

STUDIES IN MUSIC AND MUSIC EDUCATION NO 5

# "Jag kan göra hundra låtar"

*Barns musikskapande med digitala verktyg*

Bo Nilsson



**MALMÖ ACADEMY OF MUSIC**  
Lund University

# **“I CAN MAKE A HUNDRED SONGS”**

**CHILDREN’S CREATIVE MUSIC MAKING WITH DIGITAL TOOLS**

## **CONTENT**

<b>1 Introduction – Music in the Swedish school</b>	<b>1</b>
<b>2 Children’s creative music making</b>	<b>2</b>
<b>3 Theoretical framework</b>	<b>5</b>
<b>4 Method and procedures</b>	<b>8</b>
<b>5 Portfolios of the participants</b>	<b>9</b>
<b>6 The practise of composing</b>	<b>11</b>
<b>7 Discussion</b>	<b>14</b>

# **“I CAN MAKE A HUNDRED SONGS”**

## **CHILDREN’S CREATIVE MUSIC MAKING WITH DIGITAL TOOLS**

### **English summary**

The present thesis investigates children’s creative music making. The participants in the study were nine year 2 children in a Swedish school-class using digital tools – synthesizer and computer – to compose music. The study was undertaken over a period of 18 months.

## **1 Introduction – Music in the Swedish school**

Sundin (1988) and Gustafsson (2000) describe developments in Swedish music education during the 2000<sup>th</sup> century in which music education was built on the children’s interest. This development was confirmed in the new national curricula of 1969, 1989 and 1994. When earlier curricula had stressed singing, listening and musical theory, the new curricula emphasised music making, improvisation and composition (Folkestad, 1996).

These winds of change led to a reformation of the Swedish music teachers training programme, starting in 1971, and the aim was to shift the focus from a traditional ideal toward a creative ideal, which only partly succeeded (Olsson, 1993).

However, the reformation of music education towards creative ideals did not correspond to the extent of creative musical activities in schools (Skolverket, 1993, 1994).

Sundin (1995) maintains that education should not aim at training children toward standards from the world of grown-ups, but should rather strive for developing into an exchange of experiences between children and adults.

Folkestad (1999) argues that by taking part in media’s growing offer of musical cultures, children learn a lot about music on their own. As a consequence of this, music teachers never meet musical beginners. In a study by Nilsson (1992) even small children ages 3-6 years had their own tape recorders thus being able to play music on their own.

Sandberg (1996) collected statements from 272 Swedish music teachers who answered the question: “According to your opinion, which are the main objects of music education in today’s school?” He combined the statements into two basic views on the roll of music in education: (a) a *communicative view*, stressing children’s personal and social development together with musical communication and experience and (b) a *normative*

*aesthetic view*, stressing preservation and enforcement of lasting values and ideals together with developing musical knowledge and skill.

On the international scene an ongoing debate between Bennett Reimer and David J. Elliott was held in several books and articles during the nineties (Reimer, 1970, 1993, 1996; Elliott, 1995, 1996, 1997). This debate was also followed by a number of spectators who sometimes participated in the discussion (Koopman, 1998; Regelski, 1998; Swanwick, 1996; Sundin, 2000). The positions of Reimer and Elliott are in some ways compatible with the conceptions of an *normative aesthetic view*, mentioned above, in other cases with a communicative view. In today's society the individual's expectations of controlling his/her own destiny has increased (Ziehe, 1986). The gap between high and low in society has decreased and the borders between them are more often crossed (Fornäs, 1994). Sundin (2000) argues that "it is no longer the art itself which is art, but the experience of it" (p. 7) and that all claims of the universality of art have diminished.

Synthesizer and computer made it possible to achieve old things in new ways or to achieve completely new things (Folkestad, 1989; Nilsson, 1998). The synthesizer and the computer, the digital tools, used in this study are in the same way tools for the children's creative music making and powerful tools for the researcher.

Several research reports provide evidence that young children have a positive attitude towards working with the computer (Svensson, 1996; Jönsson, 1997). It seems though as if genuinely creative ways to use the computer in school and pre-school is rare.

