

Musical beginnings - *self-initiated musical play in an 8 month old baby*

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Beginnings

Babies begin their journey as an innately musical/poetical being (Trevarthen, 2009).

Mutually positive emotions are an innate part of parent and baby communication (Flohr & Trevarthen, 2009 and Mazokopaki & Kugiumutzakis, 2009). A happy and secure parent will communicate positively visually, aurally and physically to their baby. In turn their baby will return communicative signals that are likely to emerge as a result of interest, contentment and mutual familiarity. I chose a case study with one infant so as to explore signs of musical behaviour in her home environment. I observed her at specific moments throughout her day to see if any signs of musical moments transpired.

I was interested in observing a baby who was given time, the space and support in her responses to experiences during different times of the day and evening. In the responses noted I deciphered many levels of musical communication that were instinctively, spontaneously and mutually enjoyed. I also noted that within a positive environment musicality appeared to be an intrinsic part of an infant's ability to make sense of her world. As a communicative means of socio and solo engagement (Trevarthen, 2008), musicality was apparent in this infant prior to any formal influences or instruction.

Background of case study

This case study was made possible by the willingness of both parents to video Lola (not her real name) at home during routine parts of the day and evening. I wanted to create an environment of normality for the parents and their baby without the presence of a researcher. I invited Lola's parents to create a number of video clips (or spot counts) of Lola at between 7-8 months old based on guidelines given prior to the start of the project. Earlier video clips taken when Lola was 3-4 months old were offered as part of the study since these had already been created for private use. Lola's parents gave full consent to take all video clips away for the purposes of detailed examination for this paper. Lola was born on March 15th 2011.

The video technology used was an i-phone. This i-phone was used by both parents respectively prior to, and in between each recording. This method of live documentation was not only unobtrusive, but also used regularly in Lola's presence, thereby reducing the possibility of distraction or curiosity attached to something unknown. All the video recordings were hand held, either by Lola's father or mother. All videoing was taken at normal play times, or during routine activities. Any activity was not specifically designed for recording, however both parents were aware of my intentions to explore any signs of musicality.

By using Lola's parents as the video engineers, we were collectively able to retain as natural an environment as possible without the presence of another influencing the dynamics of the moment. This case study was a critical reflection or 'living inquiry' (Wicks et al, 2008) on the sounds, actions and musical responses I saw from Lola's interaction with her parents,

environment, materials, and when alone using real life evidence in a natural, holistic environment.

I did not meet Lola prior to, or during the recordings. This was a conscious decision to enable myself as the researcher to retain an objective viewpoint, and to prevent assumptions of her musicality based on my knowledge of her parents' own musical background. As a case study, the observation of one child may be considered an intrinsic case study (Muckherj & Albon, 2010). In this study I established my findings on the basis of *exploratory*, rather than a *specific phenomenon* of musical development in a young child.

Gathering information

The guidelines offered to Lola's parents reflected specific elements influencing musical responses if any, that I wished to explore. I used an in-depth and qualitative approach (Muckherji & Albon, 2010) to document my findings. This study was a detailed and exploratory approach to seeing what musical snippets or vignettes (Street, 2005) emerged from the observations of video clips.

There were 16 video clips in total (table a). 5 of these were taken of Lola at 3-4 months. 11 were taken at 7-8 months. The maximum length of a video clip was 3 minutes 37 seconds. The minimum was 18 seconds. In all the clips there was evidence that in the event of vocal or physical distress (anxiety, sleepiness or distraction), the video was halted.

Lola's mother acknowledged that on most occasions Lola was videoed on her back as any play activity on her front meant that the mother was also on her front and therefore unable

to video. For the purposes of this paper I chose specific clips so as to focus on specific areas that could lead to musical vignettes. Each one represented part of Lola's routine activity.

They were

Lola alone aged 3-4 months and aged 7-8 months

Lola and mother together aged 3-4 months and 7-8 months

Lola with her mother and father aged 3-4 months

Lola and a windmill toy aged 7-8 months

Lola and a soft bird puppet aged 3-4 months

Lola and her teddy aged 3-4 months

I acknowledged the intent of the parents to prioritise Lola's wellbeing throughout, and to prevent any video activity from impeding normal activities or spontaneous response as far as possible.

Each video clip observed Lola at different moments throughout the day or evening at home.

The qualitative nature of evidence collated enabled me to make musically relevant links between my findings and the theories that have evolved over the last two hundred years. By looking at the different clips in depth, and in particular clip LM/Pitch4a, I am reminded of Trevarthen's theories in intersubjective attunement between an infant and another (2010). As we look more deeply into Lola's responses to her world, her ability to develop what she instinctively knows and enjoys through protoconversations (Flohr & Trevarthen, 2008), we can decipher a set a developmental procedures emerging as explored by Piaget in cognitive development, Bruner in enactive representation and muscle memory, and Vygotsky in his views of social interactions as part of cognitive development (McLeod, 2008). I will draw out

snippets of these theories as informed the chosen clips. Dalcroze's theories in the influences of movement in music helped to strengthen my musical findings since Lola's responses are both rhythmical and vocal (Dalcroze, 2000).

These theoretical links helped me to appreciate how infants may respond to their world in a musical way. With their views in mind, and by observing Lola's responses to the Plaget different situations and influences around her I was able to decipher whether indeed, any responses were musical, or in fact just a movement or sound, and part of an infant's overall development. In my observations I focussed on what, and who was with Lola so as to glean responses that were as a consequence of specific influences.

Lola's environment

All the video clips took place in Lola's home environment. The video clips were taken in Lola's bedroom, in her parents' bedroom or in the sitting room. Out of 16 video clips, 13 clips showed Lola responding to direct or indirect parent engagement. In these, I was able to refer to collaborative exchanges of expressions in the parent-infant dyad (Mazokopaki, & Kugiumutzakis, 2009).

The home environment is familiar, light and safe for Lola. In all the video clips the father, mother, or both are physically present. On three occasions Lola was videoed with no parental engagement at all. Any movement with the camera was minimal so as to provide as little distraction to their baby as possible. In all the video clips Lola is happy and comfortable. Emotively Lola is in a positive state of mind throughout each video clip.

In each clip I noticed a seamless, moving, sensory-driven energy coming from Lola that appears to immerse as a result of different forces. We could link the different flows of energy to 'vitality contours' as stated by Stern (1992/1999).

These responses that occurred as a consequence of external and internal influences included the ambience of her environment, the time of day, other people, her own state of being, and objects surrounding her in the comfort of her home. Through the clips I observed an ebb and flow of apparent musicality in the movements of Lola's limbs, her body, head, facial expressions and vocalising. Stern uses descriptive and open-ended words to describe these contours as evidenced in Lola's visual, sensory and physical responses to her world. Rather than applying direct or descriptive analogy to what I saw, in these short clips we are treated to 'surging, fading away, decelerating, accelerating, tentative, effortful, bursting (Stern, 1999). Lola's responses are indeed fleeting, yet imbued with expression and intent (L/Alone8:a).

