

# **9<sup>th</sup> International Conference on Music Perception and Cognition**

**Alma Mater Studiorum University of Bologna, August 22-26 2006**

## **Aspects of Musical Movement Representation in Dutch Early Childhood Music Education**

**José Retra**

School of Education and Lifelong learning,  
University of Exeter, Heavitree Road  
Exeter, Devon EX1 2LU UK, J.Retra@exeter.ac.uk  
Board member Dutch Foundation for Toddlers & Music

### **ABSTRACT**

The premise of the current study is that movement is considered an important form of kinaesthetic representation through which children, come to understand and memorise different aspects of music.

### **INTRODUCTION**

Many interpretations of young children's movement responses to music are based on criteria influenced by Piagetian models of development, resulting in the view that early childhood music making represents a period of intense motor activity with little mindful engagement. Consequently, movement reactions to music were often taken for granted in early childhood music education. This notion is also a result of the Cartesian idea that the body and the mind work separately. This mind body split is what Juntunen and Westerlund (2001) denote as "disembodiment of experience in relation to knowledge in western culture". Around 1900 Jaques-Dalcroze had already generated his theories about the mind and body being an intertwined expression of human creativity and life. Dal-

croze concluded that: "musical sensations of a rhythmic

nature call for the muscular and nervous response of the whole organism" (Jaques-Dalcroze,1921). Nevertheless, the music movement connection, as Young (1999) puts it, is clearly a recent connection. According to Clarke and Davidson (1998) "[...] a great deal of the psychology of music has adopted an almost entirely 'disembodied' approach to its subject matter". Starting from the 1990s, the situation is gradually improving to "a rather more realistically corporeal approach" (Clarke & Davidson,1998).

Departing from a new ontology where the mind and body are inseparable and work as a whole, young children's movement responses can actually be considered an important form of kinaesthetic representation of musical information. "The body is not just a source of sensory input and a mechanism for effecting output: it is far more intimately bound up with our whole response to music – perceptual and motor – and needs to be recognised as having a far more central role than a simple generative model would suggest" (Clarke & Davidson,1998).

Movement to music is regarded in the present investigation as a symbolic action: the movements embody the internal sensation of external sound production through movement: kinaesthetic representation. Moore & Yamamoto (1988) refer to kinaesthesia "as the sensual discrimination of the positions and movement of the body parts, based on information other than visual, auditory, or verbal". Juntunen & Hyvonen (2004) suggest that body movement represents pre-reflective knowing and can be understood as a physical metaphor in the process of musical understanding from the concrete to the abstract, or conceptual. Reybrouck (2001) considers "processual predication an important tool for dealing with music. Reybrouck uses the term 'enactive listening' " in the sense that 'enactive listening' takes the human body and its actions as a reference". According to

Reybrouck, it involves a kind of motor imagery because “music can be conceived as movement through time” (Reybrouck, 2001). Sloboda explained that human beings understand music through dynamic feelings that are analogous to ‘agents in action’ or motions experienced in the physical and biological world (Sloboda, 1998). Through movement we can capture music and come to know its structure and its meaning by embodying it, by enacting it, actually or by imaging of physical movements (Young, 1992).

Children can make movements to music because they possess a form of temporal representation (Pouthas, 1996), an essential element in order to benefit from music lessons. Another present requirement is kinaesthetic empathy: “Kin-aesthetic empathy involves physical identification with the movements one observes being executed” (Moore & Yamamoto, 1988). In 1938 Truslit tells us that: “motion can generate tones, so tones can elicit a sensation of motion in the listener” (Repp, 1993). Young, in particular, has investigated the way young children create musical patterns, and concluded that children make movements which have their “own internal logic” (Young, 1999 & 2003). Young and Glover consider movement responses to music a time-space metaphor “In coherent music/time structures what is heard now relates back to what has gone before and anticipates what is to come” (Young and Glover, 1998).

The way in which children make musical movements externalises their musical representations. Development of movement performance to a musical stimulus would therefore incorporate the development of musical representation.

