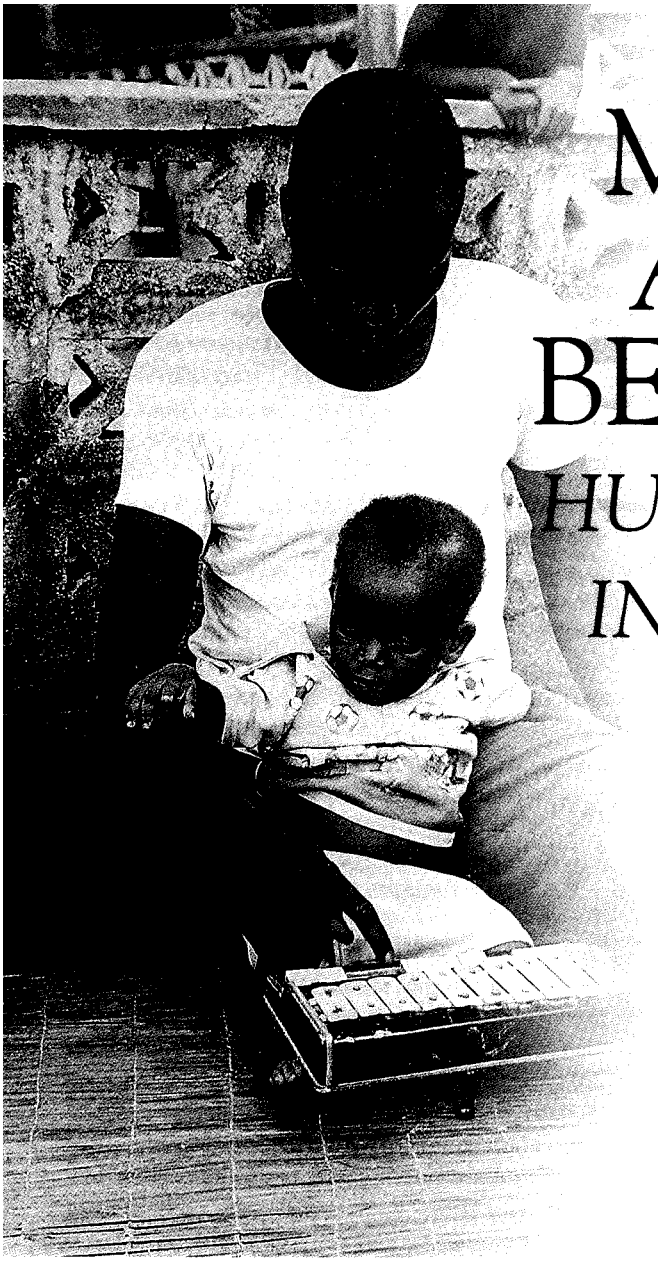

MUSICALITY AND MUSIC BEFORE THREE:

HUMAN VITALITY AND INVENTION SHARED WITH PRIDE

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The idea that communication and play with infants and toddlers has an innate "musicality" is not new. Joannes Amos Comenius, writing in the 17th century, valued the musical games of childhood and advocated their fostering, as did Froebel more recently. Mechthild and Hanus Papousek have written of the "biological and cultural origins of early musicality," of "melodies in caregivers' speech" conceived as a "species specific guidance towards language," and of the "musical elements in infant's vocalisation" (Papousek & Papousek, 1981; Papousek, 1994; Papousek, 1996). In the past 25 years, many research studies have confirmed that music and song have special importance for young people (indeed, people of all ages), enriching their vitality. It seems that musical patterns are at the generative heart of the communication that animates human cultural learning.

And why not? All human relating, communicating, and sharing of purposes and consciousness depends on sympathy between moving minds and bodies — sympathy based on imitation of the pulse of acting with awareness and feeling, and on sharing the sense of time in the mind. Relating through music and language is something we do naturally. Music and language are not "things" to be learned. We make language with pitch movement and rhythmic timing, body and voice moving together in a choreographed act of meaning with others. We make music or poetry when we express the motives for moving in a special communicative way, riding the cross-currents of intersubjective experience. A toddler learns language because he or she loves to discover thoughts and meanings with others in shared intention, and in rhythmic exchanges of expressive movement.