Specific places of observation

- i/ Lola on her back, on a bed with parental interaction
- ii/ Lola on her back, on a bed, alone
- iii/ Lola alone, seated upright, exploring a yellow plastic ring
- iv/ Lola alone, on her back, in her cot and holding a large soft teddy
- v/ Lola upright and supported by her mother who holds a soft toy bird

Lola alone, with herself

In the absence of sound or person providing the infant with any kind of sensory input we might suppose that Lola would be still and silent. In fact, the opposite was always the case. I would suggest that visually evidenced stillness is only apparent when the infant is in a deep sleep and even then, involuntarily and rhythmic movement occurs. Lola's ensuing actions and sounds suggests to me that she is equipped with a kind of intersubjective response (Trevarthen, 2009), not with an actual person, but with her 'Other Self' (Brandt, 2009).

L/Alone8

With this in mind I reference the clip, L/Alone8:c. She is lying on her back, alone, on a double bed. Lola's legs kick out repeatedly. She looks up constantly at the ceiling. She is still. Then she moves her tongue round whilst creating an "aaaah" sound. She utters a long, high pitched, sound whilst kicking out her legs. She rolls, looks along the bed, rolls back, then kicks out whilst uttering another, high-pitched cry. All this is repeated with slight adjustment of rhythm. The movement is thus:

'Kick, look up, roll, roll return, stop, kick, repeat.'

Within her own, internal self we could be looking at a sensori-motor schema that is the result of an instinctive response to what is developmentally possible for Lola. Piaget developed his theory of schemas in blocks of ages. 0 – 2 years are occupied with a sensori-motor stage of enabling the schematic process (Bruce, 2011). His study of schemas developed over 50 years is in response to the intimate observation of a child's response to the world. I note Lola's repeated actions in this clip, and in another clip Lola is holding a

plastic yellow ring. She puts it to her mouth. She puts it down. Lola repeats the action

(L/Ring8:a)

Perhaps a baby's ability to create (new) schemas is achieved not only through her ability to develop schematic activity as a process of development (McLeod, 2009), but also through her loved ones enabling, and giving her space her to do so, in this case, Lola's parents.

Within a positive environment, Lola freely explores movement that comes from an internal physiological rhythm, coupled with a spontaneous desire, and the influence of a yellow plastic ring. I refer to these external influences later in the paper.

In L/Alone8 Lola engages the viewer musically since her repeated rhythmic actions and cries (both pitched identically) carries musical elements of heighten sound (pitch), rhythmical nuance and phrasing. She holds our attention in time, thus our engagement is musically enriched. When Lola creates a "mmm" sound (d), it is later repeated at the same pitch (e). The repeated rhythmic moves she makes with her legs show an irregular action, but in this is evidence of an invisible sound pattern (Eckerdal & Merker, 2010).

Without external props (such as the plastic ring) or people in direct play with Lola, what motivates Lola? The 'Virtual Other' is a kind of invisible musical energy coming from within a baby's whole being (Mazokopaki & Kugiumutzakis, 2009). In the absence of external influence there is distraction or impulse somewhere or perhaps part of an innate compulsion (Trevarthen, 2009). Lola is absorbed in self-initiate play since this is what becomes apparent – she experiences a unity of all the senses.

Lola is happy therefore she engages her entirety to entertain and to pass time. When she is alone, her rhythmical moves and aural utterance is fluid. These attributes relate to the musical laws of time, sequence, repetition and phrasing. It is the innate musicality that can hold an infant's curiosity in life, even when alone (Flohr & Trevarthen, 2008:64). L/Alone4:b is a perfect example of musical elements applied to Lola's responses to 'herself', combining Dalcroze (moving), Piaget (sensori-motor) and Bruner's thoughts on enactive representation through muscle memory. Note how Lola looks, lifts her little fist up high, then she gracefully arches her fist downwards to her mouth with a curving "aaaaah" as her fist reaches her mouth. She does this action approximately 4 times in the clip, with each sound having more intensity than the last.

In this example we could also refer to this as Intrinsic Motive Pulse (IMP) (Trevarthen, 2008:71). Lola presents vocal responses as a consequence of internal influence rather than external influences such as parents, objects and events. Trevarthen talks too of the 'Infant's Self' with pro-prioceptive motor gestures with orchestrated rhythms, and then aligning the same idea of 'Self' to musical expressions of self-regulation (2008:64).

Exploration of rhythmic patterns

Lola's exploration of rhythmic patterns and internal musical motion gives the viewer a sense of the passing of time, through holistic, whole sensory experience exuding evident, internal satisfaction.

'Expressive vocalising' springs to mind (Young, 2002) in this instance. Lola is creating rhythmic sounds and action that are entirely her own. We note in clip L/Alone8:a that Lola moves, and then utters a vocal sound, or she utters a vocal sound first, followed by an action, or, she moves and makes a sound simultaneously. Her actions and sound making are punctuated by pauses, a kind of calm reflection that is shown by the clear gaze of her eyes. In an earlier clip I noted marked similarities with the pitched cries and interest in her hands and feet (L/Alone4:a) Moments of silence again were punctuated by long cries, then an intent study of her hands again.

In this, and L/Aone8 we could refer to Piaget's theory of progressive cognitive development since the later clip shows similar but larger motor movements, and a rolling rather than a rocking motion. I am also drawn to Steiner's principals of the 'will' element where the infant is persistent in her effort to achieve. In her isolation Lola is still, she moves, she pauses, she cries out in rising and falling singsong, and is still again. Her outer self is responding again to inner energies, or 'innate intersubjectivity,' Trevarthen (2010:2).

Sociable communication as a means of musical expression

Observing Lola engaging with another offers the viewer another slant on the emergence of musical snippets in her behaviour patterns. Now the 'Virtual Other' is a real person, complete with the living dynamisms, energy, and importantly, emotion and tangible relationship that is part and parcel of an infant's motive for response. In the clips with her father, mother, and Lola, the exchanges of communication are spontaneous and musical. I reflect here, on Vygotsky's theory of social development. He studies the influences of another person or community as a central role in a baby's response to the world, and the

learning patterns enjoyed through sociable experiences that precedes development (McLeod, 2007).

As a series of learning steps with others, an infant is able to assimilate, repeat, and respond. By building on the layers (or scaffolds) of learning with others, the infant is provided with a socio-learning experience, which is immersed as part of life's developmental process. In Vygotsky's view, a young child has so much to gain from socio-experiences. The easy familiarity of a home, combined with a cultural (preferred activities and music enjoyed) family engagement, fluid routine and playful interjections is all part and parcel of the child-initiated and adult supported world of learning through play and mutual, home based experiences. Within all of this, many vignettes of musical moments emerge.

