



## The use of music therapy to promote attachment between parents and infants

Jane Edwards, MMus, PhD\*

Music & Health Research Group, University of Limerick, Ireland

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### ABSTRACT

The promotion of attachment behaviours between parents and infants through music-based interventions is an emerging specialism in music therapy practice. The theoretical formations and research to support this work are increasingly being elaborated, and the work of music therapists with clients throughout the lifespan increasingly draws on this rich theoretical base.

This paper provides an overview of the theoretical underpinnings that inform the work of qualified music therapists in promoting healthy and secure attachment between parents and infants where disruption to a secure relational bond has occurred, or is vulnerable in some way. Characteristics of the innate musicality of the very young infant are considered, and the mutual regulation potentials of music making between caregivers and their developing infants is presented.

Recognising the musicality of early parent–infant interactions allows for a deeper theorising of the effects and benefits of music therapy for this population as well as a unique insight into how sensitive responding through shared timings and synchrony builds capacity for the essentials of emotional intimacy for the developing couple. For the purposes of this review the definition of infant used is the broadest possible: from birth until 3 years and 11 months of age.

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### Introduction

Building the bonds of love in a secure relationship in the early years is essential to making a good start in life (Gerhardt, 2004). Part of the repertory of interaction in a loving parent–infant relationship involves easily identified musical elements (Dissanayake, 2008; Malloch & Trevarthen, 2008). The music therapist therefore has a strong existing base from which to provide therapeutic interventions that promote secure bonding between vulnerable infants and their caregivers.

Parent–infant work in music therapy has more recently developed as a professional specialism with recognised leaders (for example Abad & Williams, 2007; Oldfield & Flower, 2008; Shoemark & Dearn, 2008). Music therapists have reported the benefits and opportunities when family members are included in their work with very young children (Oldfield, 1995; Trollidalen, 1997). Music therapy programs that specifically aim to support attachment behaviours between vulnerable parents and their infants have been founded, notably the Australian program *Sing & Grow* (Abad & Edwards, 2004; Abad & Williams, 2005, 2007).

In the context of parent infant work, music therapy can be described as:

... a process of developing a relationship with a caregiver/dyad in order to support, develop and extend their skills in using musical and music-like interactions including vocal improvisation, chants, lullabies, songs, and rhymes, to promote and enhance the sensitivity and mutual co-regulation between infant and caregiver, in order to create the optimal environment for secure attachment to be fostered. (Edwards, 2011, p. 6)

This review provides an opportunity to present and reflect on the opportunities available through music therapy when offered as a means to support and promote attachment behaviours between vulnerable parents and their young children, as well as to consider the implications of the emerging theoretical base for the practice of family-oriented music therapy.

### Music therapy programs with families and young children

Music therapists have reported work with families and infants in a range of contexts. Music therapists practising in medical settings such as the Neonatal Intensive Care Unit, and pediatric burns and oncology, have particularly highlighted the need for an understanding of the role of the family, and their needs, as the focus for music therapy interventions (Davison & Kennelly, 2000; Edwards, 1998; Edwards & Kennelly, 2011; Loewy, 2011; Shoemark & Dearn, 2008; Stewart, 2009).

It is difficult to establish a precise starting point for music therapists' interest in providing supportive parent–infant interven-

\* Tel.: +353 61213122; fax: +353 61202589.  
E-mail address: Jane.Edwards@ul.ie

tions to vulnerable infant–caregiver dyads in non-medical settings. Promoting the use of music as a means to enjoy and explore parent infant relations is not new but the literature has perhaps lagged behind practice developments. The impact of music therapy interventions on the development of the bonds of attachment is reportedly of increasing interest within the music therapy community of practitioners working with vulnerable parents and infants, especially in the early intervention setting (Edwards, Scahill, & Phelan, 2007; Jonsdottir, 2002; Nicholson, Berthelsen, Abad, Williams, & Bradley, 2008), as well as in music therapy work with adults (Austin, 2008; Pavlicevic, 2000).