## EDUCATIONAL CONTEXT

Preschool Music Education (PME) is the Dutch name for early childhood music education courses for children in the age range of 4 months to 4 years, accompanied by a parent or a carer. For the children in PME it is considered important to use their whole bodies and to use the space. Therefore lessons have an alternation between activities that are performed on the ground and activities that are performed in the space of the room (e.g. sitting, standing and walking). A regular PME course is built on ‘activities’: the singing of songs, which are always accompanied by a motor activity and often either a musical instrument suitable for young children, or a toy (Alberts & Rikhof, 1998). Multiple repetitions of the songs during a lesson and a course provide the children with the opportunity to step into an activity at the moment when they have captured the movement. These early childhood music lessons are given on a weekly basis at the same location. PME emphasizes what might be termed free participation: the children are never forced to participate. Participation should occur out of motivation - the offering of an attractive activity, which is constructed in accordance with the developmental level of the children and therefore invites the children to join in.

## AIM

The purpose of this study is to investigate the development of movement representation of musical activities for children aged 18 months to 36 months that occur during a regular Dutch early childhood music education course. Investigating the musical movement behaviour of young children asks for a ‘real world’ situation, a naturalistic environment, in which they can act freely and spontaneously. Dutch Preschool Music Education offers a semi-controlled environment in which the children are offered a range of musical activities (e.g. a song with a motor activity) and where they can freely respond in their own manner. The body is considered in this investigation as a very important tool in the understanding, storing and retrieving of musical information.

## METHOD

By means of an interpretative design, a preliminary study was conducted to construct a defined set of musical stimuli - 8 songs with specific movements -, for the envisioned three age groups of the main study, and to capture the actual movement responses of the children in a music education setting. To define the different movement responses to music, it was necessary to investigate if the movements would indeed represent musical characteristics, or if they would represent qualities of music indirectly. A Preschool Music Education course of 8 lessons with a duration of 45 minutes per lesson was organised. This is in fact a regular PME course. During the course the children were offered a wide range of musical activities. There were two participants: two girls in the age range of 2 to 2,5 years accompanied by a parent and a carer. This age group is the middle group of the three age groups envisioned for the main study. Somehow it was impossible to recruit boys, although efforts had been made extensively. Data were collected through video-recordings of the 8 PME lessons. The video-recordings were transcribed and analysed. The process of analysing was guided by the four main categories of movement as they are being used in the pedagogical process of PME: being moved; movement by self; movement with support and putting something (e.g. a toy) into movement.

## RESULTS

The analysis of the preliminary study generated a framework for the movement responses of the children. Namely, movement types and movement functions as well as conditions for the bringing about of movement reactions to music. Conditions for making movements proved to be an important aspect within the pedagogical design of early childhood music lessons. In order to stimulate musical development, the evoking of movement through which the children can grasp the musical information is subject to several conditions, which are interconnected. In order to benefit from kinaesthetic representation, it is important that the children are motivated to start moving, to take part in

the activities through motion. When movement is initiated, the representational process unfolds over different angles.

### **Movement conditions**

The following movement conditions appeared to play an important part.

#### 1. Lyrics (of the songs)

The lyrics and therefore the meaning of the songs should be comprehensible. The lyrics should be a reflection of the child's social world and give directions for the movement actions to undertake.

#### 2. Motor capabilities

The motor capabilities of the children should not be exceeded. The children must not be put in a position where they cannot perform the movements. It was hypothesised that when the children would not be able to make the movements, the musical information would not come across.

#### 3. Tempo

Tempo appeared to be an important phenomenon. It was seen that the children were capable of very well timed movements when the tempo of the offered activity would be close to their personal tempo. The personal tempo is the natural tempo of a child (Flohr,2005). Tempi which differed too much from their personal tempi took much longer to be synchronised by the girls.

#### 4. Material

The kind of material used in an activity might have an effect on the movement responses of the children. Because different ways of holding, handling and energy input is required, this might affect the timing and performance of the movements.

### **Kinaesthetic representation**

The construct Kinaesthetic Representation appeared to be a multifaceted item.

### **Processing modes**

When the children engaged in an activity, they often had to pay attention to two modes of processing: singing and moving. Most activities in the PME environment combine different response modes. Often the girls started with a single mode response – only movement and sometimes only singing. During the duration of the activity or over the course they gradually went from a single mode to a dual mode response.