What musical vignettes the reader might ask, and in particular what, with another? In LM/Sounds8 Lola is occupied in a similar, but much longer leg kicking routine. It is rhythmic, repetitive and subsequently musical since her actions employs musical ingredients. She responds to her mother's rising pitch "a-ha-haa!" with several body lifts and leg kicks, each time planting her feet on the bed. We might suggest that Lola is presenting another early schema example, but this time there is a sense of 'wait and respond', a more controlled, "I lead, you follow" energy. Information via the sensory system (sound, sight, motor) is experienced and then fed back into another person's equally alive sensory system. Infant and mother are paying attention to each other. They are open and generous in their playful interaction. I suggest that this example now shifts our perception of Lola alone with her 'Virtual Other' to that of a living, electric and sensory exchange that is musical by virtue of those ingredients stated.

Vygotsky references an infant's perception and exploration of her world through socio-links or social interaction (McLeod, 2007). Lola's moves and sounds are part of her previous, explored activity, yet the emphasis and impetus has shifted from her SELF to that of another. This schema (kick and sound) is fruitful, has purpose, and gives dual power to each party. Lola's leg kicking patterns are stronger, and the rhythmic patterns appear to be more refined than at 4 months. Here too, I refer to Bruner's theories of 'muscle memory' as part of a young infant's learning process (McLeod, 2008).

L/Alone8 shows similar movements and rhythmic patterns suggesting Bruner's enactive representation (McLeod, 2008), or an internal and dynamic, almost electric impulse to move, and a pattern of behaviour that she has refined and now transferred to a game with her mother. Lola is experiencing equilibrium through assimilation of a tried and tested movement (Piaget). By transferring this repeated activity Lola and her mother are creating a musical game since the elements of music is applied including rhythm, phrasing, pitching (LM/Sounds8:b), call and response, repetition. In this clip taken of Lola at 8 months old I would suggest that the idea of infant overall development struggles to exist in isolation.

Vygotsky's emphasis on social influence in cognitive development is wholeheartedly justified in this clip. The kicking and sound making may have been enabled through earlier exchanges by both parents who are clearly pro-active in communicative engagement. In LM/Sounds4:a the mother follows Lola with distinct pitch accuracy to Lola's rising sound. Her father too, imitates Lola's pitched sound an octave lower. In this, Lola finds humour (b). This emotive

moment is both rich and shared. In both examples we note 'follow my leader' moments, that in turn enriches an infant's view of her world, and her parents too.

Undoubtedly the socio-context of her immediate world has informed and supported her ability to develop since her demands for attention and/or response are reciprocated.

Elements of Bruner, Piaget and Vygotsky theories are intertwined since Lola enacts her entire sensory systems into a musically rhythmic, repeated patterns (mini-schemas in sensorimotor experience) because of sociable experiences with her parents (socio-cultural).

Sounds and Movement

'LM/Sounds8' references Lola's kicking pattern in response, and as part of her mother's sound making, and Lola's own voice. A musical pattern incorporating beat, rhythm and melody transpires as follows:

Mother utters rising sound	Lola kicks up and outwards
Sound	123456
Sound	12
Sound	123
Sound	123456
Sound	12345
Sound	1234
Silence	12
Sound	123
Silence	123456
Silence	12
Silence	12
Silence	12345
Silence	1234567

(Appendices b,Sib/LM:)

In this example, we observe Lola's mother as a direct influence in Lola's environmental and behaviour influences. Lola retains the leg-kicking rhythm for at least 3 minutes, often with very little pause. Lola appears to be responding to her mother's cries directly by using an earlier schematic pattern. Jacques-Samuel Dalcroze, a pioneer of the thinking, physical musician advocated music through movement. I can see this principle of movement eliciting musical flow since the mother and infant are in direct, fluid and easy communication with each other through sound and moves; a sort of flow and ebb of happy, sensory driven communicative pattern in spontaneous response to what they experience together.

Space and time with others

In LM/Pitch, I note vignettes of clear moments of apparent thought (b) as Lola contemplates, then responds. Her mother enables this, gives her time and the space to do so. In this I see an intellectual process springing from a mutual desire to musically exchange information because the mother has enabled this through time offered, and space to respond. In this, and the other parent/baby clips the playfulness of parental/infant musical engagement shines through. Froebel's fascination in child development and his observations on family engagement reinforced his theory of learning through play, and the importance of family engagement to support infants development and learning (Pound, 2006). This is an example of proto-conversation (Malloch & Trevarthen, 2010). Lola and her mother show accurate timing, and are at one with each other. They are enjoying musicality exchange as 'experienced time' (Trevarthen in Gruhn & Rauscher, 2010:70)

Parent/Infant engagement

The clips of parental communicative exchanges, and the infant and parent's playful responses testifies directly to Froebel's theory of play as being the highest level of learning, and as a process from which to build later blocks self-motivated activity to learn and develop. Froebel understood the importance of family engagement and was interested in the interactive process of communication through a parent and child's ability to be expressive through spontaneous exchanges (LMD/Sounds4). Lola's mother confirms that it was "important (for me) to be in the moment and interact with Lola, rather than always recording." Trevarthen & Malloch (1999) theories in musical communications also emphasises the significance of positive parental participation to support and guide infants musical experiences.

Musical motive

What is this motive that leads parents and infants to express themselves musically together? In Lola and her parents we find evidence of emotional responses as a result of musical play between either the three of them, or baby and one parent. The emotions include laughter, relief and love expressed in the responses given (by Lola), and the sounds suggested by the parent (LMF/Sounds4). The sounds uttered were momentary, or intentional, but in both cases the response was in sound as a result of sound that was spontaneous (a). The positive emotions shared undoubtedly motivated cause for continuing musical interjections since it made everyone happy.

In LM/Pitch4 we see a remarkable evidence of not just intentional sounds offered by the mother, but accurate pitch representation by Lola (a) albeit with a slightly longer phrasing. In turn, the mother responds, with slight adjustments, thereby creating a natural ebb and flow

of spontaneous musical exchange punctuated by pauses, mini-phrases and rhythm. In this, I hear Bjorkvold's musical-ese (1992) and Trevarthen's theories on mutually improvised rhythmic engagement through natural inner rhythms of other people (Gruhn & Rauscher:70).

In the same clip mother and infant are communicating in accurate pitch exchange, despite the shifting vowel sounds from "oooargh" to "eeeeargh" (a). In this we note there is no pause, as though impulse has come from within, and in response to an immense closeness in relationship, and emotional positivity.

