Effective, meaningful communication underpins the success of most human endeavors. The seeds of communication are planted during the prenatal period. Besides the physical body, emotional and mental patterns are formed during a fetus' development (Chamberlain 1996). Early interaction processes are emphasized as an endogenous feature arising from natural human instincts, and the baby's and the mother's need to find a contact, as factors for the rise of music, because of the interaction event (Dissanayake, 2000). This study (Marjanen 2009) explores the possibilities of and reasons for using music education as a support in very early mother-child interaction, throughout musically supporting the attachment. Music, as a form of communication, may be useful in supporting and developing interaction skills. Because of its emotional dimensions, music also may serve as a tool in creating deep mother-infant bonding. How can appropriate musical education encourage mother/infant interaction and support mother/child bonding? The focus of this article is on pre- and postnatal music education and its influences on early interactions between mothers and children. The present study represents the area of early childhood music education.

The dissertation (Marjanen 2009) was performed as a multiple strategies study. It was empirically performed in 2006 with three groups of mothers (N=21) and children (N=22) participating in the action study in the form of music education, one both pre- and postnatally, the second postnatally only, and the third not participating in musical activities at all, but only for the study itself. The effects of music for the interaction episodes were compared throughout systematic video-observation as a main method.

Especially prenatal music education was discovered to have clear positive effects on mother-child interaction, as evidenced by the amount and quality/nature of emotional interaction, the abilities of the mothers to be present for their children, the abilities and the quantities of vocal communication used by the infant, and the amount of musical features including the ways of using one's voice in mother/child behaviors. Experiences of childbirth, length of breastfeeding periods and dimensions of communication, such as duration, contents and vocal expression, were affected positively by music as well.

In the light of the previous investigations, musical impacts on us are undeniable, including impacts on attachment (see e.g. Ukkola et al., 2009). This research is supported by those findings. The Ethological theory and the Relationships approaches (Hinde, 1997) together with the Musilanguage theory (Brown, 2000) are closely connected to theories of early interaction, as a foundation for mothers' musical and emotional communication with their babies, manifested with facial-bodily expression. Vocalizing is a central feature in this process, and in the current investigation holistic music education practices were stated to serve as a supportive element for it. Mother-baby interaction itself can be very clearly supported with musical experiences. A fascinating set of theories about humans and their artistic and emotional abilities, in the context of music were faced during this study. Musical experiences are innate. Sharing this information with everybody is a priviledge and a duty. A strong mother-child bonding serves as a solid basis for interaction.

Keywords: interaction, fetuses, infants, music education

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PAPER submission/LME 2011.

Introduction

Effective, meaningful communication underpins the success of most human endeavors. The seeds of communication are planted during the prenatal period. In an African story, this is beautifully described: When a young woman decides, she wants to have a child; she goes far away from the village, all by herself and sits under a tree, waiting to hear for a song of her child to come. After hearing and memorizing the song she returns to the village and teaches the song to the man who is to be the father of the child. When the child is being conceived, they sing the song together, to welcome the child. The song will be taught to the midwives and the old women of the village during the pregnancy and eventually to all the villagers. It will be sang at the moment of birth, in various moments of celebration, and in everyday life at the moments of joy and sorrow for this child. The last time he will hear it at his deathbed.

In the study the atmosphere and the existence of humanity, including even some mysterious features of behavior and development not to be explained, but to be respected and approved, was understood as a part of our natural human instincts, based on the phenomenological background theory. Besides the physical body, emotional and mental patterns are formed during a fetus' development (Chamberlain 1996). In his descriptions of the 12 senses of a fetus, transcendental and telepathic senses and experiences are included (Chamberlain 2003). In the present investigation, a few of the descriptions of the mothers were referring to these kinds of feelings about the fetus' experiences in the mother's belly. The study was performed as a triangulation study and comprehended as giving directions in ways of a large set of the connections of music (education) with development and behavior, but not at all the parts pointing out to very detailed and distinct numbers.

