you say this child can best be motivated to learn?

Other things worth mentioning

THANK YOU!

Appendix 3: 1 (3)

Inkeri Ruokonen
Interviews with gifted 6–7-year-olds in spring 2000:

OUTLINE FOR THEMATIC INTERVIEWS:
Getting acquainted before the interview

Presentations:

1. What is your name:
2. How old are you? Do you remember what month your birthday is in?
3. Tell me something about yourself:
   - Additional questions: What did you do today? What did you learn today? What have you enjoyed today?

Social environment:

4. Who belong to your family?
   - Are mother, father, brothers and sisters mentioned? Specify if necessary: Where's your mother? Doesn't she live at home? Or: Don't you have brothers or sisters, grandma or grandpa? Is that all?
5. Who else is important to you?
   a) What adults? Which of the adults you know do you like and why?
   b) What children? Who do you like to play with most and why?
   Anyone else?

The child's goals and general self-concept in terms of learning:

6. What do you like to do most of all?
   What is your favourite game?
   What do you already know how to do?
   What are you really good at?
   What would you like to be good at?
   What do you want to learn?
   Do you have a hobby? What is it?
   Why is this hobby important to you?

Appendix 3: 2 (3)

7. What do you do with your mother? What does she teach/tell you?
   - Does your mother sing to you or with you? If yes, what?
8. What do you do with your father? What does he teach/tell you?
   - Does your father sing...
9. What do you do with your sisters and brothers? What do you learn from them?
   - What hobbies do they have?
10. What other adults teach you?
   - Do teachers or friends teach/instruct you? In what?
   - What is your opinion about preschool/kindergarten?
   - What do you like most at kindergarten? What can you learn at kindergarten? Would you like to change something at kindergarten?
11. What can children teach one another? - Give an example

Cultural environment/possible stereotypes

12. What do you watch on television?
13. You will be starting school soon, how do you feel about that? What do you expect of school?
14. What do you think/feel about work related to music?
   - The work of a musician/music teacher/composer/singer/player of an instrument
   - Who does such work suit? Why?

Previous experiences:

15. Have you sung, played an instrument or in any other way been involved with or performed music?
   - If you have, do you remember what and where? Describe the situation.
16. Do you have instruments at home? If yes, what?
   - Does your family listen to music? If yes, what?

Appendix 3: 3 (3)

Opinions about attributes:

17. What do you think that a person who is involved with music should be like?
    - Do you think a person needs special characteristics to have music as a hobby? If yes, what?

Expectations of success:

18. If you were involved with music, what would you like to do? Why?
    - sing, play, what instrument, etc.

19. What are your strengths in music? What do you already know how to do?

20. What would you like to know how to do in music? What would be the best way to learn it?

21. Is music difficult? If yes, how and why?

Goals:

22. Why would you like to have music as a hobby?

23. How is your music hobby useful to you?

24. What will you be when you grow up?

25. Do you want to do music every day? Every other day? Once a week? Less?
    - Does or would practising music take up too much of your time if you wanted to be a real good musician?

Finally:

26. What music do you most like to listen to? Your favourite music/song?

27. What cassettes, CDs, CD-ROMs, videotapes do you have?

28. When were you last really glad or happy? What happened ?

(29. Do you want to talk about anything else that is important to you?)

Thank you!

Drawing tasks:

Draw a musician! (Item 13)

Draw a picture of yourself doing music! (item 17)

Appendix 4a: 1 (5)

Analysing categories used:

1. Information, children wanted to tell about themselves

   1/F: Formal information, name, age etc.
   1/P: Personal information, descriptions of personality
   1/S: Social information, family, peers, preschool/school, freetime activities

2. Children's descriptions of their socializers in different learning environments

   2/F: Family members
   2/R: Relatives
   2/O: Other important people/teachers, peers
   2/M: Media