Tools and toys of expression

Lola with ring

Lola with bird

Lola with teddy

We now turn to external objects influencing Lola's desire to musically respond, and whether indeed, her responses are musical. With the evidence in mind I show how, as with interactive engagement or self-initiated behaviours earlier explored, Lola's world exudes musicality by her relationship with things and toys. In L/Ring Lola immediately puts the ring in her mouth. Whole sensory mechanisms are at work here with taste, touch, sound making and seeing. Sub-plots emerge such as tactile, colour, environment, wiggle, shift (in focus), scrape, and reach. Why does she create "eeeeaarrh" sounds as she holds the ring? We can refer to Dalcroze in his theories of musical rhythm in relation to silence and immobility (2000:p83). Lola is momentarily still and silent (a). Yet the ambience of musicality surrounds

her both in rhythm of her body movements, the time taken to move her 'instrument' (the ring) and the sounds she creates in conjunction with her movements. She does not *have* to make sounds as she runs the ring across her mouth. However, the 'echo' effect of her mouth contact with the ring clearly feels good as the vibrations of her lips move across the ring and create an interesting, wobbly note. In her repeated performance of sound making with the ring I am reminded of Piaget's 'learning by doing' theory, Bruner's three-step process in enactive learning, and Vygotsky's idea of scaffolding in the building up step by step a process of learning. Thus:

Lola holds the ring.

Lola puts the ring to her mouth.

Lola moves her arms.

Lola moves the ring across her mouth.

Lola utters sounds.

Lola stops moving, and making sounds.

Repeat all of the above.

The ring has beads inside, the sound and movement that arguably gives Lola the impulse to move the ring, and to start again. What we do know is that, like Lola in this activity, music is constantly shifting in repeated rhythmic patterns, phrasing and dynamics. Dalcroze understood that the body had rhythmic musicality within it. Here we can observe the infant in isolation and her responses to a passive object coming from a kind of intrinsic motion or intrinsic Motive Pulse (IMP) (Trevarthen & Malloch, 2009)

Lola and the windmill

In this clip (L/Windmill) Lola responds entirely differently to this moving toy. She is not touching the windmill, and is watching someone else 'woosh' it around. As it spins the colourful toy creates a 'wooshing' sound with slight air moving across her face.

Lola's reaction is extreme. She repeatedly cries out in raucous laughter (a). There is a moment however, where Lola laughs *before* the windmill moves. The rhythmic responses to her experience with the windmill seems to occur before, during and after the windmill is turned as the user tries to keep it's momentum. In this clip and despite the raucous sound of her cries, Lola appears to be working through internal and rhythmic motion that represents it's own regular beat.

The idea of an infant 'in charge of her own musical destiny' with her own sense of beat and rhythm, that is in turn enhanced or moved on by an external object that colours, and enriches her internal or subjective musical motion is plausible, given the (socio-cultural) encouragement of her mother laughing delightedly in response to her daughter's own response. Trevarthen's theory of intersubjectivity is at play here. Lola's mother's response is as important to Lola, as the activity of the windmill herself (b) as you can note by her slight look to the left, perhaps for affirmation since she then continues with similar responses.

Humour is never far from the surface of an infant's perception of the world (LMD/Sounds4:a). Trevarthen's observation of humour in infants springs to mind when we note in detail, Lola's responses to items of interest such as the windmill, a teddy and a bird puppet (Pound, 2009). We take a close look at the clip involving Lola with a bird puppet, and also in conjunction with responses observed from the windmill clip. The mother introduces

the bird puppet in front of Lola's eyes. She is supported in an upright position. Lola immediately makes a heightened sound, which is then reciprocated by her mother's heightened vocalising in response (L/Bird:a).

Vygotsky emphasises the importance of social interaction for language development as part of his theory of childhood learning coming from everyday experiences with those they love (Pound, 2009). In the bird clip we note the rhythm of sound exchanges as an undulating pattern using parentese or proto-conversations (Malloch & Trevarthen, 2009). The mother uses her own language whilst Lola responds in her own language. This is what she can do, and is ready to do. They appear to understand each other, and are in perfect timing with each other (Malloch & Trevarthen:283). They are in tune with each other or 'attuned' to each other (Stern et al, 1985) I am reminded of Piaget's sensorimotor starting point, where Lola is experiencing a sociable interactive moment (Vygotsky), and simultaneously absorbing cognitive development as a result of her communicative exchanges with her mother. This is in turn, rhythmical, they are in tune with each other and both demonstrate expressive musical narrative (Flohr & Trevarthen, 2009).

At a later point, there is a moment of silence and stillness, where Lola is gazing intently at the mother (b). This seems to mark the end of a schema according to Piaget (McLeod, 2009) whereby Lola has now built a mini schematic response to the puppet, and within a couple of minutes shifts her focus to directly to her mother (c), perhaps for affirmation of her actions, or responses to come. In the windmill clip Lola is 3 months older. She has made similar, but more in depth vocal responses to an external, moving object. This could refer to Piaget's idea of assimilation (Pound:36).

Lola has absorbed her earlier experience with the bird puppet, and emotively demonstrated heightened and positive emotive (humorous) responses that in turn is rhythmical, lyrical and entirely in tune with her mother's musical-conversation. Rather like a tennis ball, exploratory musical exchanges or proto-conversations (Cross & Morley, 2010) have transpired until at such a point that both parties sense that one (Lola) has shifted to absorb her 'Self', thereby ignoring the third party, i.e. the object. This occurred too, with the windmill experience, although in this example Lola appears to actively cease her focus with the windmill, by rolling away (L/Windmill:c). Is she making an active choice now that she has ascertained similar responses to her earlier experiences, this time without the need for affirmation? Her confidence in rolling is supported by Lola repeating the sequence (this paper, p.8).

The embodiment of positive emotive (laughter) responses to what Lola's experiences with a windmill and bird puppet could reasonably be suggested as non-musical since she is to all intents and purposes laughing at what she sees. However, with her mother's interjection this changes the dynamisms of Lola's experience with the toys to one of a three-way exchange. Like a musical wheel, mother and infant responses are rich in timing, rhythmic lilt and pitch relationships (L/Bird:c), all of which is employed in music making. In L/Windmill I notice Lola bringing her hands together as though she is clapping (a). This could be an example of Bruner's enactive representation where, compelled by a momentary hand to hand contact she then draws them together repeatedly, encouraged by her mother who cheers. The physical action could have kicked in because of motor-memory (McLeod, 2008).

Lola and her teddy

Something different occurs with Lola when she is actually holding a toy, rather than it being held in front of her. With no one apparently influencing Lola's responses, she is lying down in her cot, alone, in private communication with her teddy. This is held by both of her hands in front of her face. Lola appears to be imbued with humour as she giggles directly at her teddy (L/Teddy:a). Or is it humour? Perhaps this moment is when Lola is having a conversation with teddy since her facial expressions are meaningful and steady, as though she is contemplating what 'teddy is saying' before replying. In this, Piaget's idea of developmental experiences springs to mind since the infant is self-initiating vocal response with a mute toy.