Turkle (1987) describes a cultural dichotomy in children's ways to control the computer: soft and hard mastering. *Hard mastering* means that the child forces its will upon the computer by abstract thinking and by programming the computer. Soft mastering is built on co-operation where ideas come up and grow through an interaction with the medium. Turkle found that *hard mastering* was more frequent among boys and *soft mastering* by girls.

## **2 Children's creative music making**

According to Sundin (1995) music psychology and music education are neglected research areas. Musicologists and music educators often have taken over and converted research and theories from other areas. A similar view is expressed by Webster (1992) who argues that music researchers often tend to confuse activities like composition,

improvisation and creative listening with "convergent skill development" (p. 267).

Webster (1990) presented a model for creative thinking in music, built on Guilford's concepts *divergent* and *convergent* thinking and an older model from 1926 by Wallas. Webster describes in his model the creative process in four steps: *preparation*, *incubation*, *illumination* and *verification*.

Kratus (1989) carried out a time analysis of the compositional processes of children ages 7 to 11, based on the assumption that these were processes of problem-solving.

He concluded that only the children aged 9 and older were able to compose with meaning. His conclusion that this had developmental grounds was criticised by Barrett (1996, 1998a). Barrett (1996) found in her study of 137 collected compositions from 137 children that children, even younger than 6 years of age, were able to create music with form and structure. She found that the children used various structural devices, such as repetition, sequences, inversion, achievement of closure, alternation between two or more ideas, abstraction of a musical idea from one context to another and large-scale structures or forms. Barrett further points out that if the researcher stresses verbal response from the children that this can lead to an "underestimation of their capacity to respond aesthetically" (p. 60). Barrett calls this *aesthetic decision-making* and maintains that it is through the musical discourse of the children that this best can be understood.

The spontaneous musical creativity by children was studied by Pond in the thirties at the Pillsbury Foundation (Pond, 1981). His approach was to learn from the children and he did only intervene through answering questions and participating in the music making when asked to. One of Pond's (1981) conclusions was that musical improvisation is "the heart of the matter in the development of the innate musicality they evidently possess" (p. 11).

Independently from Pond's research but with an approach in some respects similar to this, Sundin (1963) studied children's spontaneous singing at two day care centres in Stockholm. He was interested in both spontaneous and constructive creative music making. Sundin observed speech, singing and other musical activities and concludes that creative music making in the early childhood seems to be a way to "express an attitude towards the world and a way to approach different problems" (p. 141) (my translation). Sundin communicated his results in several books (1989, 1995, 1998).

Similar studies to Sundin's (1963) were carried out by Bjørkvold (1980, 1991) and Whiteman (2001).

Burnard (2000) found that the children in different ways included improvisation in the composition process.

Folkestad (1996) carried out a valuable and important study of children's creative music making with computer based tools. By using the Save As-command the children saved their work under a new name each time they made a major change in their compositions. Similar to Pond (1981) Folkestad answered questions during the work, but otherwise intervened as little as possible and aimed at giving as few instructions as possible. Folkestad found that the composition processes could be described in two main categories: Horizontal and Vertical composition, each with three subcategories. In Horizontal compositions each part is completed from beginning to end, visualised on the screen by horizontal lines being completed one by one. In this category composition and arranging are separate processes. In vertical compositions, on the contrary, each section of the composition is completed before moving on to the next phase.

Folkestad (1996) maintains that process and product are "two sides of the same coin, in an intertwined relationship" (p. 67). When the product is studied separates the music from the creator, according to Folkestad, while studying the process instead puts the creator in focus.

It seems as if the musical creative process and product cannot be studied separately. Instead it becomes a question of the researcher's approach.

The aim of this study is to investigate creative processes – the how-question – and creative products – the what-question. To reach a deeper understanding of the creative music making the product and the process need to be put into a wider perspective that considers the children themselves and their world. The object of this study could therefore be described as the practise of creative music making.