3. Children's goals and concept of self

   3/ST: Short term goals
   3/LT: Long term goals
   3/I: Ideal self
   3/S Self concept/ Pesception of one's abilities
   3/T Perceptions of task demands

4. The role of cultural milieu in childrens' world

   4/F: Learning experiences in family environments
   4/S: Learning exp. at school environment
   4/F: Learning exp. at freetime environment

   4/P: Children's perception/attitudes/stereotypes of socializers or professionals like musicians

5. Children's experiences about musical activities and their expectations in their special interest

   5/T: Teaching situations connected to music educational environments
   5/M: Affective memories in learning or performing environments
   5/A: Previous Achievements, performing music
   5/S: Expectation of success
   5/T: Subjective task values connected to special interest
   5/T1: Incentive and attainment value
   5/T2: Utility value
   5/T3: Cost

Appendix 4b: 2 (5)

QSR N5 Full version, revision 5.0.
Licensee: 2sr/n5.

PROJECT: lapset Copy, User Ruokonen, 1:09 pm, Oct 27, 2003.

REPORT ON NODE (2 9) '~~/isovanhemmat'
Restriction to document: NONE

****
(2 9) /Sosiaalistajat/isovanhemmat
*** Description:
Copy of node (F 9)
++++++++++++++++++++++++++++++++++++++
+++ ON-LINE DOCUMENT: LBhaastattelu 2
+++ Retrieval for this document: 38 units out of 598, = 6.4%
*Sosiaalistajat 108
++ Text units 121–131:
H Mitä sä teen niiden mummojen ja pappojen kanssa? 121
L No, pappa (?) 122
ku asuu tuolla Lapissa. 123
Sen kanssa mä lähen kalaan. 124
Ku se on niin kova kalamies ja metsästys … 125
H Sä pääset aina mukaan? 126
L Joo, ottaa aina mukaan. 127
Sitten siellä on semmoinen koira Piki. 128
Mä tykkään siitä. 129
Mullakin on semmonen leikkikoira, joka muistuttaa sitä Pikiä. 130
Ja mä olen antanut sille nimeksi Piki. 131
++ Text units 133–159:
L Ai mummojen...? 133
H No mummoistakin voit kertoa. 134
L Mummojen kanssa mä yleensä teen ruokaa ja kaikkee semmosta leivon ja. 135
Mummon kanssa mä saan käyttää kaikkee semmosia puukkoja ja semmosia:
Mummo antaa aina luvan. 136
Ja aina ....,koska mummo antaa aina luvan tehä semmosii kokeita ja
myrkkykeitoksia, mitä mielelläni mä teen. 137
Mutt kotona mä en saa tehä niitä, koska äiti kieltää. 138
H Mistä sä teet niitä myrkkykeitoksia? 139
L No mä teen semmosia omia sösseleitäni. 140
H Mitä aineita sä laitat? 141
L Mummo varaa minulle suolaa, sokeria, puurohiutaleita ja kaikkii
semmosia. 142
Mä sekottelen siinä. 143

Appendix 4b: 3 (5)

Mulla on semmonen aivan oma pullo, jonka mä olen löytänyt. 144
- Meidän pihalla on semmonen vintti, jossa mummo ja pappa on asunut, kun ne muutti siihen lähelle. 145
Vintti on nyt mun ja Alisan käytössä. 146
Siell on papan semmonen huone ja sieltä mä löydän aina jotakin semmosta hienoa kiveä. 147
Mä löysin sieltä … 148
- Arvaa kuinka monta ametistia papalla on! 149
Pappa kerääkin niitä kiviä. 150
Sillä on seittämän ametistia. 151
Mulla on kaks ametistia: Mä oon löytänyt sieltä. 152
- Papalla on semmosii ruusukiviä, semmosia. 153
Mulla on yksi, - kaksi ruusukiveä. 154
Yksi niistä ruusukivistä on tosi kiiltävä. 155
H Sä tiedätkin paljon kivistä! 156
L Joo. 157
H Onko pappa opettanut? 158
L On. 159

++
+++ Total number of text units retrieved = 38
+++ Retrievals in 1 out of 3 documents, = 33%.
+++ The documents with retrievals have a total of 598 text units,
so text units retrieved in these documents = 6.4%.
+++ All documents have a total of 1658 text units,
so text units found in these documents = 2.3%.
++

Comments: Oppimisympäristö isovanhempien luona monipuolinen ja luonnonläheinen, vuorovaikutuksen kuvaus lämmin, luottavainen, kasvatusilmapiiri sallivampi kuin kotona.