In a report of the development of the *Sing & Grow* program in Australia (Abad & Edwards, 2004), it was proposed that “the use of music therapy to assist parents to extend their repertory of successful and nurturing parental behaviours in interaction with their young children” was “under reported and researched” (p. 5), and a “relatively new” development (Abad & Edwards, 2004, p. 14). Oldfield and Bunce (2001) in the UK had also described that music therapy work with mothers and young children was unusual. However, some earlier examples of family-oriented music therapy practice can be found. A report of a family-centred music therapy program with early intervention goals was published some years earlier in Australia (Shoemark, 1996). Information and support for music making between parents and their children with special needs was published by a qualified music therapist in the UK (Streeter, 2001, 1993). Trollalden (1997) had also reported on a mother infant music therapy project in Norway.

The *Sing & Grow* music therapy program is offered through short-term weekly sessions for groups of up to 10 families (Abad & Williams, 2007). The purpose of music therapy offered through the program is to “strengthen parent–child relationships through increasing developmentally conducive interactions, by assisting parents to bond with their children, and by extending the repertory of parenting skills in relating to their child through interactive play” (Abad & Williams, 2007, p. 52). The benefits of supporting parents in these group music therapy programs to engage musically with their young children to promote attachment has been reported (Abad & Williams, 2007). Music therapy programs with mothers and their infants have shown benefits in the quality of interaction observed, and self reported satisfaction with participation in the sessions (Oldfield & Bunce, 2001; Oldfield, Bunce, & Adams, 2003). Observations in music therapy sessions with mothers and their infants from the asylum seeker community revealed that interactions and interpersonal engagement improved for these vulnerable, “preoccupied” mothers and their children (Edwards et al., 2007).

A music therapy pilot project sought to determine the effects of structured group music involvement with children between the age of 12 and 24 months and their parents (Standley, Walworth, Nguyen, 2009). Findings showed that children in the music group benefited in cognitive and musical development compared to matched controls. As the study included parents, it is of interest to this review. However, it focused on infants’ developmental skills rather than parent–infant interactions. By comparison, a report of a music therapy group program with self-referred well families showed benefits through offering social support in a group setting which led to self-report of learning additional ways to deal with parental challenges (Mackenzie & Hamlet, 2005).

Bargiel (2004) made a number of recommendations about the development of early intervention music therapy programs to support parents and their infants. Specifically she proposed that the first interaction be the therapist and dyad, with a group program only commencing after three weekly sessions for 10 weeks, and a follow-up assessment (Bargiel, 2004).

The first study to evaluate a short term early intervention music therapy parent–infant program using validated measures found that for 358 parents and infants, a number of significant benefits

impacted the parent and child in a range of areas including education in the home and parental mental health (Nicholson et al., 2008). Additionally, a series of case reports on the uses of music therapy in a range of contexts with parent–infant dyads has demonstrated the utility of music therapy in providing effective support to promote attachment (Edwards, 2011)

### Parent–infant bonding

In a healthy relationship the caregiver “...affords emotional access to the child and responds appropriately and promptly to his or her positive and negative states.” (Schore, 2001, p. 205). This supports the adaptation of the infant towards internal regulation functions which relate to “the regulation of arousal, the maintenance of alertness, the capacity to dampen arousal in the face of overstimulation, the capacity to inhibit behavioral expression, and the capacity to develop predictable behavioral cycles.” (Beebe & Lachmann, 1998, p. 485). This interpersonal and intrapsychic regulation of the parent–infant dyad is considered interactive; “Interactive regulation flows in both directions, on a moment-to-moment basis, so that each experiences influencing, as well as being influenced by, the other’s behaviour.” (Beebe & Lachmann, 1998, p. 500).

A summary of the necessity for attachment can be found in the British psychiatrist John Bowlby’s report to the World Health Organization (Bowlby, 1951). He wrote that, “The infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment” (Bowlby, 1951, p. 13). Bowlby (1951) and his colleagues provided evidence that maternal deprivation caused significant stress for infants and young children with lifelong consequences (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby & Robertson, 1952; Robertson, 1953). Although it took decades to achieve, their research findings changed hospital practices to allow parents visiting rights (van der Horst & van der Veer, 2010), and became influential in how the needs of vulnerable children were perceived (Bretherton, 1992).