A moment or two later Lola seems to work out the teddy since her gaze shifts from its face to body and arms. At which point she begins to make a sort of humming sound (b) and then chuckling with a more throaty utterance than before. Here, she clearly finds something funny (c). Perhaps it was something teddy said? Lola's vocal responses emerge as a result of an inanimate object, breaking the silence. And is it really silence as we imagine it to be? This 'silence' is overflowing with internal, thoughtful reflection, physical anticipation and a readiness to shift to the next phrase of engagement that for the viewer is both fascinating and gripping, as expecting a new passage of music to emerge.

Lola has assimilated her previous motor and vocal activities experiences to a new situation and with a new toy. She is silent for a moment here, and a moment there, as she waits for teddy to vocalise. Unlike her parents or a moving bird and windmill it does not. During the whole clip (L/Teddy) her vocal rhythms or patterns metamorphoses into a deeper chuckle, then bird like hums, and wobbly notes ("eeareearr"), all in a very short space of time. The very nature of silence is musical here since we observe again, the continuing pattern of time

and mini-phrases as she moves her exchanges along. I would suggest that equilibration is comfortably in place. She is confident in her schematic adventures with the teddy since there is no evidence of anxiety.

A little later, her 'chuckle' schema moves out as another moves in. Her kicking schema, as noted in LM/Sounds8 happens *simultaneously* to a rising, gentle "hmmm" sound (c). Silence punctuates her sounds and movements throughout this clip. As Dalcroze observes that 'musical rhythmic is the art of establishing due proportion between sound movement and static silence...' (Dalcroze, 2000). Lola's hands gently explore teddy, and then her legs and sing song begins.

The Piaget/Vygotsky theories are in tune with each other, even though they come from a very different viewpoint. As we have noted the immense comfort, positivity and shared (socio) musical experiences enjoyed by mother and baby (Vygotsky) in earlier examples help us to assume Lola's musical journey alone and with teddy is not only positive, but also fruitful. By acknowledging the different theories there is clearly much we can understand in early childhood development. In addition I can fully appreciate the mutually respectful links that occur, either within, or as a consequence of another theory that has developed as a consequence of earlier theories. On the strength of these video snippets of Lola's exchanges with toys, people and being alone, I could see that Lola is

- * Learning by mirroring (parent interaction)
- * Exploring and developing known schemas (vignettes of activity)
- * Moving and sound making as a consequence of an internal rhythm

* Making time-rich choices (in sound and movement)

In all these examples her actions are undoubtedly musical since, musical components of time, space, rhythm, some pitching and sequences are all present. In cases where three mini-schemas are explored (L/Alone8) the musical play in movement, silence and undulating sounds are apparent.

The interactionist approach as suggested by Trevarthen (Bruce, 2011) is the sharing and exchanging of ideas and feelings, which in turn imparts rhythmic patterns of engagement that are 'musical or dance-like' (Malloch & Trevarthen, 2009), all of which relates to my observation of Lola and her parents in the earlier clips. If all infants were able to experience such positive and thoughtful engagement musical communication would flow in the creative, spontaneous and integrated way that music can.

These video examples of Lola's daily activities reveal much more than just musical communication since they are validated by parental support. This makes a difference to an infant's responses to her world. The clips have given me a glimpse into the insights of the many, thought provoking theorists on the basis of a loving and accommodating family environment.

These video clips bring me to reflect on Vygotsky's theory of socio-cultural influences within a child's cognitive development. Within her positive environment, Lola's responses are inextricably musical.

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APPENDICES

Questions presented for research purposes

On her environment

Where was she?

What was she lying/sitting on? Was she on her back or her front?

Was she alone?

Who was she with?

Did she have an object of interest?

Was it daytime or evening?

On musical observation

Did she make a sound?

What kind of sound – repeated, loud, soft, undulating, wiggly, slow, fast?

Was the sound emotive – happy, sad, hungry?

Did she make a sound because of someone or something? Why?

Did she make a sound when she moved? What kind of sound?

Did she hear external sounds? What kind?

How did she respond to her parents voices?

On general observation

What did you see?

Did her actions inform you of something else?

Questions for the parents

Who was holding the video?

Was Lola used to the video – had she seen this before?

Were the clips taken during ‘set-up’ episodes or part of her daily routine?

Is Lola normally happy, calm, high spirited, vocal, physical?

Does Lola display specific emotive moments? If so, when?

Is Lola your first/only child?

What is Lola’s date of birth?

Does Lola have mood changes? If so, when?

Does Lola enjoy the company of other infants?

Does Lola enjoy the company of other adults?

Have you noticed Lola singing?

What kind of singing does she do?

Does she create spontaneous sounds?

What sort of things prompt her sound making?

Do you enjoy singing with her?

How do you communicate with her in her routines?

Video clips and activity

L/Windmill

a/

b/

c/

Lola is lying on her back, on a colourful mat. She is free of restraint. She is wearing a head shaper (skull cap). This does not appear to bother Lola. The windmill is held by a friend. Her mother is seated out of sight to her right hand side.

L/Bird

a/

b/

c/

d/

Lola is supported upright by her mother. They are facing each other.

Her mother is moving a soft toy bird as she speaks.

L/Teddy

a/

b/

c/

Lola is lying in her cot on her back.

She is holding a large, soft teddy in front of her with both hands.

LMF/Sounds4

a/

b/

Lola is lying on her back on a bed.

She is responding to her father and mother's sounds and facial expressions.

LM/Sounds8

a/

b/

c/

Lola is lying on a bed. She is on her back, facing her mother who is also videoing.

L/Alone4

a/

b/

Lola is lying alone on her back, on a bed.

L/Alone8

a/

b/

Lola is lying on her back on a bed. She is alone.

L/Ring

a/

b/

c/

d/

Lola is seated upright on a sofa supported by cushions.

She is holding a large, brightly coloured ring.

Lola is wearing a skull cap that does not appear to bother her.

LM/Pitch

a/

b/

July 1, 2012

Lola is held by her mother and facing her.

Lola and Mother

Musical notation for measures 1-5. The score is in 4/4 time. It features four staves: Lola kick, Mother sound, Lola sound, and ST. Lola kick has a rhythmic pattern of quarter notes and eighth notes. Mother sound has a melodic line with quarter notes and rests. Lola sound and ST have rests.

Musical notation for measures 6-11. The score is in 4/4 time. It features four staves: FN, CL, P, and ST. FN has a rhythmic pattern of quarter notes and eighth notes. CL has a melodic line with quarter notes and rests. P and ST have rests.

Musical notation for measures 12-17. The score is in 4/4 time. It features four staves: FN, CL, P, and ST. FN has a rhythmic pattern of quarter notes and eighth notes. CL, P, and ST have rests.

Musical notation for measures 18-23. The score is in 4/4 time. It features four staves: FN, CL, P, and ST. FN has a rhythmic pattern of quarter notes and eighth notes. CL has a melodic line with quarter notes and rests. P and ST have rests.