The young child's cleverness at picking up the sense of actions and things symbolized in our talk should remind us that words written as texts and music written as scores — the time-defying records we make of this information-rich behavior — are *products* of moving in meaningful expressive ways. They are keys to the collective consciousness of a community that has grown in talk, play, work, and meaning

over many generations. But they in themselves are out of living time, waiting for the imagination of a reader or performer to give back to them the experience of moving.

Efforts of developmental scientists to find how infants learn to communicate, and to define what mothers and fathers do to make speech attractive for an infant and truly communicative, have led to experiments on what a baby can discriminate in sounds: of human speech, of objects being used, and of song and musical instruments (Fassbender, 1996). Surprising discoveries have been made about infants' musical listening and their natural preferences (Trehub, 1990; Trehub, Schellenberg, & Hill, 1997). Even a premature newborn may actively contribute to a precise rhythmic exchange of vocal sounds, helping to co-create a single "narrative" of feeling (Malloch, 1999; Trevarthen, 1993). The findings show we are born with a sensitive awareness of the emotion and skill of "performance" — that we can join in time with the adventure of self-expression in company.

An infant may enter into the ryhthms and melodies of a conversation minutes after birth.

Babies know a lot instinctively, but they also learn quickly, especially about the experiences of being in the world of communicating humans. Sensitivity to rhythms and melodies of song and music may result from a perceptual learning similar to that which leads to speech — one that begins not empty or without structure, but with innate time sense, "perfect pitch," judgment of harmony or disharmony of expression, and a preference for grace over awkwardness. Is this a "pan-musical" sense from which awareness of particular music types is selected?

The Science of Musicality in Communication

We have formulated a theory of the motives of Communicative Musicality that defines the fundamental forms of expression and artistic creation for all temporal arts — theater, dance, poetry, and what we know as "music" — and explains the infant's appreciation of musical patterns. This theory attempts to describe the dynamic sympathetic state of a human person that allows "coordinated companionship" to arise (Malloch, 1999; Trevarthen, 1999).

Communicative musicality seems to be an intrinsic organizing principle for all movements in healthy parent-infant interactions (Malloch, 1999, 2002). Communicative musicality facilitates turn-taking on a shared pulse, regulates the pitch-contours of the vocalizations of both parent and infant, and inflects the timbre of vocalizations. We hypothesize that the capacity to generate and participate in communicative musicality allows us to "spend time" meaningfully with another person, regardless of age, and to allow this time to be shaped into mutually satisfying narratives of interaction through the inflection of vocal and bodily gesture (Malloch, 1999). This is the "cradle of thought" in which an awareness of symbols grows at the close of infancy (Hobson, 2002).

We define Communicative Musicality by three dimensions: pulse, quality, and narrative (Malloch, 1999):

1. *Pulse* is the regular succession of discrete behavioral steps through time, linking the present to the past, representing the "future creating" process by which a subject may anticipate what might happen and when.
2. *Quality* consists of the contours of expressive vocal and body gesture shaping time with expressive movement.
3. *Narratives* of individual experience and of companionship are built from the sequence of units of pulse and quality found in jointly created gestures — how they are strung together in chains of expression that generate affect.

It is easy to observe communicative musicality in early parent-infant communication because the meaning of the adult's words cannot play a role, and because the infant and parent are typically eager to "attune" with each other (Stern, Hofer, Haft, & Dore, 1985). Parent and infant make use of the parameters of pulse, pitch-gesture, and timbre-gesture — so vital to musical art — to form vocal narratives of shared emotion and experience (together with gestures of the body). When communicating in a way satisfying to both, they sustain a coordinated relationship through time.

Infants Are Born Musical, Ready for Intuitive Parenting and Parentese

An infant may enter into the rhythms and melodies of a conversation minutes after birth. Parent and child meet in mutual intentionality and with sympathetic emotions. This is stage one of a journey that leads in the first year of life to a collaboration in noticing and doing, and to an inventive and practical consciousness that can gain the child a confident and proud place in a cultural world.