Throughout the 20th century, other influential figures gave further credence to the necessity for a secure parent–infant base to support the development of lifelong capacities for psychological stability and the capacity to form intimate relationships successfully with others (Beebe & Lachmann, 1998; Stern, 2000; Trevarthen, 2001; Winnicott, 1965). It is increasingly evident that attachment behaviours have specific purposes and require sensitivity and responsiveness on the part of the caregiver. The figure of the mother or other primary carer must behave in what Winnicott has described as a *good enough* way to contain the infant’s anxieties and fears of: 1. Going to pieces; 2. Falling forever; 3. Having no relationship to the body; 4. Having no orientation, and 5. Complete isolation because there is no way to communicate (Winnicott, 1965, p. 58).

The development of the ability to relate and communicate has been described as a series of building blocks or developmental phases of intrapsychic and interpersonal capacity (Stern, 2000). Stern (2000) has described these as having various *domains* that include the Emergent self, from birth until 2 months, Core self, from 2 to 6 months, the Subjective self, that emerges in the period from 7 to 15 months, the Verbal self, at 15–18 months, and then the Narrative self at around 3–3.5 years (Stern, 2000, p. xxv). When the ability to seek or maintain this communication is absent or impaired in the relationship urgent support and help is needed. A qualified music therapist can work in gentle non-intrusive ways to help parents and their infants discover and strengthen their capacity for relating through the musical play that is part of the usual repertory of parent infant interactions.

## The musical baby

Extensive research studies have identified distinctive and surprising aspects of early musical capacity in the human infant. It is well established that the newborn infant can distinguish elements of rhythm, pitch, and melody (Papoušek, 1996). As they develop, infants use this knowledge to learn about the world around them, and to acquire language (Vosoughi, Roy, Frank, & Roy, 2010).

Infants' early cry stabilises at a pitch that is relatively constant. Individual infants showed only a semitone variation by 3 months of age (Wermke, Mende, Manfredi, & Brusciaglioni, 2002). These findings have indicated that for the human infant "linguistic and musical channels are likely to be equally accessible and not discrete" (Cross, 2009). This suggests that infants may not be discriminating between music and speech but instead are drawn to the types of vocal interplay that they experience as more meaningful and recognisable.

Newborn cries recorded within 5 days of birth showed that German and French infants differed in the contour of their cries (Mampe, Friederici, Christophe, & Wermke, 2009). The French babies produced cries with a predominantly rising contour, and the German babies showed a falling contour in their crying. These findings suggest that infants are influenced by the rise and fall in the tonality of the language they hear spoken while in the hearing phase of their development in utero (Mampe et al., 2009).

There is a substantial body of evidence to show that infants prefer music to speech. They especially show preference for their mother's singing rather than her speaking (Nakata & Trehub, 2004), and prefer this singing when it has infant-directed features (Trainor, 1996). In a study of fathers' singing infants did not show a greater preference for either audiovisual recordings of their father's singing that was infant-directed, or for songs recorded without the infant present (O'Neill, Trainor, & Trehub, 2001). In the same study a comparison of infants who watched a recording of their father's singing and their mother's singing, indicated that infants paid greater visual attention to fathers (O'Neill et al., 2001). Informal observation led the researchers to propose that this may have been due to some performance elements of the fathers' singing described as "vigorous" and "exuberant" with elements of self-consciousness that were not perceived in the mothers' performances (O'Neill et al., 2001, p. 422).

Other examinations of music preferences in infancy have uncovered further discrimination abilities. In tests of 6 and 7 month old infants using head turning as a measure of preference it was demonstrated that unfamiliar lullabies were preferred when sung at a lower pitch and unfamiliar playsongs were preferred when sung at a higher pitch (Tsang & Conrad, 2010). Previous research showed infants preferred lower pitched renditions of unfamiliar lullabies (Volkova, Trehub, & Schellenberg, 2006). Even at the age of 2 months, infants have been shown to remember a short melody and then be able to distinguish between the familiar melody and a novel melodic phrase (Plantinga & Trainor, 2009).