Some activities have what might be termed secondary modes. For example the activity *Mommy bear and Baby*

*bear*. In this activity the children and carers walk around in a circle singing the song. The aim of the activity is a timings-moment (PME: the reaction-moment) when a leg is lifted (the paw of the bear) slightly over half way through the song. Next to this timings-moment there is the walking on the beat of the song. Often it is seen that first the children concentrate on the lifting of their leg and when there is still time (over the course) they have enough attention to concentrate on the walking on the beat. To build the activity they will have to use the process of selective attention. "There is a limit to how many different things we can attend to and do at once" (Ashcraft,1998).

### **Timing**

Concerning the representational aspect timing, the concept of anticipation is crucial. Keeping the beat supposes that a child is capable of thinking ahead: of anticipating on what will come. Imitation is by definition too late, because then the response will be when the moment has past. In order to be on time you need to anticipate the moment. Imitation is responding to a stimulus but not anticipating that stimulus.

The repetition of the activity helps the children to build their anticipation of the beat or a timings-moment. Timing is therefore in the early childhood education process not a concept that has to be reached at once. There should be the possibility of slowly adapting to the beat. This adaptation process will give children the opportunity to respond with movements which may be ahead of the beat, movements that are delayed, movements that are direct (timed) and movement reactions alternating in and out of tempo.

### **Time-stream**

There is a clear indication that the song and its lyrics do provide the musical time-stream: the actual timeframe within which the children place their responses. The children were paying attention to the unfolding music and did not move away without reference. This might best be illustrated with an example. The 7th time in lesson 8 of the preliminary study course, of the activity *Plitse plitse plater*. This activity is a timings activity in which the children can put a toy duck on the 'shore' (shore: besides the water/sheet on the floor) at a specific moment. The secondary mode is tapping on the beat with the duck on the 'water'. It was seen that Madeleine knew the song and was able to keep in pace with the time-stream. She demonstrated a good sense of the exposure of the songs timeframe. At one point she became busy swapping her duck with one of the adult's duck, which had a different colour. Although this means that Madeleine is not tapping, she is in time for the timings-moment: shore. When she has her new duck, she fiddles with it to have the right grip (material!) to put it on shore using a direct movement.

### Sequential representation

Young children encode temporal information in their initial representations of certain types of event sequences, namely those with causal relations among the elements (Bauer & Mandler, 1989). Many activities in PME have more than one movement and these movements are offered in a certain order. However, clapping on knees, floor and hands activities do not have causal relations between the rhythmic elements. Therefore it takes time to find the right order. Often the girls were able to 'get' all the movements but in different orders. Apparently the lyrics are very important in remembering the sequence of movement events.

### Kinaesthetic reference

Kinaesthetic reference might be considered an additional aid to feel the music, the beat, besides only watching the movements. The aim is to literally give the children the opportunity to feel the beat of a song. For example in lesson 6 of the preliminary study, when Olivia was holding an adult's hand when marching around during *Mommy bear and Baby bear*, the adult was shaking her hand on the beat of the song. This clearly helped Olivia with an external kinaesthetic input because she started to march perfectly on the beat of the song.

## ACTIVITY TYPES AND MOVEMENT CATEGORIES

Consequently the following activity types and movement categories were developed, based on the movement responses of the girls, the conditions for making movements and the initial movement categories of the PME environment.

#### 1. Rhythmic activity.

The aim is to align body movements with the tempo of the music: to follow the beat. The representational cognitive action of anticipation is involved. The body is partly or wholly involved with repetitive actions. Dynamical aspects play an important role.

#### 2. Sequential activity:

The aim is the order of the movements. The causal relations between the movements (which provide the temporal structure) are maintained through the portraying of the lyrics through the movements. Within these sequences gestural and rhythmic movements can appear. They may be regarded as a secondary aim of a sequential activity.

#### 3. Timings activity:

The aim is to anticipate one special movement for it to be on time. This movement may stand out against another 'secondary' movement (mode) or it can be the end of a

repetitive movement. For example *Mommy bear and Baby bear*: the lifting of the leg is a clear timings-moment (PME: reaction moment). Secondary is the marching of the children on the beat. Choosing the 'right' tempo for the children to march on can develop this last mode. A tempo in tune with their bodily feelings. In order to see matched movement responses to a beat, the choice of tempo is crucial.