When a parent talks to a baby, the voice is melodic, with specific vocal qualities of pitch and timbre (Fernald,

at a glance

- From the time of birth, infants are able to engage musically with parents and caregivers.
- Music is used differently in the stages of an infant's development: first to calm and arouse, then to provide an opportunity for performance and sharing.
- An infant may learn language patterns by first recognizing musical patterns in a parent or caregiver's speech.
- "Communicative Musicality" is a term used to explain using music to converse emotionally with others.

1992; Malloch, 1999). Motherese, or Parentese or Infant-Directed Speech (IDS), is organized in repeated phrases. It creates animating incidents and slow, cyclic "narratives" of emotion. Daniel Stern (1993, 1999, 2000) has described the "dynamic narrative envelopes" of a mother's utterances, with their fluctuating urgency and intensity. These have been identified as training for the infant's self-awareness and consciousness of agency. On the other hand, the precision of the infant's mirroring of feelings with smiles and coos is evidence for the interpersonal nature of the communication. Newborns actively synchronize with salient moments in the adult's message by gesture or utterance, predicting what the parent will do, and infantile "coo" sounds can be matched in pitch and quality (timbre) between them. Adults speaking to infants often imitate baby sounds, reflecting the melody, pitch, and quality of the infant's preceding utterance. There is a sensitive two-way mirroring of the enhanced emotional values of expression that is a bridge between the great difference in maturity of the baby and the adult.

Parentese projects the feelings, interests, and intentions of the speaker clearly. As Mary Catherine Bateson, an anthropologist and linguist, points out, "protoconversation" with a 2-month-old relates to both education in language and to the rhythms and melodies of religious ritual and communion, or traditional healing practices (Bateson, 1979). It engages human communicative motives in more than linguistic ways. Speech to infants in different languages has universal rhythmic and prosodic features — for example, everywhere in the world rising contours elicit and maintain infant attention more than falling contours (Fernald, 1992; Papousek, 1994; Trehub, 1990). Infants are more interactive, interested, and emotionally positive to IDS than to adult-directed speech. IDS engages attention, communicates affect, facilitates social interaction, and helps language acquisition — all consequences of an adult's and infant's innate motives for communicating the primary impulses of a conscious agency.

Musicality, Vital Companionship, and the Subtleties of Art

Infants are sensitive to the "inner meaning" of music. Their selective orientation to musical sounds, detection of musical features of sound, and vocal and gestural responses that are timed and expressed to contribute to a joint musical game (Dissanayake, 2000; Papousek & Papousek, 1981; Trehub, 1990) confirm that music has strong roots in human nature.

The communicative musicality of infants and toddlers — their love of singing sounds, dancing gestures, and melodramatic narrative games — is an expression of motives seeking sympathy and companionship that are essential for all cultural learning and the mastery of all meaningful thoughts. We believe that this vitality, which is neither "language" nor "music," reveals the general capacity to be communicative in the peculiar polyrhythmic, stepping, swinging, dancing, and "melodic" way human bodies move to celebrate and share (Trevarthen, 1999). This means that when a playmate *joins* in musical and dancing games with an infant or toddler — not simply exposing the child to the sounds called "music" — he or she is sharing motives that generate the flow of acting and thinking. Communicative musicality means to have, share, and affirm emotions. As the Norwegian musicologist and teacher Jon-Roar Bjørkvold (1991) observes:

> The mother stimulates the child and the child stimulates the mother in such a way that the result is far more meaningful than either could have produced alone. . . Mother and child "swing" together in a common rhythm, and in so doing strengthen each other's identity. (pp. 12-13)

It is intriguing to trace how the impetuous and unbridled happiness of a baby's participation in an action song or a toddler's vocal dramatizing of imaginative play can be related to, and prepares the way for, a cultivated song or instrumental performance that recreates the experiences of an artistic tradition. Analysis of musical expression and cognition in infancy confirms that the art of music grows from needs to move that are inherent in all communication, including speech and language, dance, and drama. Fostering the child's sense of musicality is not the same as educating the child in the creations and techniques of the music culture, with its many different styles, techniques, and venues. The most successful teachers of music, who support pupils' discovery of the aesthetic universals and introduce the practice of a superior level of musical art, follow the child's natural musicality and share his or her appetite to know more about living and moving. Young children bring us back to the joyful source of all dynamic arts. Thus a composition by Mozart, for example, may be attractive and stimulating music for an infant, and could, conceivably, help learning of other non-musical skills, not because it is high art in the Western tradition, but because, like a happy mother, Mozart sings with natural and passionate genius.