In the early years musical capacities develop alongside rapidly progressing motor, language, and social developmental changes. Musical skill acquisition has an observable developmental sequence (Briggs, 1991; Hargreaves, 1982). Briggs (1991) used an extensive literature base of studies of music in the early years to propose a phased model charting this development in the four areas of capacity: 1. Auditory, 2. Vocal/tonal, 3. Rhythmic, and 4. Cognitive. Infants first use their abilities in listening and vocalising during the Reflex Phase from birth to nine months. They then develop skills in being able to copy musical phrases and learn snatches of songs during the Intention Phase until around 18 months. The next 18 months of the Control Phase shows rapid development of the ability to control musical elements and in the final Integration Phase are able to learn a music instrument, and rapidly learn songs, rhymes,

rhythms and chants (Briggs, 1991). As with language abilities, perception and reception develop first and then the ability to perform musical tasks including singing and use of instruments (for a further review see Miyamoto, 2007).

## The musical parent

The infant is born with the neurological and auditory maturity to discriminate pitch, and as it develops can increasingly recognise the emotional intention of vocal timbre (Bergeson & Trehub, 1999). It is therefore understandable that caregivers worldwide soon realise that the infant will best attend and respond to requests for playful interactions through offering stereotypical sing song vocalisations. The particular ways of singing and speaking when interacting with infants in order to capture their attention and promote reciprocity (Bergeson & Trehub, 1999; Bryant & Barrett, 2007) is currently termed "infant-directed". Earlier terms for this phenomenon included "baby talk" and "motherese". This way of speaking is distinct from the way adults use their voice in interaction with older children and with each other (Trehub, Trainor, & Unyk, 1993). The way that the infant responds to this playful vocalising easily promotes feelings of loving intimacy for the caregiver which is vital to bonding (Gerhardt, 2004). For example, this emotional musicality, or singing quality, was not present in an acoustic analysis of the vocalising of a depressed mother as compared to a mother with no mood disturbance (Robb, 1999). A review of studies of interactions between parents and infants from 3 to 6 months of age showed that depressed mothers use less infant-directed speech, and have difficulties with the synchrony of their timing in vocal interplay with their babies (Field, 2010).

Prosody is the rise and fall of pitch in speaking that is similar to the pitch changes in a melody. Adults use distinctive pitches and exaggerated prosodic contours in producing infant-directed speech. Infant-directed singing similarly includes features such as "final phrase syllable lengthening" (Trainor, 1996, p. 89), placing emphasis on certain words, and using a "loving tone of voice" (Trainor, 1996, p. 90), that is probably a function of smiling while singing (Trainor, 1996). This type of singing is used by children as young as 3 years of age when singing to younger siblings (Trehub, Unyk, & Henderson, 1994). It has been demonstrated that individual mothers create distinct signature tunes (Bergeson & Trehub, 2007) by using the same pitch in the rise and fall of their utterances to their infants. Caregivers "across cultures use broadly similar pitch contours to express their arousing, soothing, and disapproving intentions. . ." (Bergeson & Trehub, 2007, p. 648). It is proposed that this pitch stability creates a way for the infant to recognise the mother's voice and this recognition serves to "enhance reciprocal emotional ties" (Bergeson & Trehub, 2007, p. 649).

Mothers singing songs to their 4–7 month old infants recorded one week apart were demonstrated to produce the exact pitch and rhythm in both renditions (Bergeson & Trehub, 2007).

Adult capacities for pitch perception, recognition, and recall have been shown to be stable even in people who do not have musical training and have not developed absolute pitch; that is, the ability to assign a letter name to a pitch class (Levitin & Rogers, 2005; Schellenberg & Trehub, 2003). This suggests that the ability to recognise pitch is retained and continues to be used as a vital perceptual skill beyond infancy.

Many parents also learn that a lullaby can be used to aid relaxation, soothe distress, and invite sleep (Trehub & Trainor, 1998). However, the lullaby is rarely used as an exclusive soothing modality. For example, in a study of the experiences of using lullabies for 18 first time mothers, MacKinlay and Baker (2005) found that "Patting, stroking, rocking, bouncing, or walking around the room while singing to babies were common techniques. . ." (p. 88). Music

and movement are allies when searching for ways to soothe and comfort a tired infant.