The research questions of the present study are aimed at a) clarifying the creative processes young children employ when they create music using a synthesizer and computer software, b) describing and analysing the musical outcomes that are produced by the children as a result of this process, and c) reaching a deeper understanding of what creative music making means to the children.

### 3 Theoretical framework

The theoretical framework of the thesis has been shaped in dialogue with my pre-understanding of the research problem and in abductive reasoning throughout the research work. Thus, the theoretical framework presented is built on five theoretical areas, each representing a different angle or perspective of the research problem.

The first perspective concerns learning and creative activities in informal and everyday situations.

In *situated learning* (Lave, 1988), learning is regarded as a process that takes place through participating in an activity and is integrated between mind body, activity and culturally organized settings. Clancey (1995) points out that the social context of an activity is not a certain place, description of a place or a notion of a place and maintains that people's activities must always be regarded as social.

Ryle (2000) coined in 1949 the concepts of *knowing how* and *knowing that* as a means of separating two different kinds of knowledge: "The exercise of intelligence in practice cannot be analysed into a tandem operation of first considering prescriptions and then executing them" (p. 40).

The concept *situational* could be used to bring together the entire context of understanding and meaning perceived by an individual in a certain situation.

An individual uses different kinds of physical and psychological tool in his/her acting, thinking and learning (Vygotskij, 1978). These tools, *artefacts*, mediate the world to individuals engaged in practical activities. The tool and the individual constitute together a system that is competent to think, act and learn (Säljö, 2000). An artefact has no intrinsic meaning. Blumer (1986) points out that the meaning of an object "arises from how the person is initially prepared to act toward it" (p. 68-69).

In Vygotskij's (1978) model *Zone of Proximal Development* (ZPD) the learner is developing in a zone where he/she with guidance can achieve a little more than what is possible alone.

Wells (1999) puts forward the dynamic side in the ZPD and points out that Vygotskij did not delimit semiotic mediation to speech alone. Semiotic artefacts such as books, maps, diagrams and works of art can provide guidance in the ZPD. Wells also includes "various modes of artistic expression, such as dance, drama and musical performance" (s. 320).

Gibson's (1979) ecological approach to perception includes memory, expectation, knowledge and meaning. These ideas come close to Polanyi's

(1983) *tacit knowledge*. One of Gibson's central concepts is *affordances*, that concludes what the environment in a situation offers the individual.

The second perspective discusses *orality* and oral practise as tools for understanding music, musical practise and musical creativity.

Ong's (1991) stance is that written language is a technologisation of the word, but Finnegan (1988) makes an important point by also bringing orality to the front as a form of technology.

Language could thus be regarded as the most powerful of our psychological tools, which is consistent with the view of Vygotskij (1978).

In this thesis the concept of orality is used in an extended sense, where orality is understood as a certain practise of language, acting and thinking, as a way to think and as a psychological tool connected to creativity and improvisation. An oral perspective can also be regarded as an important part of a situated perspective. Music and speech are sounding transient phenomena, which do not exist in parts, only as a whole. In oral culture patterns, *formulas*, are used to enhance the memory, which could be expressed as thinking thoughts that can be remembered (Ong, 1991). A musical formula is defined by Lilliestam (1995) as a significant musical motif or pattern. An inherent quality with oral music is that it produces variations, changes and new music (Hamm, 1995).

In the third perspective *play* is considered as a way to understand improvisation and creativity can become a way to create meaning in new activities.

Caillois (1961) makes no distinction between play and games and extends Huizinga's (1955) definition of play to include games of chance and games played for money. According to Caillois (1961) play is: free, separate, uncertain, unproductive, governed by rules and "make-believe".

The most fundamental property of play is that it is free. The participants decide when and how the play will start and end. Both Huizinga (1955) and Caillois (1961) also put forward the uncertainty of play, expressed by Caillois:

An outcome known in advance, with no possibility of error or surprise, clearly leading to an inescapable result is incompatible with the nature of play. Constant and unpredictable definitions of the situation are necessary. (s. 7)

Huizinga (1955) does not regard play as a biological phenomena, but as an important cultural phenomena, that becomes an integrated part of our lives according to Huizinga, a view that is supported by Caiollois (1961).



