

Signs of musical behaviour and infant-participation in music classes for 8–9-month-old infants with their parents

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Abstract

The present study investigated the behaviour of 8–9-month-old infants during ten music classes taught over a period of 5 weeks. Each class was video taped from different angles with three cameras. The video recordings were categorized according to the ongoing activities. Then, selected activities were analyzed and coded according to the type of behaviour elicited by the infants.

Preliminary findings indicate 8–9-month-old infants are capable of displaying a wide range of social and affective behaviour during music class. Furthermore, this behaviour was notably affected and driven by musical activities. Most of the infants in this study demonstrated abilities to adjust to different types of musical activities, with responsive behaviour increasing as the activities became more familiar to them. This study applied a selection of different measures for the analysis of social and musical behaviour in infants. One of those was the social measures of the FIMA (Flow Indicators in Musical Activities). The preliminary results suggest that the infants in this study displayed not only Adult awareness behaviour but also numerous accounts of Peer awareness behaviour, which previous studies suggest to be present only later in toddlerhood.

Keywords

Musical gestures, infant-participation, parent-infant music classes, musical communication, social awareness.

Introduction

Infants and communication

“Communicative musicality is the art of human companionable communication. It consists of our innate abilities, which function from birth, for being able to move sympathetically with an other” (Malloch, 1999, p. 48).

Non verbal communication which establishes trust and secure relationships is highly important in infancy. The neurobiological processes necessary for creating healthy relationships seem to precede the development of verbal functions. Some evidence for this is found in infant brain development which demonstrates that the right hemisphere develops faster than the left hemisphere in the first year (Chiron, Jambaque, Nabbout, Lounes, Syrota & Dulac, 1997). However, the left hemisphere becomes more dominant after age 3. The right hemisphere is associated with non verbal emotional abilities while the left hemisphere is more associated with verbal abilities. This right hemisphere dominance in the first months of life is believed to reflect how important these nonverbal bonding skills are for the survival of

infants. The early development of the right hemisphere is believed to facilitate the development of the neurobiological system for secure attachment and affect regulation in infants as they interact with caregivers. (Schore, 2001).

Already at birth, infants are ready to share emotion with caregivers. This prenatally developed disposition is presumed to play an important role in postnatal brain development, on which cultural cognition and learning depend (Trevarthen & Aitken, 1994). According to micro-behavioural evidence, infants are born able to express the internal activity of their brains, including dynamic "motive states" that drive learning (Trevarthen & Aitken, 1994).

Researchers of this non verbal behaviour between caregivers and infants have described it as "musical communication," (Malloch, 1999). From analyses of vocal communication between an infant and a caregiver Malloch concluded that a 4-month-old infant is "capable of entering the structure of a musical game with an other, participating in a musically logical way" (Malloch, 1999, p. 47).

According to Dalcroze's theory, music and movement are inherently social activities and musical expressions are thought of as closely related to the expression of rhythm through bodily movements (Seitz,

2005). In the Dalcroze method, musicians deepen their understanding of rhythm through interactive group activities. "The orchestration of the body involves the concatenation of bodily gestures, the juxtaposition and opposition of bodily movements in relation to emotional attitudes, as well as the use of immobility (i.e. rest) and silence" (Seitz, 2005, p. 423).

Carpenter, Nagell and Tomasello (1998) studied communicative behaviour in 9–12-month-old infants in terms of social cognition theories. They identified five major social-cognitive and communicative skills in their subjects which emerged in this chronological order: joint-engagement, communicative gestures, attention following, imitative learning, and referential language. They established that at 9 months all their subjects demonstrated the ability of the first skill: joint-engagement. According to Carpenter and his fellow researchers, infants at 8–9-months of age are beginning to behave in ways that are clearly intentional and consequently they come to understand that the behaviour of others is intentional as well. Furthermore, the researchers hypothesized that this type of realization in the development of infants occurs most readily with respect to shared emotions and through social referencing (Capreuter, Nagell & Tomasello 1998).

Analyzing musical behaviour in infants

Engagement in musical activities by 8–9-month-old infants is not likely to be accurately assessed using the same tools as with toddlers and young children. Early infant behaviour is constrained by their motor abilities and their social-cognitive development. Therefore, behaviour which may indicate disinterest or boredom in a toddler may be a sign of heightened interest in a young infant. Indeed, studies on infants' musical perception frequently use measures of focused attention as in fixed gaze when establishing infants' interest or preferences (Trehub, 2001).

Bakeman and Adamson (1984) described social engagement in 6–18-month-old infants in terms of their interactions with their mother and their peers as they were playing in their homes. They identified two types of infants' engagement when playing with an object or a toy the mother was holding. These were: 1) Passive joint engagement, indicating that the infant was engaged by looking intently at or playing with the toy without any observable attention towards the mother, and 2) Coordinated joint engagement, indicating that not only engagement with the toy but also visibly acknowledging the presence of the mother.