18th July 2012

Task 2

Review 1

**Digital Technologies, Young Children, and Music Education Practice
Dr Susan Young**

The implications for musical learning in 2010 and beyond are both fascinating and somewhat fearful for current music educators and curriculum developers. Integrating technological material into early childhood music delivery is a continuing challenge since it does not form a natural part of many educators' earlier studies or teaching experience, as indicated in Young's article.

Young's article reminds us that as children of the seventies educators now were exposed to linear modes of musical engagement with a far smaller range of resources which included analogue cassette and record players, televised songs, instrumental performances and social gatherings.

Multi-modal systems of musical engagement is now universally absorbed by young children, particularly in developing countries. Digital technology, formally available to those who can afford, is increasingly exposed to poorer communities, with particular reference to public spaces involving aural reminders, off-on warnings, usually complete with a visual activity.

In most early years educational settings I have noted evidence of a cassette player and computer for use by adults only. This suggests that although early years practitioners

acknowledge that technology is part of a child's environment, they do not yet consider electronic musical experiences as relevant to learning.

Young takes three examples from studies to highlight the immersion of young children's life in digital technologies, how music plays an integral part in this digital age, and young children's ability to make choices, be independent and learn; contrary to what many current educators may believe.

Max is absorbed by a toy mobile phone aged 2, given by his mother, herself a regular user. His earliest learning reflects fine motor, aural recognition, pitch, repetition (in melody), all of which could be attributed to traditional principles of music teaching. In my teaching practice I note toddlers responding negatively to the sound of a parent's mobile. Perhaps mobiles indicate that their attention is elsewhere, creating a 'rival' to their desire for attention. Offering a toy replica suggests a sort of 'washing machine' respite to Western parents. This is indicated in Young's interviews gathered (p.331), of comparative choices of digital equipment with which to engage or distract their child.

Example 2 of Tia and Thomas the Tank Engine represents the multi-modal systems available in the home and elsewhere. Young discusses how young children are easily able to adapt, assimilate and develop each aspect of a digital toy. With visuals, sound and two/three dimensional products, educational purists argue the negative values in consumerism-based items offering musical learning, and its value in an educational environment. Young reports

on Tia's independent development through multi-modal experiences through repetition, acknowledgement and independent composition in the character she loves.

With the advent of multi-modal characters is the emergence of individual support to children who may have problems in socialising. Multi-modal digital technology predetermines visual closure or introduction. If an item such as a karaoke machine affords children the beginnings of performance, this resource could be put to good use in educational settings. Young notes that home and school musical experiences tend not to mix except through playground or after school clubs. In a London school playground I observed 4 year olds sharing home musical experiences with each other, with particular reference to mobile phone downloadables and YouTube clips. In the classroom the same songs were not acknowledged, nor used in musical learning. In this study we are offered the benefits of multi-modalism with children seamlessly leaping in and out of playing, vocalising, experiencing drama and composition. This challenges the assumption that digital toys are solitary and inward thinking.

Music educators and curriculum developers today are perhaps not yet fully equipped to understand or integrate digital music because of 3 main factors:

a/ Immersion (in childhood)

b/ Training

c/ Fear

a/ Digital technology did not exist for current educators as babies, toddlers or young children. As a new skill - like a language - we are only just learning about digitalism and multi-modalism. For young children digitalism is their life; it is a second skin.

b/ Training has to come from the 'in-between generation' - the Shi Jinrui, or New Humankind (coined in Japan and adopted by William Gibson) to implement and deliver singular and multi-modal digital experiences. Educators must desire the change, and embrace the digital age galloping across our younger worlds.

c/ Removing the fear of failure in teaching digital music to an instinctively digitally aware generation needs to be confronted and debated. Fear may be encompassed too, with resentment of losing teaching values held dear, without considering ways of transporting the same values to this ever-expanding digital age.

The solution is not, as Young suggests (p.39) in conversion, but in the challenge of immersion, adaption and joining in. We can then begin the first step towards recreating and updating the musical learning on offer that relates to everyone.

The central argument is whether music educators and curriculum developers have the ability to accept, adopt and integrate digital music that is experienced by, and embedded in young children's everyday lives.

Review 2

Infants as musical connoisseurs

Sandra E. Trehub

Trehub considers the potential for infants to demonstrate preferences for music, and to make choices in the music that they hear. 'Connoisseur' may indicate a requirement of academic knowledge in music in order to have preferences. Through faculties such as memory, listening, expressive observation and physical responses, Trehub's practical examples with infants indicated that they possess a musical intelligence that makes up for the lack of musical theory and education.

Fine-tuning was explored in a range of visual and aural based test to ascertain frequency changes noted in melodies played during an apparently unrelated puppet show. These tests indicate an awakening of all senses that, if given time, infants show preferences to one melody over another through changing patterns.

Initial testing was to see whether infants noticed changes during 'other sense' activities (visual). The discovery of emotive preferences is likely to have encouraged Trehub to explore emotive and expressive responses still further.

Pitch pattern preferences were discovered through the manipulation of other senses such as visuals. Through apparent loss of interest (turning their head away from a repeated musical pattern) infants were able to distinguish the smallest change in a known melody. Infants were less interested in the pitch variations of the same melody when the note contours, or

relationship to each other remained the same. This was noted too, when offering music from other cultures. This idea was explored in detail as Trehub studied infants immersed in life experiences leading to aural preference and acknowledgement.

Comparative pitch is seemingly recognised by infants when supported with additional sensory input. Absolute pitch (or the lack of it) does not appear to deter infants from obvious enjoyment of a musical pattern. Through evidence of physical anxiety Trehub demonstrates infant preference of consonance over dissonant music. Examples in my study of pitch linked vocalising between parents and infants are noted, with one vocalising to the other at the same pitch. Positive engagement also came from hearing the same note from a pipe, resulting in infants being quiet, and listening.

Trehub makes links between consonant based melodies to infants' primary experiences of aural engagement – maternal speech. Infant directed speech tends to lean towards the emotionally positive, as well as at a higher pitch than speech. As a repeated aural experience to infants by adults as well as siblings, Trehub's suggestion that consonant sounds are preferred over dissonance sounds is realistic.

The recognition of pitch changes in an original melody is acknowledged as a skill that was noted too, with exposure to other cultures with entirely different musical rules in scale patterns. Unlike Western adults, infants from the same culture were able to detect changes in different scale types for up to 12 months, after which culture specific processing becomes entrenched in the infant's listening experiences.

As with relative pitch cues both in their culture and other cultures of music, infants are sensitive to relative duration cues. Their sensitivity to silence, or pauses, or within phrases in particular, indicates emotive enjoyment as shown by sustained attention, suggests that infants listen to music with varying tempo, dynamics, pitch and duration with genuine enjoyment, and as a matter of choice, since overall preferences are not evidenced.