Malloch and Trevarthen (2008) have metaphorically linked parent–infant musicality to movement citing evidence to support their view that we “live, think, imagine and remember in movement” (Malloch & Trevarthen, 2008, p. 1). In music therapy work with mothers and their infants it has been noted that the function of “recognition” between the parent and infant requires the presence of sound, gesture and movement (Trolldalen, 1997); “That is, timing, . . . dynamics, . . . and narrativity” (Trolldalen, 1997, p. 26). Additionally Papoušek (1996) noted that these musical interactions between parents and their infants are usually multimodal, not only involving auditory based melodic and vocal interplay but also having rhythmic, physical movement, and visual aspects (Papoušek, 1996). It is therefore recognised that nonverbal and tactile aspects of this interaction are present for the parent and infant when learning each other’s “rhythmic structure” (Schore, 2009).

### Musical parenting

A review of four decades of mainly observational research conducted about playful communicative interactions between mothers and infants noted how interactions were observed by many researchers to be highly ritualised, leading to descriptions of these interactions as “musical” or “dance like” (Malloch & Trevarthen, 2008, p. 1). Pavlicevic (2000) has noted that parents and infants create highly expressive interactions where both partners “negotiate and share a flexible musical pulse between them, constantly adapting their tempi, intensity, motion, shape and contour of their sounds, movements and gestures in order to ‘fit’ with the communicating partner” (Pavlicevic, 2000, p. 274).

Considering these vocally playful interactions between parents and pre-verbal infants to have musical characteristics and qualities adds a useful dimension in examining the functions and benefits of these exchanges. Papoušek (1996) has proposed that adults’ use of these melodic contours in infant-directed speech is a “communicative code” (Papoušek, 1996, p. 96). This “communicative musicality” (Malloch, 1999) affords the infant and caregiver a way to express and exchange information about emotional states; fundamental to strengthening the bonds of love.

In caregiver and infant music making, “Music is not communicative in the sense of sharing information. Instead, it is concerned with sharing feelings and experiences and the regulation of social behaviour” (Trehub, 2003, p. 672). This capacity of musical exchanges such as singing nursery songs or lullabies to convey feeling states offers a means to experience mutually satisfying and meaningful interactions, and is therefore highly relevant to the practice of music therapy in parent–infant work. Additionally, the musical qualities of vocal interplay between parents and pre-verbal infants has a resonance with the type of improvised music created in music therapy with patients of all ages (Pavlicevic, 2000).

It is proposed that “communication with an infant is, from the beginning, intersubjective and emotional, valuable to both infant and adult in itself as an interpersonal exchange of feelings and state of animation, no matter what the language content” (Trevarthen, 2001, p. 103). While watching and listening to recordings of interactions between mothers and their infants a postdoctoral researcher (Malloch, 1999) working with Trevarthen was struck by the musical aspects of these co-created events leading him to suggest that “. . . a mother and her infant can jointly create a musical piece – both are musical partners within their communication space” (Malloch, 1999, p. 47). Papoušek (1996) described how when she was notating the pitches of infant directed speech it was tempting to also record the other musical aspects of these interactions “such as crescendo/diminuendo, rallentando/accelerando, legato/staccato,

dolce, or agitato” (Papoušek, 1996, p. 94). Malloch and Trevarthen (2008) concluded that “these ‘musical’ narratives allow adult and infant, and adult and adult to share a sense of sympathy and situated meaning in a shared sense of passing time” (Malloch & Trevarthen, 2008, p. 4). Since all musical performance requires attention to timing, pitch and synchrony, musical elements can easily be heard in the playful interactions between caregivers and infants.

Dissanayake (2008) also noted the musicality of these communicative encounters. She proposed that this playful interaction is “proto-musical” and is a foundation source for the universals of human musical behaviour. In her view, the proto-musical features of “formalization, repetition, exaggeration, dynamic variation, and manipulation of expectation” (Dissanayake, 2008, p. 176) contribute to emotional bonding because they impact on the infants’ “visual, vocal, and kinesic signals that enable their emotional bond with their mother” (Dissanayake, 2008, p. 176).

The use of these easily recognisable musical elements to co-create mutually satisfying encounters between parents and their offspring is increasingly understood to contribute to healthy and optimal growth through the early years. These positive interactions in turn create a strong foundation for future capacities for intimacy and positive relating, with these positive early relations influencing later mental health (Maselko, Kubzansky, Lipsitt, & Buka, 2010).