An instrument, named *Flow Indicators of Musical Activities (FIMA)*, was

designed for assessing musical involvement of young children in an educational setting and has been applied to data on 4–5-year-olds, toddlers and infants as young as 7 months old (Custodero, 2005, St. John, 2006). The instrument seems most appropriate for describing the behaviour of toddlers and young children and to a lesser extent for describing the behaviour of infants. Infants only display two types of the total of eight flow indicators listed in the instrument, namely, *Gesture* and *Adult awareness* (Custodero, 2005).

In the present study, the social-musical behaviour of infants at the age of 8–9-month-old was studied. However, the infants in Custodero's study were of different ages with the mean age of 14 months. Therefore, this study provides an opportunity to apply the parts of the *FIMA* instrument which include elements that infants are capable of producing. More specifically the parts for assessing social behaviours and affect behaviours. And furthermore, to expand and refine these elements in order to more precisely describe infants' musical behaviour in an organized educational setting.

Method

Subjects

The participants in this study were recruited through invitation, and selection was based on a first come first served basis. A letter was sent

by mail to the parents of 200 6-month-old infants born within a period of three weeks and living in a reasonable driving distance from the location of the courses. The parents were invited to apply for free participation in a music course with their infants when the infants would be approximately 8-months-old. Sixty-four parents applied for participation using an electronic application form online. The first 32 parents to respond were invited to participate.

The participants were divided in two groups of 16 infants each. Two participants never showed up resulting in a total of 30 participating infants with parents. Attendance did range from 80–100% for the entire period of the courses.

The study

The purpose of the study was to observe and map the behaviour of 8–9-month-old infants during musical activities in parent-infant music classes. Some existing measurements were applied and some adjustments had to be made in order to account for all types of behaviour observed.

Two groups of parent-infant dyads ($n=14$, $n=16$) participated in 45 minute long lessons consecutively two days a week for a period of five weeks. Lessons were recorded from three angles with digital video cameras (SONY DCR-SX15E).

The course was organized according to a method, developed over a period of 7 years of practice, intended to encourage musical parenting with infants. The structure of the course was the same for all of the 10 lessons, marked by the same activities conducted in the same order each time. This was done in order to establish a sense of predictability from lesson to lesson, avoiding unnecessary surprises in the routine.

Analysis of data

For the purpose of this study, one activity was selected from the course routine for initial analysis. This was the activity called "the baroque dance." In this dance activity the infants were held in their parents arms facing forward and away from their parents. The parents would stand with their infants in two rows, facing each other. During the dance the two rows took turns in walking in time to the music towards the other row, bowing and returning to their original position.

The baroque dance is known to be a popular activity among infants in these parent-infant music courses. However, the behaviour of the infants during this activity has never been documented and analyzed. The fact that in the baroque dance the infants are held "captive" by the parents made it the first choice for initial analysing of this data and for establishing a repertoire of infant behaviour in music class. The

contained structure of the baroque dance activity, the absence of musical instruments and other objects which add to the complexity of behaviour, further contributed to the logic of making the baroque dance the first activity to analyze in this study.

The baroque dance activity from the last two lessons of the study was transcribed using the *Transana* software for video data analysis. This produced series of keywords of behaviour and narratives describing the events as they unfolded. Furthermore, two categories of flow indicators (*Social behaviour* and *Affect*) from the revised *FIMA* form (St. John, 2005) were applied in the assessment of infants' behaviour.

Results

The present results are only preliminary due to the fact that the categorization has not been run through reliability testing with two independent judges.

Here the repertoire of the observed infant behaviour during the baroque dance will be described including the moments just before the activity commenced and the moments just after the activity concluded. Examples of behaviour will be derived from transcripts describing three individual infants during the baroque dance activity.

In terms of *Social behaviour* as defined in the *FIMA* instrument, both *Adult awareness* and *Peer awareness* was observed during the activity. The latter was not equally prominent in all of the infants but very clear in some infants.

All of the *Affect* measures could be applied to the description of the infant behaviour except for the measure of "Success vs. Failure" which was not applicable to the infants in the activity in question. The other *Affect* measures were applied: Happy-Sad, Excited-Bored, Satisfied-Frustrated, Alert-Drowsy, Cheerful-Irritable, Involved-Distracted, and Active-Passive.

The behaviour of each infant was evaluated in terms of three main variables: The head, the hands and the feet. These were described as ranging from a state of relaxation (no motion) to vigorous nodding, waiving or wiggling. Furthermore, the position of the head was documented in terms of the direction of the gaze of the infant, i.e. looking front, to the side or backwards at parent. Vocalizations were not categorized but only noted if and when they occurred. Finally, the infant behaviour was labelled in terms of its placement in the progress of the ongoing activity.

Descriptions of three infants during the baroque dance

The following three stories are summarizations of keywords and event transcriptions from the video data. They are intended to provide examples of observed behaviour of the infants during the baroque dance activity.