Trehub pays attention to the importance of maternal, musical speech and the influence of the primary adult's voice to influence mood and engagement in their infant. Worldwide, infant-directed speech is noted as of a higher pitch, sustained vowels, rhythmic quality, repetitiveness and expanded pitch contours (Fernald, 1991). With multi-cultural music groups, I note too, preferences to higher pitch responses from culturally diverse parents. Despite differences in the material and tempo of vocal musical engagement by the primary carer there is a similarity in all cultures in how communication occurs.

Trehub confirms that elevated pitch, and elongated vowel sounds are seamlessly linked to practical reasons for 'singsong' communication enabling the parent to complete chores, soothe or distract their infant. Many times I have observed the calming influence of a gentle, pitch-heightened melody offered to a group of infants and carers.

Emotively instinctive vocal response extends to siblings and males, who tend to demonstrate greater physical affection. Trehub confirms that live musical experiences moves infants in greater ways than with recorded musical experiences, often overlooked by promotion of

educational music learning. By using live instruments in infant sessions, I observe significant physical responses (head turns, spontaneous limb motion and heightened vocalising) then with recorded music.

Trehub affirms infant as connoisseurs by observing their rapt attention shown in a loved one's expressive, and repeated musical performances, even with no formal training. Trehub expresses concern that the sensitive musical mentoring by parents is in danger of being superseded by prescriptive 'musical training' on offer. This alone, she argues, cannot give infants the natural, organic and instinctive musical exposure that in turn brings out the musical connoisseur in an infant.

Review 3

The Impact of Music Instruction on Other Skills

Frances H. Rauscher

In this research document Rauscher looks at how music impacts on other skills in young children. She mentions media influences, citing reports on 'The Mozart Effect', as an example of misconstrued evidence.

Rauscher is keen to clarify that academic ability in young children should correlate to reality, rather than perceived as fact. Outcomes such as music instruction transferred to academic performance should be considered conservatively since other factors could be involved, and art hold's an intrinsic value for young children for arts sake.

Rauscher's findings are based on impact from instruction, rather than listening to music. She offers the reader a glimpse of past research exploring intelligence that links to experiences in a positive environment. Newer technology such as PET and fMRI continue today, providing a deeper insight to the links between intelligence and physical experience. Continuing experiments highlight new findings, encompassed with a need for caution in making uninformed assumptions on conclusions.

Methodology such as Kodaly was used to determine the musical, cognitive abilities of young children. As with other experiments, Rauscher determined results from an experimental group and a control group. Significant linguistic responses were recorded. Other aspects of research data were highlighted requiring further exploration, such as the gender of each group, and their positive or negative results.

Rauscher acknowledges the need for studies to move away from the known 'Hawthorn effect' of short-term, positive intervention. Spatial task performance studies were carried out, resulting in little or no difference between the two groups, although keyboard learners demonstrated superiority over spatial-recognition. Other, related studies over a seven month period resulted in improved singing skills in the experimental group, and concluded that regular singing instruction affected the spatial intelligence of young children. In a recent project involving a qualitative study on one infant, I stress caution in making assumptions of my findings that refers to a wider audience since factors such as home, and parental engagement influence responses.

Arts based studies demonstrate improved results in core subjects, although these findings could not be attributed entirely to music. In specific music studies however, consistently positive responses were recorded in academic areas such as mathematics, reading, phonemic awareness and spelling. These positive findings encouraged several further studies to be carried out, each one using a particular aspect of music theory such as rhythm. Studies on the general intelligence of children were explored using instrumental and vocal studies, and compared to drama, or no art based lessons at all. Rauscher reminds us again, of the importance of *correlation* rather than experimental nature of these music findings. With positive reports concluding spatial development, the impact of music on general intelligence is developed as a result of earlier responses to musical experiences.

Hebb's 'neurons that fire together wire together' is a theory providing children with neuro-linked activity, such as playing a musical instrument, to create other responses. Music instruction appears to influence the brain, its perception and cognition, and evidenced in studies comparing non-musicians and musicians.

Other music studies links brain development positively to instrumentalists' specific movement if experienced early enough, due to its plasticity in early childhood. This theory was reinforced by other music tasks given to children with no prior music instruction, again, with favourable results. In my own teaching work involving regular musical experiences for 3 – 5 year olds I have noted positive musical responses and a greater ability to grasp musical meanings when learning an instrument, over a child who has had no regular musical experience. Further evidence was noted in nursery children responding to music and silence, and correlated with those not experiencing regular music and not appearing to recognise the difference between the two. Transfer of skills in this case can refer to aural fine-tuning and social awareness.

Rauscher describes 'transfer' as the moving of one kind of knowledge and skill to another. If the elements of two domains were similar, positive transfer is possible. Researchers have identified components common to musical and mathematical knowledge such as parts and wholes involving division (of beat), rhythmic notation, bar length (reduction and expansion) that supports cognitive development and the subsequent, positive transfer of skills from music to mathematics. This transfer according to Singley & Anderson (1989) shares cognitive elements, the components of which requires identifying prior to testing the hypothesis.

The decoding of visual information into motor activity, memorising music and appreciating musical formalities supports the transfer to other cognitive activities. According to Rauscher, this realisation could go some way to explaining the improved cognitive ability post music instruction.

Rauscher reiterates the need for caution in using music as a vehicle for academic enhancement. In particular educators, researchers and scientists should continue to work together to explore real life intervention without the temptation to 'tag' music intervention onto other curriculum-based subjects.

Review 4

Musical enculturation: Sociocultural influences and meanings of children's experiences in and through music.

Patricia Shehan Campbell

Campbell explores the musical worlds that children are born into. She suggests that children's earliest experiences come from a collective framework of influences including a variety of social networks, media exposure and parents' early childhood musical experiences, as well as the environment. Through this evidence coupled with complimentary theories Campbell makes a case for socio-cultural influences in music.

Children live in multiple contexts. They learn in school, at home, in their neighbourhood, and interspersed socially within the different anthropological groups. Different social groups are referred to by Bronfenbrenner as the 'Mesosystem'. External influences such as government and media known as the 'Exosystem', 'Macrosystem' encompasses culture. I acknowledge evidence of this in West London with up to 600 different cultural groups living in close proximity.

Other theorists such as Appadurai refer to social and cultural processes as 'scapes' or 'landscapes'. The development of our world as hybrid based helps to shape theories in musical experiences. Campbell refers to the different nationalities, technology, media, and political, from which to draw children's musical influences.

Two projects established by Lew and Lum traces musical sources in the home or at school, and shaped through the knowledge of the 'system' or 'scapes' structure. Children are musically influenced through family cultural patterns and developed through exposure to the wider communities. As children form independent attitudes, the various 'scapes' begin to kick in to shape musical preferences. Preferences were traceable to parental, media and educationally based sources and influenced by spontaneous play. The social systems influencing education and parental input, played a key role in the musical experiences offered later.