Play can be regarded as something we do for its own sake. This kind of actions is by Csikszentmihalyi (1992) called *autotelian* and is by him associated with the experience of *flow*.

Bateson discusses what he calls the *frame of play*. The signal “this is play” is a message that defines what is play and what is not. Things that take place within the *frame of play* do not mean the same thing as they would outside the frame.

Caillois (1961) proposes a classification of play and games into four categories, depending on whether the role of competition, chance, simulation or vertigo is dominant: *agôn* (competition), *alea* (chance), *mimicry* (simulation) and *ilinx* (vertigo). These categories are placed by Caillois on a continuum between two opposite poles, *paidia* and *ludus*. *Paidia* is associated with diversion, turbulence and improvisation, while *ludus* is connected to effort, patience, skill and ingenuity. The balance between *paidia* and *ludus* becomes a way to refine the balance order and structure in different categories of play.

Several writers of today regard creativity as an outstanding feature of our way of living. Sacks (1998) points out that creativity and imaginativeness is available to all of us. Vygotskij (1998) maintains that creativity can be looked upon as a basic human function and not only as a special gift that can produce great artwork. Improvisation and creativity can thus be regarded as taking place within everyday activities.

It seems reasonable to assume that unpredictable and casual events possess an important role in creative processes such as performing music, composing or improvisation. Bateson (1995) is convinced that “creative thinking music always must include an element of chance” (p. 253).

The reason why scientific society often prefer explanations and theories that predict the future could be that it is considered strange and uncomfortable to work with ideas that are about possible events, stochastic processes and elements of chance (Bateson, 1995).

During the 1990s theories have been presented that explain how ideas and novel thoughts are generated through evolutionary processes in the brain. Calvin’s (1996) *darwinmachine* is an example of a coherent theoretical model that explains learning and creativity from an evolutionist theoretical perspective. In his *darwinmachine* patterns are copied, patterns that randomly change and then compete for survival through natural selection. These patterns can be thoughts, ideas, but also be cultural patterns like a melody or the like. Cultural patterns have come to be called *memes*, a concept coined by Dawkins (1992).

## **4 Method and procedures**

The present study was initiated when I helped two teachers write an application for the funding of an ICT-project in their class. The research project then started in collaboration between the teachers and myself.

Erickson (1994) describes how research could vary in a continuum where one pole represents academic research and the other pole represents problems brought up by the practitioners, in this case the teachers. The present study began quite near the teacher's pole with some of their questions, articulated from a didactic perspective: Were the children able to control the synthesiser and the computer? How would the creative music making fit in with a thematic way of working in the classroom?

Right from the start the participants were free to use the synthesisers for practice and experiments in music. This way they soon became familiar with the tools. The children were given tasks framed as invitations for them to create music to different pictures, but were only given explicit instructions related to the use of the synthesizer and the computer software. During the first part of the study the children created music related to pictures and themes used in the teaching in their class.

This project could be described as a combination of two projects taking place at the same time: One project was a teaching project that I was supervising, the other was an academic research project focusing on research questions.

In order to expand the project toward the research pole and leave the explicit teaching context, the children were given further suggestions to create music. The idea of using pictures as starting points for creative music-making was kept, but developed further in order to make the suggestions to the participants more open. A new kind of suggestions to create music was hence introduced. Instead of using pictures that explicitly belonged to a certain theme, the first suggestion was an invitation to paint a self-portrait in colour paint and to create music that could go along with the portrait. Another consisted of an invitation to create music to an art painting by Kandinsky.

The different aspects of creative music making were investigated by collecting different types of data across a period of eighteen months. The collected data included step by step computer MIDI-files from the compositions of the children, that were collected using the Save As-method (Folkestad, 1996) together with participant observations and interviews that was performed throughout the project.

The methodological approach in this study could be described as in some ways inspired by ethnography.