Story 1

Infant Tom is in his fathers arms facing forward. His father has taken a position for the baroque dance. They stand in a row of five parent-infant pairs facing another row of six parent-infant pairs. Tom is visibly tired and struggles in his fathers arms e.g. swaying his body backwards discontentedly. Then the music of the baroque dance starts to sound from the loudspeakers. The parents have been instructed not to move to the music as they had done the previous eight lessons, but to stand still. As soon as the music commences Tom stops struggling and appears relaxed, looking forward passively with his hand in his mouth. During 50 seconds of this “still condition” Tom behaves relaxed and passive, resting the back of his head on his fathers chest, only moving his eyes from time to time as he looks at the other participants in the row facing them who also are standing still. Then towards the end of the dance Tom takes his hand away from his mouth and starts moving his hands. First both hands in a downward motion and then clapping his hands until the dance ends.

Story 2

Infant Sue is in her mothers arms who is standing in the same row as Toms dad. Sue is Cheerful, alert and active. She wiggles both arms and both feet. Sue also struggles in her mothers arms and sways backwards looking at the fan in the ceiling. Sue generally looks restless and slightly bored in spite of her cheerful facial expressions. Sue vocalizes and this draws others attention to her. At he moment when the music for the baroque dance starts, Sue stops vocalizing, her hands and feet become relaxed and she looks forward with an attentive gaze as the row facing her moves towards her row. She stays relaxed when her row has a turn. Then a pattern emerges in which she starts to wiggle hands and feet as the facing row approaches her, but then relaxes her limbs when it is the turn of her row to move forward. At the end of the dance there is a “bing” sound in the music and at the same moment Sue recommences her vocalizations and wiggles her hands and feet vigorously.

Story 3

Infant Fin is in his mothers arms, calm and rather alert, not showing any particular facial expressions. As the music starts and his row moves forward he looks forward, his feet and hands relaxed. When his row is waiting turn he wiggles his left foot and nods his head towards the row approaching. Fin is looking moderately engaged as the rows take

turns, looking forward when his row moves forward, looking down when his row is backing and looking at his mom as they wait their turn. About three quarters into the dance, when Fin is looking at the peer facing him, the peer makes a hand gesture towards Fin as if trying to reach him. This prompts a big smile from Fin and he starts vigorously waiving both his hands. Then as he waits turn he keeps his gaze towards the facing peer and wiggles his head intently in time with the music. For the remaining moments of the dance Fin wiggles his hands towards the facing peer and stretches them out towards her followed by nodding of head. At the end of the dance Fin looks away towards the teacher who controls the music.

Discussion

As these are only preliminary results caution will be taken in drawing conclusions at this point. However, it seems that Peer awareness is much more prominent in the subjects in this study than was found in infants in earlier studies on infant behaviour in music class (Custodero, 2005). There are a few possible explanations for this difference in findings. First, there were only eight infants in Custodero's study and the small sample size may cause this behaviour to be overlooked. Second, the infants in Custodero's study had a larger age span (7-23 months) while the infants in the present study were all of the same age. It is possible that infants of the same age are more likely to display peer

awareness to each other than if they are in a mixed age group. Third, the activities in which the behaviour was assessed were different, and finally, the infant in the present study had their parents with them while the infants in Custodero's study did not. It is likely that activities as well as parental presence would affect infants' behaviour and possibly the amount of peer awareness they display. This warrants further investigation.

In general, 8–9-month-old infants are capable of displaying a wide range of social and affective behaviour during music class.

Furthermore, this behaviour was notably affected and driven by musical activities. Most of the infants in this study demonstrated abilities to adjust to different types of musical activities, with responsive behaviour increasing as the activities became more familiar to them.

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References

- Bakeman, R., & Adamson, L. B. (1984). Coordinating attention to people and objects in mother-infant and peer-infant interaction. *Child development*, 55, 1278-1289.
- Carpenter, M., Nagell, K., & Tomasello, M. (1998). Social cognition, joint attention, and communicative competence from 9 to 15 months of age. *Monographs of the society for research in child development*, 63(4, No. 255).

- Chiron, C., Jambaque, I., Nabbout, R., Lounes, R., Syrota, A., & Dulac, O. (1997). The right brain hemisphere is dominant in human infants. *Brain*, 120, 1057-1065.
- Custodero, L. A. (2005). Observable indicators of flow experience: A developmental perspective on musical engagement in young children from infancy to school age. *Music education research*, 7(2), 185-209.
- Malloch, S. N. (1999). Mothers and infants and communicative musicality. *Musicae scientiae, special issue*, 29-57.
- Schore, A. N. (2001). Effects of a secure attachment relationship on right brain development, affect regulation, and infant mental health. *Infant mental health journal*, 22(1-2), 7-66.
- Seitz, J. A. (2005). Dalcroze, the body, movement and musicality. *Psychology of Music*, 33(4), 419-435.
- St. John, P. A. (2005). Finding and making meaning: Young children as musical collaborators. *Psychology of Music*, 34(2), first 238-261.
- Trehub, S. E. (2001). Musical predispositions in Infancy. *Annals of the New York academy of sciences: The biological foundations of music*, Vol. 930, 1-16.
- Trevarthen, C., & Aitken, K. J. (1994). Brain development, infant communication, and empathy disorders: Intrinsic factors in child mental health. *Development and Psychopathology*, 6, 597-633.