### Implications for music therapy

Parent–infant interactions do not necessarily have musical intention but recognition of the musical features of this interplay stimulates further reflection about how these aspects of the early relationship may effect the interpersonal dynamics in music therapy sessions. The process of musical improvisation in music therapy sessions reveals much about the communicative qualities in the developing relationship between the client and therapist (Pavlicevic, 2000). The music created in this dynamic interplay can be considered a “by-product” rather than being the intended outcomes of the work of building the relationship between the therapist and client (John, 1992). The music functions as a way to experience relating; demonstrating essential skills and capacities. The quality of this relating can reflect the client’s capacity to manage interpersonal relations, experience emotional intimacy, and develop trust, and further skills.

The music therapist works with the client to evoke and then reflect upon musical narratives that are considered to mirror clients’ emotional and interpersonal life experiences (Austin, 2008). The music that is created is less relevant as a cultural symbol than a deeply affective emotional communication channel. For a child or adult with a disability that has prevented their development of language as a means of communication, this interaction offers a “lifeline to human sociality” (Malloch & Trevarthen, 2008, p. 6). For adults seeking support for psychological distress, it is possible that in the incoherence they experience in trying to make meaning from what they feel, this musical interaction can offer a supportive holding place for the incomprehensible of their feeling world until it is ready, like the infant’s eventual development of words, to become a story that can be told. Through song writing, parents can send messages to their children, and children can write songs that reveal otherwise unknown aspects of their experiences to other family members (O’Callaghan & Grocke, 2009).

This review supports the basic premise that the first relationship has a strong musico-auditory basis and as such the music therapist has a unique and important role to play in supporting positive attachment and remediating attachment difficulties. The music therapy profession could benefit from further consideration of the theoretical underpinnings of attachment and bonding.

Infants' musical discrimination capacity has been somewhat taken for granted to date in music therapy training and practice. Further attention to this well established body of research could build a stronger basis for the application of music therapy interventions throughout the lifespan.

## Conclusion

Two strong trends are revealed in this overview of contemporary literature. The first is the international breadth of the developing work by music therapists within a family-centred context of practice, especially work with infants and their parents in the early years. The second is the use of the theoretical principles of communicative musicality (Malloch & Trevarthen, 2008), and knowledge of early musical skills and development (Briggs, 1991; Trehub, 2003), to understand how and why musical interaction with a qualified music therapist can offer a potential pathway to reparation of difficulties that are currently occurring in, or are a result of, the first relationship. Both of these areas demonstrate increasing awareness within the music therapy field of the importance of successful attachment, and the rich possibilities of remediating unsuccessful attachment experiences through musical means within music therapy practice.

“By providing a musical container, or skin, in which both the parent and infant can be held, music therapy can offer the vulnerable dyad a chance to safely encounter and explore one another anew.” (Edwards, 2011, p. 4) Music therapists have rich resources for supporting this capacity sensitively and joyfully with their clients, tuning parents in to the innate musicality of their young children, and helping infants to have successful experiences of shared interplay with their parents. Whether sharing the actions in songs, or joining together in instrumental play, the parent infant relationship is strengthened through this joint musical play. Further research and development work is needed in order to understand how to optimise and promote this work more widely, especially with the inclusion of potential co-collaborators from related disciplines.

Further distinctions between, and a deeper understanding of theoretical approaches, will help provide more specific training and supervision support for practitioners, as well as for students in training. For example, distinctions and the overlap between music therapy as a preventive approach or as a treatment approach are not always clear. The role of the therapeutic relationship between the therapist and the dyad and how this is established, fostered and maintained in a music therapy context, including in group programs, could be further elaborated. Measurement and evaluation of outcomes has received some attention (for example Nicholson et al., 2008; Standley et al., 2009). However, standardized evaluation tools for routine use in music therapy parent–infant programs could be usefully developed.

The ways in which music therapy promotes attachment needs further research attention. As the problems that manifest from poor attachment at societal, familial, and individual levels are potentially so catastrophic, it is essential that this work continue to grow through the voices of practitioners and their research collaborators broadcasting as widely as possible the opportunities available, through music making, for the promotion of parent–infant bonding.

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