Early mother-child interaction

Early interaction processes are emphasized as an endogenous feature arising from natural human instincts, and the baby's and the mother's need to find a contact, as factors for the rise of music, because of the interaction event (Dissanayake, 2000). In the current research music, comprehended in a very wide sense, was considered as a way of communication, constructed of musical elements. This was also the reason for investigating the connections of music education and mother-child –interaction. The possibilities of and reasons for using music education as a support in very early mother-child interaction, throughout musically supporting the attachment was explored in the current investigation. Music, as a form of communication, may be useful in supporting and developing interaction skills. Because of its emotional dimensions, music also may serve as a tool in creating deep mother-infant bonding. How can appropriate musical education encourage mother/infant interaction and support mother/child bonding? The focus of this article is on pre- and postnatal music education and its influences on early interactions between mothers and children. The present study (Marjanen 2009) represents the area of early childhood music education.

The genesis of musical ability occurs during the prenatal period (Huotilainen, 2009). According to Dissanayake (2000) the need for attachment can lead to a musically-based interaction event between mother and child. Musilanguage theory (Brown, 2000) and ethological theory, combined with the relationships approach as described by Hinde (1997), form a basis for the study and interpretation of the development of the communicative

behavior of infants within the network of social relations, accompanied by the music-emotions theory of Juslin (2001).

Musilanguage Theory

On the basis of the analysis of phrase structure and phonological properties of musical and linguistic utterances, Brown (2000) posits that music and language have evolved from a common ancestor, which he calls a *musilanguage* stage. In Brown's theory (2000), language and music are seen as reciprocal specializations of one another with music conveying musically meaningful, emotive meanings, and language communicating propositional phrases and referential meanings. Both have been observed as purely acoustic embodiments of a sound from which a verbal song is formed (Brown, 2000). From this theory, interaction may be regarded as a form of mother-child communication with musical elements, at the earliest stages of life (Dissanayake, 2000).

Music and development from a fetus to a child

Hearing can be regarded as the dominant sensory modality in the prenatal phase, and infancy as a transition from auditory to visual dominance. Music to a fetus is not music as we perceive it, as fetuses have no reflective awareness or language. (Parncutt 2006.) Infants possess a range of skills though that can be comprehended musical: musical taste, listening and perceptual skills, performance skills, musical memory etc (Trehub 1996). A fetus is exposed to music during the prenatal period throughout experiences of musical features that are muffled (Parncutt 1996). Messages are carried throughout the fetal body as early as 30 days from conception. A fetal network of communication is present well before birth. (Chamberlain 1995.) The ability to hear starts from 16 weeks, and active listening skills from 24 weeks (Lecanuet 1996). This opens up the doors for the vocal communication between a mother and her belly-baby.

Method

The dissertation (Marjanen 2009) was performed as a multiple strategies study. It was empirically performed in 2006 with three groups of mothers (N=21) and children (N=22) participating in the action study in the form of music education, one both pre- and postnatally, the second postnatally only, and the third not participating in musical activities at all, but only for the study itself. The effects of music for the interaction episodes were compared throughout systematic video-observation as a main method.

Results

Especially prenatal music education was discovered to have clear positive effects on mother-child interaction, as evidenced by the amount and quality/nature of emotional interaction, the abilities of the mothers to be present for their children, the abilities and the quantities of vocal communication used by the infant, and the amount of musical features including the ways of using one's voice in mother/child behaviors. Experiences of childbirth, length of breastfeeding periods and dimensions of communication, such as duration, contents and vocal expression, were affected positively by music as well.

Conclusions

In the light of the previous investigations, musical impacts on us are undeniable, including impacts on attachment (see e.g. Ukkola et al., 2009). This research is supported by those findings. The Ethological theory and the Relationships approaches (Hinde, 1997) together with the Musilanguage theory (Brown, 2000) are closely connected to theories of early interaction, as a foundation for mothers' musical and emotional communication with their babies, manifested with facial-bodily expression. Vocalizing is a central feature in this process, and in the current investigation holistic music education practices were stated to serve as a supportive element for it. Mother-baby interaction itself can be very clearly supported with musical experiences. A fascinating set of theories about humans and their artistic and emotional abilities, in the context of music were faced during this study. Musical experiences are innate. Sharing this information with everybody is a priviledge and a duty. A strong mother-child bonding serves as a solid basis for interaction.

Acknowledgements

This work was financially made possible by the Finnish Cultural Foundation, the Arts Council of Finland, the Emil Aaltonen Foundation and the University of Jyväskylä, rector Aino Sallinen, the Faculty of Humanities and the Department of Music whom all I want to express my gratitude. I also want to thank my family, the supervisors and opponents of their criticism and guidance.

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