## **5 Portfolios of the participants**

In this chapter each of the nine children in the study is presented in a narrative based on my log and on the interviews undertaken. Each narrative consists of a biographic introduction, followed by a description and analysis of the creative processes and products that the child performed during the study. The participants and their individual creative music making are presented more in detail on the supplementary CD.

### *Ferhad*

Ferhad is eight years old. He likes to play soccer and he listens a lot to music. He also likes to play music and most of all he likes to use his hands while playing. His favourite instruments are piano, keyboard and everything that has to do with drums. He can play drums with his hands on a table.

### *Gunborg*

Gunborg is eight years old and likes to write stories. She listens to a lot of music and would like to play music all the time. Gunborg likes most kinds of music, not hard rock though. She told that when she has a headache it usually gets better if she plays music. She has tried to play the recorder but thinks it is more fun to play on her own than to take lessons. Her dream is to be on stage - just like Michael Jackson or the Spice Girls.

### *Linus*

Linus is eight years old and has three elder sisters. In school he likes to write stories and a math too. After school he usually goes to Byggen where he can play table tennis and computer games. He also plays soccer and has been thinking about to take up handball too. Linus often listens to music on his own tape recorder or CD player or watches MTV. He likes soul music.

### *Niklas*

Niklas is eight and a half years old. In school he likes handicraft and music. Last year his action story about Santa Claus came number one in the writer's contest in school. He also likes to play soccer. Niklas listens to

music in the new CD-freestyle he got for his birthday. Sometimes he plays computer games and watches MTV in between.

#### *Naim*

Naim is eight years old. He came to Sweden from Kosovo as a refugee. When he first came to Sweden he hardly could speak any Swedish at all. In school he likes math, English and music. He would like to play the piano like his music teacher, or synthesizer.

#### *Diana*

Diana is eight years old. In school she likes math and reading. After school she plays with her friends. She has her own tape recorder and some music tapes of her own. Sometimes she watches MTV or Disney movies like Lion King. The family has a piano and her mother taught her to play on the black keys. She would like to play the organ.

#### *Ninna*

Ninna is seven years old. She likes to read and write. Before she didn't like math but now she thinks that it is great fun. When she is not in school she usually visits some of her friends or stay at home. She likes cleaning the kitchen and to cook. Ninna is thinking of taking up handball, since her best friend has taught her a little.

She listens to many different kinds of artists on MTV. Titanic is the best movie she has seen, but she also likes all the Disney movies like Aladdin and Lion King. Sometimes she plays computer games.

She would like to play the flute like her elder sister does. Her mother wants her to learn music. Piano is also one of her favourites.

#### *Hannah*

Hannah is nearly nine years old. Her family has immigrated from Iraq. She thinks everything in school is fun, especially music. In her spare time Hannah watches TV or visit her cousins, plays the piano or plays computer games. Her greatest interest is Arabic dance and her dance group has appeared several times for other people.

Hannah listens to Arabic songs and to music, mostly modern, that her brothers bring home. Sometimes she borrows records from the library.

When her family lived in Iraq they had a piano and Hannah's brother and uncle showed her how to play. In Sweden her aunt and her cousin have a piano and Hannah plays a lot when she visits them.

### *Tanja*

Tanja is eight years old. Her family comes from Kurdistan. She says that she maybe likes math a little. Tanja likes to go swimming and has achieved three or four pins.

Tanja listens to music on her own tape recorder and frequently watches MTV. She especially likes to listen to Celine Dione, Spice Girls and Back Street Boys. Her father sings songs from Kurdistan, sometimes together with his friends. Tanja's elder sister plays the piano and she has an uncle who plays the saz.

The children showed great interest in the creative music making and often wished to engage in the activities much more often than was possible to arrange. They liked to create music to their landscape pictures. Usually the children used both hands and several fingers when they played on the synthesizers.

The suggestion to create music to the water pictures they had chosen seemed to have inspired the children to explicitly illustrate the pictures with music. These compositions can therefore be described as soundscapes.