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Musicality as the Texture of Memory for Adventure

Music does more than please us. It gives us an experience unfolding, a narrative without reference that feels

important. Poetry and song tell unforgettable stories. In all cultures, but especially those without writing, rhythm, rhyme, and melody are essential in rituals and in the telling of myths and legends. We all experience the exceptionally clear retention of simple repetitive tunes that we learned in childhood or at particularly moving times of life shared with those for whom we feel affection. In our research on the musical games parents share with infants we see evidence that a baby a few weeks old can learn to recognize a melody or dance ritual very quickly, and that one of an infant's earliest pleasures comes from recognizing the distinctive phrases and verses of a "favorite song" or tune, perhaps heard *in utero*.

In adolescence, the second most important period of learning in life, when new relationships are being found and the world invites us to explore and adventure, particular compositions of music and dance become a preferred medium of communication. The groups or stars that we choose to admire and share with friends confer the distinction of a social identity. This is also true among the cognoscenti of high musical art, who know intimately and love elaborate orchestral pieces, opera, or chamber music. In extreme infirmity or old age, a mother's or grandmother's song from our early childhood, a turn of notes in a favorite folk song, or a sentimental dance tune of our youth may be the last thing we can recall and evoke the last words we can speak.

One of an infant's earliest pleasures comes from recognizing the distinctive phrases and verses of a favorite song.

The Role of Musicality in Well-Being

Communication at the level of musicality in bodily expression has a fundamental role in the genesis of human well-being and the nurturance of "belonging" in a community. Maya Gratier (1999, 2001) shows that Indian mothers who have immigrated to Paris or California have less tuneful and satisfying speech with their infants than French mothers in Paris, American mothers in California, or Indian mothers in their villages in India. Evidently being out of one's native community and culture can make a mother less confident about simple expression of feelings to her baby.

We have described this human need for musicality as an aspect of social identity as follows:

> Early musicality has a powerful role in building memories. It marks with emotional signatures the identity of persons and ritual events. After very few months an infant can "make music," and seems to have found a proud performer's personality. Taken with the infant's clear preferences for particular companions, this musical "showing off" looks like the beginnings of his or her social identity as member of a group — a group with known habits, celebratory experiences and acting skills that are valued for the bonds that they represent and reinforce. Cultivation of intrinsic musicality is a way of declaring allegiance with a friend or to a social band. A newborn knows the mother by the tone and inflections of her voice. When a six-month-old smiles with recognition of a favorite song, and bounces with the beat, it is like knowing his or her name, displaying a social "me" within the family's affectionate pleasure of sharing. (Trevarthen, 2002, p. 21)

Participation in musical activity is also a lifeline for the emotionally distressed, whose relations with others have become compromised by loneliness, fear, or rage. Music therapy is a form of communication and mutual expression that can draw people together in privacy and give them a way to explore narratives of feeling that engender courage and joy (Trevarthen & Malloch, 2000). It can bring a child who is severely incapacitated by sensory or motor disability into companionship in thought and action, supporting language (Aldridge, 1996; Tønsberg and Hauge, 1996; Wigram and De Backer, 1999). Communities are strengthened by music and groups can support one another in difficult times by joining in dance and song.

We believe that music is therapeutic because it attunes to the essential efforts that the mind makes to regulate the body, both in its inner neurochemical, hormonal, and metabolic processes, and in its purposeful engagements with the objects of the world, and with other people. Music, with dance and all the expressive arts, offers a direct way of engaging the human need to be sympathized with — to have what is going on inside appreciated intuitively by another who may give aid and encouragement and share pleasures.