According to Campbell, the constancy of family structure, engagement and ethnicity influences a child's musical inclination. The socio-economics in parents may influence specific musical influences. As an example, cultural and religious differences were noted in music making with multi-cultural families at a children's centre in West London.

Although musical structures may be taught, the enculturation of music is pursued through informal activities. In turn, spontaneous musical play can influence educational subjects. Children are more active learners as indicated in Mink's findings.

Campbell discusses the evolution of multi-culturalism in the movement of immigrants across the USA that shapes musical influences for children and young people. Poor economics may put multi-race children into work sooner than American nationals, affecting sociable musical opportunities. The security of their ethnic home lives may continue to influence musical

perception and response. Five examples of multi-cultural families are presented, with different musical genres and nurturing.

Irish-Americans experience Irish music through dance and instruments and regular religious events. Active encouragement by parents helps to retain Irish musical traditions and spontaneous, outdoor play.

Mexican-American families retain a cross-generational family unit, celebrating music through festival and holidays. Musical preferences are influenced by Mexican rhythms, textures and instrumental sounds. Singing and dance is prevalent and young Mexican-Americans are encouraged to maintain musical traditions.

Vietnamese-Americans families make up two contrasting sociological groups – scholarly and the peasant coexisting in their adopted American setting. Musical influences are noted through grandparents, the media and their schooling in the USA due to the strong work ethic of parents striving to achieve stability. Songs mark strong musical influences to Vietnamese children and in turn, they engage in traditional dance with singing.

African-Americans children's home environment is made up of the wider family group, often with at least one absent parent due to death or poor health. Respect for the mother figure together with a strong church ethic, encompasses elements of musical genres including jazz, gospel, rhythm and blues. Combined with a heady physical spontaneity, young children are

immersed in constant musical styles, celebration and weekly (religious) musical rituals, many influenced by hardship and suffering.

Native Americans generally work on the principle of the 'inviolability of the individual' (Downs, 1964). This group has evolved through Indian and non-Indian value, and preferences to language, religious beliefs, family structure, and health. Localised events are embedded in musical experiences, and helps to retain traditional musicmaking through the generations.

Non-urban children are more likely to retain musical engagement since communities are retained through necessity, such as travel, finance. I note too, that British cities with a high percentage of multi-culturalism retain traditional music values within their home, coming together to enjoy group music sessions that may not involve their cultural preferences (noted in children's centres and drop-in sites).

From these findings Campbell ascertains that distinctive musical features are evident in different cultures, despite transitional habits. She acknowledges the influences by families and the environment in cultural musical activities and preferences.

Children's repeated exposure to the media influences and changes their later musical output and preferences. Within this complex auditory ecosystem, children's expressive musical selves become a matter of choice, as informed by their earliest childhood experiences, in combination with external musical offerings.

Review 5

Children's creativity with time, space and intensity: foundations for the temporal arts.

Dr Susan Young

Young creates intellectual discomfort on the current perception regarding children's creativity in the temporal arts. Through her observation of creative practice in different cultural groups Young suggests that incomplete theories require fresh challenges to validate the limited and often tokenistic conclusions.

Young explores visual dominance as largely accepted within western societies, and its' influence on child perception. In other societies a sense of proprioception prevails, gathering interest amongst researchers and practitioners. Without this in-depth, bodily awareness, preference for the visual restricts interpretation and planning of creativity in educational contexts (Young). She encourages the reader to re-consider visual dominance and to consider a more expansive view of creativity through the study of cultural groups, and the relationships between adult and child.

The organic energies within time and space is rarely documented, since often, verbal exchange suffices. In particular, study tends to be drawn directly as a result of adult activity and influence. Egan (2003)'s theory of mimetic culture as a generative resource for creativity precedes language and is broadly supported by Young's observation. Studies include a Muslim community exploring instruments through theatrical and creative play.

The dual use of the xylophone by a nursery teacher and Manu (aged 4) highlights the interest that young children have in socialising. Recognising a child's intention to make music without pre-conceived assumptions helps educators to understand a child's creative ability. Young talks of conventional (2003 & 2005) music making in groups, and the need to enable more intimate opportunities offered by key adults. Access to quality musical props offers young children a 'third' avenue of creative exploration.

Young suggests that temporal arts are rooted in the sociability and intimacy experienced from birth. Visual, auditory, proprioceptive and oral information are co-ordinated and articulated as one (Young). Safe brain-imaging studies in babies confirmed this idea as a whole kinaesthetic experience (Berrol 2006). This refers logically to Young's suggestion that children are sensorily articulate as a result of their cultural environment. It is the examination of early childhood experiential processes that will help to decipher how to enhance a child's multi-sensory experiences of the world.

The findings of older children perceptual ability are inextricably linked, and include Young's example studies of mimetic behaviours in time, space, and in pairs. In studies involving infants and mothers musical play is transformed from imitative response into sophisticated phrase-patterns of communication. Response can be analysed emotively since what we see and experience is wholly meaningful and expressive (Stern, 1985).

Positive interaction in babies is noted in materials used, or three-way play (Young). These infer meaning to an infant when their key adult is also engaged, even with eye contact alone, as noted in the xylophone study or with a fife, (in my own infant and parent sessions). Similar musical exchange is again recorded in my study with young deaf children (2011). Mutual, multi-modal response is retained through exploration of instruments.

Mutually shared timings in communicative activities express musical responses in time and space, as long as both parties are content. Game playing is evidenced in Young's studies as a possible prelude to language development (Bruner, 1983), and provides the reader with a clue into the transformation of a baby's finely tuned multi-creative experiences into the older child's life tools.

Theatrical art work has shifted from the previously detached audience to the idea of 'interactive installations', offering open exchange and spontaneous movement that fosters creative thinking (Young & Powers, 2009). My musical storytelling shows for toddlers elicited the shift of multi-sensory activity from the performers to their audience by transfer of multi-arts communication interwoven within the musical fabric. This, and Young's own experience affirms Young's suggestion that musical creativity relies on sociable sharing and exchange or interactive engagement, as in earlier examples presented. Non-verbal media in creative play overcomes language barriers, but increasingly shows us the significance of alternative means of communication.

Young highlights the need to use critical analysis in the study of musical interaction within the wider socio-cultural context. Exploring anthropological and home musical experiences determines deeper analysis. By observing a child and parent-initiated musical play in a mixed culture group in West London I also revealed additional layers of musical responses through the encouragement of merged sound and activity engagement.

Perhaps restriction and restraint is regarded more highly in other cultures than in the current western trends. According to Young perhaps we need to think about other cultural traditions more deeply, and enable the right of the different responses (for example, females) by these groups to less diverse groups in our societies.

More impartial and reflective revision is needed in the light of new challenges as presented in Young's examples of practice since research in children's creative activity is inconclusive, and by the very nature of human's ability to be social, in need of alternative pathways.

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