During the period with the Portrait music some of the children expanded their old experiences further and others developed new ways of creating music. In a few cases the controllers *pitch bend* and *modulation* were discovered and explored. By creating music on several tracks or by making several consecutive recordings on the same track the compositions were expanded. Also new ways of using the instruments' sounds were tried out. The factors mentioned here resulted in a growing musical variation in the children's compositions.

The children continued in the Kandinsky music to further develop personal ways to create music and the musical variation increased. This could be explained by the growing competence in using the digital tools and to the fact that the suggestions to create music to one's self-portrait or to a non-figurative painting could be regarded as quite open tasks. The children were at each occasion allowed to work with the synthesizer and the computer for as long time as they wished.

## **6 The practise of composing**

The participants quickly developed a practise using the facilities offered by the synthesizer and the computer software. A composition process typically started before recording the music, by *warming up*, which also

included a *choice of instrument sound* for the composition. In most cases the participants were aware of this process, making statements like "I try a little and then if I like it, I record". Sometimes the warming up process became a part of the final recording. In some cases the warming up was first recorded and then deleted. These data were, as mentioned earlier, saved by using the Save As-method. The most frequent way of choosing an instrument sound was for the children to try it out. This could take a great amount of time and was typically described in terms such as: "I tried all the sounds and this is the one I liked the best".

The collected compositions/composition processes provide rich evidence that the participants were able to create music with *form* and *structure* (Barrett, 1996). *Form* involved large-scale shapes like using a coda, different parts in a composition or *call and response*, while *structure* was evident in the small-scale organization of the children's material such as repetition, rhythmic and melodic development, sequences, formulas, the use of drones and the like.

All the children participating in the study used repetition and development of formulas, rhythmic or melodic. The range in complexity varied from a single motif with only three notes to advanced combinations of form and structure that developed through different compositions

The results from the empirical study provide evidence of a complex creative music making full of nuances taking place in a meeting between the children's musical experiences, cultural practise, the affordances provided by the digital tools, and the suggestions presented to the children during the study. Five different variations of the practise of creative music making were found in the study, each one with different objects in the foreground of the activity:

- a) Putting the *synthesizer and computer* in the foreground of the activity,
- b) Using creative music making as a means to express personal *fantasies and emotions*,
- c) Putting *the playing* in the foreground of the activity,
- d) Placing *the music itself* in the foreground of the activity, and
- e) Putting *the task* in the foreground.

Often there was a development in the creative process with an oscillation between foreground and background and the variations therefore should not be regarded as excluding each other.

When the *synthesizer and computer* was put in the foreground of the activity, the equipment turned into tools and devices that were to be examined and controlled and which limits were to be explored. The

process may include extensive experiments with sounds and tracks. The process was full of activity showing similarity to the state of *flow* described by Csikszentmihalyi (1992, 1999).

The compositional process could be used as a way to come in contact with fantasies, daydreams and memories and with moods and strong emotions. Deliberate as well as non-deliberate use of memories and various techniques for generating musical ideas were used when *fantasy and emotions* came into the foreground of the creative music making. The synthesizer and the software were explored in the first place in order to realise musical ideas and the instrument sounds were selected very carefully by the children. Many things could serve to inspire the children during the creative music activities, such as dolls play, invented stories, memories and emotions. The Kandinsky painting was turned into a scene of action with different creatures.

Putting *the playing* in the foreground resulted in long compositions where improvising and composing were integrated. The pieces were recorded in one succession on one single track where musical formulas and motifs were repeated and varied. The instrument sounds were selected carefully and often only one or two favourite sounds were used. Playing, with the motor activity came into the foreground with its pulse and rhythm. The synthesizer and the computer were used as direct tools for an active creative process without much technical experimenting with the equipment. Sometimes accidental mistakes were converted into new ideas and motifs. As one of the boys said: "If you just get started, you will hit on something". The creative process often took a long time and was showing similarity with the state of *flow*. Directly after finishing the recording the creator listened carefully to his or her music.