Investigating the Growth of Early Musicality and Developing Musical Culture

With appropriate methods of recording and analysis, the communicative behaviors of infants have cast light on the essential motivations of human minds and how they mature. We can measure precisely the natural tempos and morphologies of newborns' moving, knowing, and feeling. We can chart their self-regulated development and adaptive responses to parental care and teaching, and analyze the forms of parenting behavior that guide, or sometimes misdirect, their learning. Findings from observation and experimentation in the past 30 years have transformed our beliefs and explanations concerning what infants can do, know, and learn. The hitherto private world of mothers' play with their preverbal sons and daughters has proved to be rich in information for psychological science (Trevarthen, 1998; Trevarthen & Aitken, 2001).

Babies are born with musical readiness, and older people find pleasure in fostering it (Trehub et al., 1997). Mothers' lullabies, and the playful songs mothers and fathers use to accompany action games for young children with finger-walking, clapping, bouncing, and jumping routines, are traditional. They may be preserved for centuries and shared across many lands in many languages. The magical and mysterious poetry of nursery rhymes serves both mothers' needs for dreaming and consolation and babies' needs for harmonious communication. We can think of parents' performances of baby songs as supporting a Vygotskian Zone of Proximal Development of musicality, "scaffolding" the musical pulse, giving it time frames to climb in, and gestural swings for the child's motor imagination to grow in power and skill, as well as in shareable meaning (Vygotsky, 1986). Step by step, the infant grows in understanding of the world that can be shared in mimesis, metaphor, and speech.

Stages in the Development of Musicality

The newborn. A newborn absorbs the mood or atmosphere of a mother's gentle sounds, listening to a peaceful musical recording, or the hum and rhythm of convivial conversation. The day's routine of waking, nursing and sleeping can be framed in musical accompaniments. Tiny infants, even those supported in a Neonatal Intensive Care Unit (NICU), can appreciate and learn music and songs that are not too vigorous or aggressive. Babies at risk due to their prematurity, developmental disorder, or trauma can be sustained and helped to grow in strength and health by peaceful music, especially in intimate communication with the body of a caregiver (van Rees & de Leeuw, 1987). They withdraw and protest if the narrative of sound is too forceful, startling, or harsh. Very young brains need calm for their intense development and for self-regulation of bodily states. Moments of alertness and curiosity can be stimulated in fragile babies using the rhythms of IDS, song, and instrumental melodies, but these infants cannot tolerate threatening noise. The enjoyment a parent experiences in giving musical comfort to a baby can also be experienced by NICU staff when a musical environment provides a haven of peace and rest (see Standley, this issue).

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The first year. Within a few weeks of birth, a baby can take more alert interest in the music of a mother's speech and join in actively, encouraging her to more lively play. The second and third months are a time of rapidly developing companionship between infant and caregiver, a mother's musicality being especially appreciated. The protoconversations and motherese speech that parents and infants share have the patterns of rhythm, melody, phrasing, and narrative we have described as essential in communicative musicality. This is clearly a start of "learning how to be musical" in the ways of other older people. It is also a time for mother-and-baby groups to develop kinds of play where the infant is more than a listener and learner.

The infant who is a musical playmate quickly gains in boldness and sense of humor, rewarding the lively routines of action games with joyful calls, imitations of musical fragments, laughter, and exuberant movements of the body, arms, and legs. Now infants, given the chance, can look to a number of people, including siblings, for company. The family becomes a much closer and more animated musical group or "band."

The exuberance of musical games in mothers' and babies' groups shows how music and movement foster the spontaneous enjoyment of community. As the mothers play, sing, and dance with their infants, they reaffirm that their babies are emotional, interactive, and communicative. They experience their babies in immediate relationship to their own moving bodies and singing voices — a relationship that is always available, but that can be lost sight of in a culture that does not value time just "hanging out" without a particular goal or achievement in mind. The value of such musical games can be seen in mothers' very positive assessments of the time spent in musical play with their infants, their reporting of their own and their infants' enjoyment, and their own increased appreciation of their infants (Vlismas, Malloch, & Burham, 2002). The bonds of friendship between mothers grow as well, and they are happy to share the discoveries of their children with one another .