#### 4. Gestural activity.

The whole or parts of the body are involved. The articulation of the body follows the lyrics of a song. There is not a direct connection with musical elements. Nevertheless the movements are a precursor for direction and spacing in music. They provide the initial notions of melodic and textual elements. These movements are also a reinforcement of the lyrics of the song.

### Movement types

The first consideration was: do the movements represent the musical information? The movements appeared to be a direct connotation of the musical element and also some kind of approximation. The movements then can be seen as representing a direct and indirect abstract musical construct.

### Rhythmic movements

These movements are tempo/beat related. They follow the beat of the song, not the rhythm of the song. Four important reactions were observed:

a direct movement reaction: in tempo

a movement reaction ahead of the tempo (faster than the offered beat)

a delayed movement reaction (after the beat)

a movement reaction alternating in and out of tempo

The beat can be exteriorised through different bodily actions: marching, stamping, jumping, clapping (hands on surfaces, material), tapping (hands on surfaces, material), waving (with hands, body). In these kind of movements dynamics play an important role. Dynamics - loud and soft - can be seen as differences in energy (Young & Glover, 1998). Rhythmic movements always do have a contact surface on which the rhythm will sound.

### Gestural Movements

These are a whole range of different movements creating an indirect representation of the music. They relate to implicit notions of close, far, up, down, high and low (Grunwald, 1989). Russell describes these movements as "shap-

ing movements in the air with the arms or legs, gathering, scattering and penetrating the space” (Russell, 1965)

The song lyrics are an important part of gestural movements, in order to give the movements meaning. Gestural movements are performed by the whole body: the arms, the hands, the legs and the mouth. These movements can also be subject to dynamics but in a different way than rhythmic movements: there is no contact surface to make the sound. Davies (1995) describes dynamics in terms of weight, qualitative space, time and flow. For example we can see a difference in taking the hands away from the eyes in the activity *Close your eyes* (peek-a-boo at the end), which is a sudden movement. The same movement however presents itself in a different context when opening an imaginary curtain in *Willemijntje*. Here the hands (flat-up-right) start in front of the eyes and go horizontally to the left and right in a slow sustained movement. The references in both cases will not be directly to loud and soft in the music, but the movements will establish a kinaesthetic memory trace of the muscular possibilities and a kinaesthetic reference to the lyrics. These implicit notions can be later linked to musical aspects.

## IMPLICATIONS

The preliminary study provided a framework of connotational/aural analogs extended with conditions for the movement responses of young children. This framework will provide the basis in the establishing of development of movement representation in the main study. The main study will consist out of three case studies for three age groups: children aged 18 to 24 months, 25 to 30 months and 31 to 36 months. Each group will be offered a complete course of 8 lessons. In the lessons each group will also be offered a predefined set of 8 activities, which are based on the activity types and movement types as were derived from the preliminary study. All the movement criteria will be met according to the age group. The aim is to investigate the actual development of the movements over the time of a course. Important is that the children should be able to show their movement responses in their own way. For example, a delayed reaction is as valuable as a direct (timed) reaction, and should be considered a precursor of a direct reaction. The results of the main study will most likely give an extended description of the activity types and movement categories.

## DISCUSSION

When looking at the developmental aspects, within the early childhood music educational environment: “The ability to process time-related information and the ability to structure his or her own action within time (that is, the capacity to act at the ‘right time’) are essential to the development of the infant’s motor skills, perceptual and cogni-

tive abilities, capacity to learn languages, and, finally, development of his or her affective behaviour” (Pouthas, 1996). Kemp (1990) is quite clear in stating that through whole body experience musical development can be promoted, and this should start already in early childhood in order to develop an internalised vision of music. This internalised vision, inner motion, of music is the most essential characteristic of musical experience according to Truslit (Repp, 1993). Being able to represent has the advantage of being able to make predictions for the future, based on memory and expectations (Gopnik & all, 1999), and to devise strategies for acting in the environment (Martinez, 1999). This implies an intense look at the organisational aspects of early childhood music education concerning the use of movement. Appropriate educational strategies need to be constructed in order to provide the children with music educational opportunities in which they can obtain, enjoy and demonstrate their musical knowledge.