When *the music itself* was placed in the foreground by the child musical ideas could deliberately be brought forth to be used directly or to be revised. Spontaneous ideas were used in a deliberate way together with rehearsals and planning. The actors were aware of their own practising and planning and were also able to discuss their own compositional processes. To practise, "to see if it fits", as one of the girls expressed it, did not in any way limit the options offered by the situation. On the contrary, rehearsing and practising enhanced the possibilities and options in the creative process, developing the synthesizer and the computer into natural tools for realizing musical ideas. The music was frequently played with several fingers on each hand using only one track for the recording. If the recording was not satisfying, the creator simply deleted it and began a new recording.

Repetition of musical ideas and developing new ones was not restricted to one composition but took place also between different pieces. In the collected material this was demonstrated by Ferhad when he developed a special kind of call and response between his both hands. Another example was given by Gunborg who developed a musical idea based on a structure with a single melody played by her right hand, accompanied by a single bass line in her left hand.

When the suggestions made in the study was not recognized by the child as an open invitation to create music, *the task itself* could instead come into focus. This was the case for most of the children when making their Water music which in most cases could be regarded as soundscapes. The choice of instrument sound became an important role in the process. For children who normally easily produced musical ideas on their own, focusing on a task might have a limiting effect. On the other hand this could make it easier for children who had difficulties creating musical ideas and finding meaning in the composing. Putting *the task* in focus might limit the creative process, since the full range of *affordances* (Gibson, 1979) in the situation are not perceived. Hence when the open-ended invitations to create music to a self-portrait or to the painting by Kandinsky were interpreted in a way that focuses on the task, this could lead to convergent thinking.

The children's compositions were recorded in one succession without interruption. If a recording was not satisfying it was deleted and replaced by a new. There was a great variation in the children's ways to produce musical ideas. The action was one of the main powers in the music making: "You just do it", as one of the boys put it.

The children's creative music making took place in communication between their musical experience and competence, their cultural practise, the digital tools and the invitations to create music – together forming the affordances in the situation.

In conclusion: The result of the empirical study could be described as different phenomena coming into the foreground: The computer and the synthesizer, Fantasies and emotions, The playing, The music and The task. During the creative music making sometimes an alteration between foreground and background and between the different variations.

## **7 Discussion**

The findings of the present study which demonstrates that young children are able to create music with form and structure (see also Barrett,



1996, 1998a) is in conflict with some previous research suggesting that children younger than nine years of age are unable to create music with form and structure.

The discussion of the variations found in the children’s practise of creative music making is extended with respect to how these variations relate to an already existing cultural practice, earlier musical experiences, and to the *affordances*, that were perceived by the children in the situation. Play is in the following discussed as a significant cultural practise in the relation to the children’s creative music making.

The different tasks in the present study could all be regarded as invitations to play. These invitations, *suggestions of meaning*, were either *accepted* or blocked by the participants (Johnstone, 1988). The invitations were in most cases accepted whereafter the process of creative music making began. The *frame of play* (Bateson, 1972) established by the children varied between individuals and occasions. Caillois (1961) suggests four different categories of play *agôn*, *alea*, *mimicry* and *illinx* together with a continuum *paidia* – *ludus* to express lower or higher grades of order.

The perspective of play, using the categories of play suggested by Caillois (1961), has been shown to be a powerful perspective to understand the children’s creative music making. The game of mimicry (illusion) was present in many of the children’s creative processes. The three other categories of play *agôn* (competition), *alea* (chance) and *vertigo* (ilinx) was also present, to a lesser extent though.

Creative music making with the computer and the synthesizer, fantasies and emotions, playing or the music itself in the foreground could all be described as taking place within a *musical framing* (Saar, 1999). These variations could also be related to the state of *flow* (Csikszentmihalyi, 1992). Creative music making with the task in the foreground could be described as taking place in a didactic framing (Saar, 1999).

The discussion also considers the ways in which the digital tools, used by the children to create their compositions, represent a medium where planning, improvising and elements of chance are able to coexist. This suggests that for the children the computer simultaneously opened up the different kinds of mediation represented by orality and literacy.