By the middle of the first year, babies can stimulate one another to join in collaborative rhythmic games of toe-pointing, leg-wagging, and arm-waving, accompanied by a variety of calls, crows, and babbles (Fiamenghi, 1997; Trevarthen, Kokkinaki, & Fiamenghi, 1999). Babies are naturally sociable creatures and intensely aware of one another's feelings and expressive inclinations. The musical culture is beginning to be something that can grow with peers and older child playmates, not just with parents or adult caregivers.

The 6- to 9-month-old. Babies at this age have a performer's self-consciousness and show gleeful pride in accomplishment that is sensitive to others' appreciation. With strangers, who may not share the mini-culture of the family, the baby may find contact difficult and mutually embarrassing. It may even precipitate intense shame, avoidance, protest, and calling for a mother's attention. The ego of the infant musician must be treated with gentle consideration at this very fertile time, when the new opportunities

for sharing musical and dancing play are opening up, and celebrations of expressive games are being felt in a new way. This is the threshold of true music-making.

The 1-year-old. A 1-year-old can be trained to perform entirely acquired skills. Toddlers can retain a learned ability to move in strict tempo for an extended performance "in time" with a musically skilled partner; start to sing a melody with accurate control of pitch; and begin to retain and practice a little piece of music for voice or a sound-making instrument. But for most babies, the enriched musical experience of this time is not so disciplined, and the creative inventiveness of musical jokes and games that tease movement and attention, such as "peek-a-boo," are quite enjoyable enough without training that looks toward an education in music. The most supportive action is to encourage the baby's love of musical company by being part of it.

Older toddlers. In the second and third years, awareness of invented musical activities increases to the point where the toddler can be an interested mimic and participant in the activities of a musical family and community. In cultures where song, instrumental music, and dance are part of everyday community life and where most adults enjoy being performers in some measure, toddlers are attentive and seek to imitate. They love to be involved in the bodily expression of pleasure in music, and they begin to create joint expressions of a sense of music with peers, taking up one another's rhythmic inventions and copying melodic lines of vocalization. The development of language leads to recitation of nursery rhymes and simple poetic narratives, and toddlers' performances are enhanced by musicality — the expressive time, harmony of rhymes, and melodious variations of pitch.

The appreciation of music by a 3-year-old will be a source of pleasure and pride for siblings as well as for parents and grandparents. Soon the child will imagine being a singer, dancer, or TV character, or will proudly show off "performances" with instruments that easily make musical sounds when banged, plucked, shaken, or stroked. This exercise is quite different from pushing a button to activate a musical toy that automatically repeats a melody. It is the active creation and discovery of human-made musical sound that communicates.

The Birth of Language: Catching the "Point" of Words in Narratives of Intention

Lev Vygotsky (1986), Jerome Bruner (1983), and John Locke (1993) all have emphasized that a child picks up language by noticing what other people do with it. Acts negotiating social participation with emotion come earlier in development leading to language than intention-directing "proto-imperatives," just as "person-person games" came before "person-person-object games" in the middle of the first year (Trevarthen & Hubley, 1978). At the early stages, learning grammar is not simply a matter of coordinating vocalizations with intentions and attentions — requesting, pointing, showing, and giving. It involves concern for human feelings and sensitivities, and for the forms of expression that form the underlying texture of all live communication and "experiencing together." An "experience expectant" speech awareness helps a newborn learn phonological and prosodic features of the mother tongue. The affectionate tone and intonation of parental speech claim the infant's attention and give meaning to their engagement. The acquisition of skills for hearing the important features of a language starts early in the first year, even though the production of words comes much later.