Appendix: 4c: 4 (5)

An example of analysing the theme interview of a Finnish 6-year-old-girl:

H Minkälaista musiikkia sä kuuntelet ? **4/F**
L Semmosta monenlaista, ehkä rokkia tai jotain semmosta. Valsii tai jotain semmosta. **4/F**
H Esimerkiksi?
L: Rivers of Babylon ja Motzartin yösoitto ja ehkä tangoo **4/F**
H Kuuntelet sä paljon musiikkia?
L No, aika paljon.
H Kerro minkälaista?.
L Semmosta rauhallista ja jokus mä mieluiten kuuntelen kotona, ku meillä aina kotona soi joskus kovalla rokki. **4/F**
H: Opitko jotain siitä kuuntelusta?
L: No ehkä sitä et pitäs´ keskittyä siihen eikä vaan antaa soida! **4/F**
H Aha, No mitä hyötyä sinulle on tuosta musiikin kuuntelusta?
L --- sitä -- että tota -- *kun kuuntelee haluaa itsekin alkaa soittaa ja on kivaa soittaa ja opiskella pianoa*. **5/T1** Ja mun isä ja äitikin soittaa pianoa. Siks, koska meitä soittaa sitt aika monta pianoo ja mä vaihdan ehkä sitten soitinta. Siks´ tarvii, ku meill on kotona vaan kaks pianoa. Sen takia, ettei tuu hirveetä tungosta pianolle. **5/T2**
H Miksi sä haluat harrastaa musiikkia?
L Siksi ku se on kivaa ja, kivaa ja ei väsytä. **5/T1**
H Yy-y. Mitä musikki sinulle antaa? **5/T**
L Iloa, se ku saa opiskella nuotteja ja sitt tota ….ja sitt isi ja äitikii opiskelee sitä, nii se on kivaa sitten, kun saa nähdä isin ja äitinkin opiskelevan sitä. **5/T1**
H Yyy, perheessä…(?)……Onko teillä muita soittimia kotona, kuin piano? **4/F**
L On, kitara ja sitt on iskän viulu, ja sitä mä saan joskus soittaa. Ja sitt on rumpu ja sitt on kantele ja sitt on tota , meill on marakatti ja huilu. **4/F**
H Onpas paljon soittimia. Oletko sä joskus esiintynyt? **5/A**
L Olen monessakin paikoissa pianolla. **5/A**
H Kerroppa jostakin esiintymisestä!
L Mä olen esiintynyt yksissä juhlissa. Siell oli kiva ku mä soitin yhdessä mun kaverin kanssa. **5/A**
H Mitä te soititte.
L Me soitettiin yhtä duuoo. **5/A**
H Muistatko säveltäjää?
L En.
H Milloinka se oli?
L Se oli varmaan syksyllä.
H … hm.
L Eiku se oli kyllä. Mä en muista. Se oli mun mielestä kesällä, syyskesällä.
H Ahaa. Mitä siinä esityksessä oli kivaa? Mikä on jäänyt sun mieleen? **5/A**
L Siks koska se oli kiva ja se kappale oli nopee ja kiva. **5/A**
H: Kerro mikä on olennaista yhteissoitossa?
L: Kuuntelu, yhteinen aloitus ja tempo, sitt´ pitää vielä rakentaa se musiikki yhdessä. **5/A**, **4/F**
H Nii. Mikä siinä esiintymisessä oli sun mielestä tärkeintä ?
L Siinä, ett sai sitten jotain, mä saan yleensä kukkia. **5/T2**
H Mitä sä sait?
L Joo. Mä sain ruusun? **5/T2**
H Jännittääks sua koskaan? **5/M**
L No, joskus vähän. **5/M**
H Mitä sä muuuten jännität?(?)
L No että kuinka se menee se kappale. Meneeks se kappale ihan hullusti vai osaanks mä sen. **5/M**
H No miten se jännitys laukenee…… tai onks se koko ajan?