## ACKNOWLEDGMENTS

I would like to express my appreciation to the Dutch Foundation for Toddlers & Music for their support.

## REFERENCES

- Albers, M., & Rikhof, R. (1998). *Muziek tussen School en Schoot*. Haarlem: Uitgeverij De Toorts.
- Ashcraft, H. (1998). *Fundamentals of Cognition*. New York: Longman.
- Bauer, P. J., & Mandler, J. M. (1989). One Thing Follows Another: Effects of Temporal Structure on 1- to 2-year-Olds’ Recall of Events. *Developmental Psychology*, 25 (2), 197-206.
- Clarke, E. F., & Davidson, J. W. (1998). The body in music as mediator between knowledge and action. In: W. Thomas (Ed.) *Composition, Reception: Studies in the Creative Process in Music*, pp. 74-92. Oxford: Oxford University Press.
- Davies, M. (1995). *Helping children to learn through a movement perspective*. London: Hodder & Stoughton.
- Flohr, J. (2005). *The Musical Lives of Young Children*. New Jersey (US): Pearson Prentice Hall.
- Gopnik, A., Meltzoff, A., & Kuhl, P. (1999). *How babies think: The science of childhood*. London: phoenix.
- Jaques-Dalcroze, E. (1921). *Rhythm Music & Education*. (5<sup>th</sup> edition 2000). The Dalcroze Society (INC).
- Grunwald, D. (1989). *De Muziek van de Speler*. Amsterdam: Uitgeverij De Toorts.
- Juntunen, M., & Hyvonen, L. (2004). Embodiment in musical knowing: how body movement facilitates learning

- within Dalcroze Eurhythmics. *British Journal of Music education*, 21(2) 199–214
- Juntunen, M. and Westerlund, H. (2001). Digging Dalcroze, or, Dissolving the Mind-Body Dualism: philosophical and practical remarks on the musical body in action. *Music Education Research*, 3(2), 203-214.
- Kemp, A. (1990). Kinaesthesia in Music and its Implications for Development in Microtechnology. *British Journal of Music education*, 7(3), 223-229.
- Martinez, M. E. (1999). Cognitive Representation: Distinctions, Implications, and Elaborations. In Sigel, I. E., (Ed). *Development of mental representation: Theories and Applications*. London: Lawrence Erlbaum Associates, Publishers.
- Moore, C., Yamamoto, K. (1988). *Beyond words. Movement Observation and Analysis*. London: Routledge.
- Pouhass, V. (1996). The development of the perception of time and temporal regulation of action in infants and children. In I. Deliège, & J. Sloboda (Eds). *Musical Beginnings*. Oxford: Oxford University Press.
- Repp, B. H. (1993). Music as motion: A Synopsis of Alexander Truslit's (1938) *Gestaltung und Bewegung in der Musik*. *Psychology of Music*, 21, 48-72.
- Russell, J. (1965). *Creative dance in the primary school*. London: Macdonald & Evans Ltd.
- Reybrouck, M. (2001). Musical Imagery between Sensory Processing and Ideomotor Simulation. In: Musical Imagery, Rolf Inge Godøy & Harald Jørgensen Eds.. Swets & Zeitlinger Publishers, The Netherlands.
- Sloboda, J. A. (1998). Does music mean anything?, *Musicae Scientiae*, 2, 21-31.
- Young, S. (1992). Physical Movement: Its place in Music Education. *British journal of Music education*. 9, 187-194
- Young, S. (1999). Just making a noise? Reconceptualising the Music-making of Three- and Four-year-olds in a Nursery Context. *Early Childhood Connections: Journal of Music and Movement-based Learning*, 5 (1), 14-22.
- Young, S. (2003). Time-space structuring in spontaneous play on educational percussion instruments among three- and four-year-olds. *British Journal of Music Education*, 20(1), 45-49
- Young, S. and Glover, J. (1998). *Music in the early years*. London: Falmer Press.