Research on baby songs in several languages confirms that they give a special guidance towards the speech in the "mother tongue," guidance that is eagerly sought by infants. The rhythms and phrasing of a traditional baby song form a framework for the placing of vowel sounds and rhymes, and the melody is like a story of feeling that has moments of clear definition where the distinctive sounds of the language can be easily grasped. As previously mentioned, Daniel Stern (1993, 2000) has described the mother's speech as creating "dynamic narrative envelopes." We follow his inspiration and call the melodious speech and song "emotional narratives." Interestingly, the primary phonological distinctions between languages and dialects of languages reside in the rhythms and vowel sounds, features for which infant hearing is innately adapted. Research with newborns has indicated that even at this stage, a baby is listening for the kinds of distinctions that linguists use to define stress-timed and syllable-timed languages.

Infants play and sing with emotional, musical narratives long before they talk, and toddlers create dramas with voice, gesture, and action. Jacqueline Nadel shows how the pleasure and trust that infants experience in relationships with members of their families quickly transfer to communication between toddlers (Nadel & Pezé, 1993). She has recorded 18-month-olds using immediate imitation of actions and utterances for nonverbal negotiation of purposes and for sharing meaning. She has also observed toddlers signaling their humor and pleasure in sharing by exuberant gestures and vocal prosody.

Musicality is close to the emotional source of interest that leads children to learning their culture's language and work. We emphasize this motivational and emotional foundation of learning because Western psychology tends to reduce intelligence to cognitive mastery of physical structures of experience and what are assumed to be arbitrary inventions of human constructive cleverness. Human learning depends on the musicality derived from the ways the body moves instinctively to get experience and from the sympathy we immediately have for one another's purposes and emotions, expressed in the timing and quality of our movements. When we listen to music, we can hear the impulse for knowing and understanding, and we know we can share that impulse.

Musicality and Emotional Companionship

The evidence from early infancy suggests that emotion shapes reason. What Daniel Stern calls the "relational emotions" — which are specifically adapted to real-time regulation of the balance of initiatives and reactions between persons, determine relationships of affectionate attachment, trust, and companionship; and defend against abuse, mistrust, and disregard — are fundamental to the ecology of emerging human consciousness. It follows that emotions often described as "complex," "non-basic," and "acquired" are, in fact, *primary* and *necessary* to the child's entry into the social/cultural world (Draghi-Lorenz, Reddy, & Costall, 2001). As Stein Bråten (1992) argues, such feelings, and their expressions, have foundations in dynamic reactions of even young infants to the feel of "being present" with an "other," receptive to their changing appraisal.

Infants are adapted to live emotionally by what Barry Barnes (2000) calls "understanding agency" in human society — that is, the dynamic balance of pride against shame that regulates negotiations and that gives value to all contractual obligations. Barnes adopts the same approach to human sentiments as did Adam Smith (1759), who, drawing on a rich Scottish philosophical belief about human nature, identified in each of us the capacity for sympathy and for developing a conscience that will appraise disinterestedly what we do and think about doing. Cognitive abilities, categories of thought, and declarative memories are all motivated by the human need for sympathy in agency.

The link between musicality and emotions is clear in sad and confused states of mind, as well as in the joyful pride of shared actions and experiences.

The link between musicality and emotions is clear in sad and confused states of mind, as well as in the joyful pride of shared actions and experiences. We have long been interested in the effects of broken or unsympathetic adult responses on infant's emotions. Even in the early weeks, a baby is very sensitive to the tone and reactivity of another person's speech. If a mother does not react with precisely attuned rhythms of speech and facial expression, a 2-month-old becomes withdrawn and distressed. A mother with postpartum depression may find it hard to provide attuned responses to her baby. Her speech becomes discordant and unpredictable. More specifically, Louise Robb (1999) has found the depressed mother's speech to be pitched lower than that of healthy mothers. It lacks rhythmic regularity and gives the infant little chance for musical participation.

The Intimacy of Motives in the Evolution of Art and Culture: Why Musicality Is Important

All our explorations of the musicality of an infant's life in human company confirm the idea that free and sympathetic expression of what we call the Intrinsic Motive Pulse (IMP) of moving and feeling is necessary for development of the mind and for emotional health (Trevarthen, 1999). That is why music has a unique and permanent value for education, and why musical communication can be such powerful therapy. All the wonderful creations of musical artists and performers come from the same inborn source in human nature, which psychological science is just beginning to perceive.