Appendix 4c: 5 (5)

L No, kyll se jännitys lähtee pois kun aloitetaan. **5/M**
H Hyvä, no nii. Kerropa minkäslaiselle ihmiselle musiikin parissa tehtävä työ mielestäsi sopii? **4/P**
L On tärkeää, että se on luonnon lahjakkuus ja osaa hyvin lukea nuotteja ja sitten täytyy osata,... täytyy osata, täytyy osata sitt´, täytyy osata monia asioita,... koko musiikki. **c**
H Miten niitä nuotteja oppii hyvin lukemaan?
L No tota sillä lailla, että äiti opettaa. **4/F**
H Yy-y. No riittääkö se pelkästään se nuotit
L No ei riitä!
H Mitä muuta tarvitaan?
L Hyvää kuuntelemiskorvaa ja hyvää lauluääntä. **4/P**
H No sopiiko se muuten ihan kaikille….. sellainen musiikkityö? **4/P**
L No ei sovi, jos ei osaa, jos ei, jos ei osaa kuunnella niin hyvin **4/P**
H Millaisia tavoitteita sinulla on musiikkiharrastuksesi suhteen? **5/T**
L Tahdon tulla kapellimestariksi. **5/T**
H Ahaa. Minkälaisia ominaisuuksia kapellimestarilla pitää olla? **4/P**
L En mä oikein tiedä. **4/P**
H Mitä se tekee, se kapellimestari? **4/P**
L Se johtaa kuoroo ja orkesteria ja sitt´ se miettii mitä se tekee tekee kotona, ku se pääsee sinne. **4/P**
H Siis johtamisen jälkeen? **4/P**
L Nii.
H Miettiikö se siinä samalla kun se johtaa niitä….?**4/P**
L Joo. **4/P**
H: Ajattelet siis, että kapellimestarin työ sopisi sinulle. **5/T**
L Nii... tai ehkä viulun- tai sellonsoiton opettaja ja sitt´ kampaaja ja ehkä leipuri ja sitt´ lastenhoitaja. **5/T**
H Sullahan on monta vaihtoehtoa. Mikä niistä tuntus´ parhaalta?
L En mä oikein. Ehkä leipuri. **5/T**
H Nii. Minkä takia se olisi mukava?
L Siks, koska siinä saa leipoa ja leipominen on kivaa siks´ ett tota siin saa sekottaa erilaisia aineksii.**4/P**
H Oletko leiponut kovasti? **4/F**
L No en kauheen kovasti.
H Mitä sä oot leiponu? **4/F**
L Mä oon leiponu pullia, kakkuja, oon leiponu korvapuusteja, sitt oon leiponu, oon leiponu pikkuleipiä.
H No laulatko sä ko sä leivot?
L No en.
H Kuunteletko sä musiikkia ku sä leivot?
L En paljon, mä lauleskelen isin kaa. **4/F**
H Ihan muuten vaan sitten juttelet ja leivot. Leivot sä yksin vai jonkun kanssa? **4/F**
L Kyll mä joskus oon yksin, mutta yleensä jonkun kanssa. **4/F**
H Kenen kanssa sä leivot? **4/F**
L Yleensä mä leivon iskän kanssa. **4/F**
H Ahaa!!!! Onko isä hyvä leipuri? **4/F**
L On tosi hyvä. … tosi maukkaita pullia. **4/F**