Two talents, evolved from the rich and agile social intelligence of apes, transformed primate intelligence, making it human and cultural. These are a peculiar polyrhythmic restlessness of gesture of a bipedal actor, and a new conversational intimacy of expression in communication (Trevarthen, 1999). Both talents are evident in the innate, generative form in the mobile bodies and playful pretensions of infants and toddlers everywhere. The first frees the mind to spin extravagant, imaginary projects of action and emotion without the call to carry them to consummation. The second invites shared imagining and the creation of an infinite array of knowledge and skills through collaborative storytelling and the building of artifacts. A transgenerational fabric of culture with elaborate beliefs, celebrations, and constructions sets out different social roles for human individuals in a community, giving rise to identities and personalities that are owned with pride and lost with shame. A new morality and a new sense of group affinity arise within families and communities. The collective narrative, first told through myths and legends, develops in societies into systems of practical duty, religious belief, and obedience to laws. The young become educated because they want to understand what culture means, and because their elders wish to teach what they know and can do. These are the reasons we should agree with Ian Cross (1999) that music is "the most important thing we ever did."

Merlin Donald (2001), with his theory of the priority of communication by "mimesis" in evolution of the human mind and the "collective consciousness" of talk, has made us aware that language and all it represents was only possible with the human body's new flexibility in movement and the metaphorical human mind — and because the intrinsic pulse of human movement is so faithfully and instantaneously mirrored between persons of all ages. Human minds mirror one another's motives and feelings even before humans know how to speak. Using this talent, humans create symbols in many spoken and unspoken forms that can specify shared ideas with precision and combine them in infinitely varied ways.

All the inherent and acquired attributes that are unique to humans, and that have stronger anticipation in all children than in young animals of other species, relate

to the making and living of an inter-mental existence. It is the motive for cooperation in what Donald (2001) calls "mythic culture" that makes us different, and capable of developing more practical technical, or "paradigmatic," intelligence.

An Invitation to Parents and Caregivers

Music moves everyone, everywhere—even the newborn infant. Music can be enchanting, calming, thrilling, comforting, or frightening. We need to understand better and appreciate the fundamental musicality that all humans possess, and its power to communicate, to bring people together. The music we *cultivate* — the high-art music of concerts, opera, and ballet; the traditions of folk music; and the rich improvisations of jazz — has its source in forces of moving and awareness that reside in our human nature. These forces provide babies and young children with a bridge of communication, experience, and learning from birth, or even before birth — long before language and reasoning are taught in school, and long before formal instruction in music. The forces of moving and awareness can also transform the adult, with love and enjoyment, into a playmate, releasing intuitive impulses to move and sing in ways that engage and support the child's expressions.

We invite parents and teachers of infants and toddlers to focus on the intuitive *motives* that make music attractive and pleasurable to the human spirit — that make children happy to express themselves in musical ways before they have any musical instruction, and that make music communicable and a source of inspiration and emotional fulfillment.

Sophisticated musical performance demands a facility that only a minority of gifted and dedicated young people can truly master. But *enjoyment* of music and the ability to create musical sound are talents we all are born with. How else can we explain the musical discriminations and preferences of infants? Babies are totally naive about musical culture, yet they hear the sounds of music well. They interact skillfully with much music and song, expressing recognition and pleasure in its discovery. And how can we explain how adults and siblings spontaneously make musical sounds that attract babies — how they can talk baby talk and sing nursery songs with the same rhythms and melodious forms of expression across different languages, almost as if they are being taught the universal principles by the babies?

Musical education is more than nurturing a tradition. It is celebrating, in various intricate manners, what is at the simple core of human vitality and companionship. Musicality is the carrier of feelings, purposes, and interests that animate the learning of meanings in language. That is why it is so rejuvenating for an adult who has become a parent, or for any teacher of infants and toddlers, to share musical fun with children.

All humans, from the very moment of birth, wish to communicate and share experience. The human ability that makes this communication possible from the beginning of life is the same ability that creates symphonies, dance, and poetry. It is human musicality.

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