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SPECIAL EDITION: IS THERE KNOWLEDGE ABOUT HOW TO HANDLE CHILDREN UNDER THREE IN ECEC?

What young children know about living and learning with companions

Colwyn Trevarthen University of Edinburgh, Scotland

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E-mail: c.trevarthen@ed.ac.uk
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INFANCY AND EDUCATION

Theories of how children learn have been led by concern for forming young minds so they can talk and act well in society. Children who are old enough to speak are to be trained so they will grow up responsible and productive citizens, articulate, literate and numerate, and perhaps, eventually, good parents. In the 1930s science believed that children, as exceptionally intelligent animals, learn by conditioning. In the 1960s the new theory of learning proposed that inherent cognitive processes, principally informed by visual experience and designed to be mediated by language, should be fostered to adapt to novel information and solve rational problems. In neither theory were imaginative intentions or emotions of the active and creative child, in its body and communicating with its more intimate senses, given primary place. Infants, too young and inarticulate to conform to formal classroom teaching were presumed to need care, not education.

But thoughtful observers and experienced teachers have long believed children are born with powers for creative and cooperative learning. They have perceived that a child learns by their own curiosity and invention, and that the playful imagination of infants and toddlers holds the secret of all imaginative learning in good company. Comenius said it well in the 17th Century, as did Dewey and Whitehead in last century. They argued against Cartesian intellectual individualism, undemocratic imposition of social rules, and what Whitehead called "the fallacy of misplaced concreteness." Jerome Bruner presented a new and richer view of cognitive growth in infants in 1968. He has repeatedly insisted that children want to evaluate a shared world as a resource for creativity and cooperation (Bruner, 1990, 1996).

Some of us have been attempting to find scientific support for a theory of infantile human nature that gives importance to individual feelings and imagination, to sympathetic development of motives and values with companions of all ages. We have tried to understand the appetite preschool children have for making and receiving narratives of both fantasy and reality in physically active engagement with the environment and with family and peers. Children gain experience and explanations with "human sense", evaluating the world by sharing tasks with emo-

tion (Donaldson, 1978). They gain self-confidence in understanding by "intent participation learning" with individuals they know and trust, responding to the ways of the culture they know together (Rogoff, 2003). They are 'story-telling creatures' (Bruner, 1990).

In the last 50 years crucial information from naturalistic infancy research has made evident the original vitality of human imaginative intention from within the body, its eagerness to use the world as other persons do, with their feelings, and especially its inventive story-sharing without words. It becomes obvious that these inborn talents motivate cultural learning, and that they are active in every culture (Trevarthen, 2012a).

WHAT NEWBORN INFANTS KNOW

By carefully recording on film or video how newborn babies act when they are active and contented, and by making simple tests to discover how they direct and coordinate their movements, and how they can relate them to the expressions of another responsive person, it has been possible to prove that we do not come to the world as a disconnected bundle of self-service reflexes. A newborn baby has a whole sense of Self-As-Agent, feeling its coordination and direction of interest while moving numberless muscles in synergic harmony. They make graceful gestures and clearly express different emotions, and they sense others as partners in this agency (Nagy, 2011). They are actively seeking for experience and for communication by intimate, embodied means, particularly by comparing the proprioceptively sensed dynamics of the of their own body movement with the feelings they detect of others' bodies moving, and especially by hearing the sounds their own or other persons' voices (Trevarthen & Delafield-Butt, 2012).

That young infants can imitate other persons' movements of body parts that make signs of interest has been proved, and Kugiumutzakis (1998), by using respectful means of engaging with the infant, has shown evidence of two characteristics that prove their imitations are communicative:

a) They are *voluntary*, in the sense that a goal-directed effort by the baby shapes them towards the form of the 'model' by successively improved approximations.

b) They are *selective*, matching 'special' forms of conversational expression that can be part of a communicative exchange with invention in it.

This effort to be aware of the self as an active agent in relation to another is what motivates learning and education.

SHARING THE RHYTHMS AND FEELINGS OF IMAGINATIVE MOVEMENT, WITHOUT WORDS

That we are born also to share an inner sense of time and feeling in moving is shown by rhythms and accents of a newborn infant's expressions, which can synchronize with matching rhythms of speech or gesture of a gently attentive adult (Trevarthen, Delafield-Butt & Schögler, 2011). The infant's 'vitality dynamics' (Stern, 2010) animate sympathetic coordination with an adult, matching emotions.

By 2 months, aided by rapid development of vision and the visibility of human eyes that look at what they are interested in, face-to-face conversations between baby and parent achieve tight intersynchrony of expressions and an intense exchange of feelings. These 'proto-conversations' (Bateson, 1979) build together into cycles of vitality with expressions of pleasure that outline the way to the syntax of language. They define the clear establishment of interpersonal awareness or Primary Intersubjectivity (Trevarthen, 1979).

With this expressive and receptive ability the babies also show confusion or disappointment when a parent is depressed or when their cooperation is blocked experimentally; for example by asking the mother to be inexpressive, or by showing the baby a video reply of her previous 'live' communication (Murray & Trevarthen, 1985; Marwick & Murray, 2009). The babies smile readily and clearly recognise familiar friends by voice and face. They look intently at strangers, learning how they look and sound, waiting to be sure. They become confused and stressed when a mother is unwell an expressing herself in depressed or detached ways (Gratier & Apter-Danon, 2009).

THE MUSICALITY OF HUMAN VOCAL COMMUNICATION

New insight into the emotional regulations of these proto-conversations has come from charting the sounds of vocalisation with musical acoustic methods of measurement. Hearing de-

velops before sight and enables learning of another's voice before birth. After birth, in addition to increasing the range and alertness of vocal expressions of personal and interpersonal feelings, the baby gains ability in articulating different syllables and combining them in rhythmic patterns that can begin, within the first year, to imitate words. Everywhere mothers and fathers speak with a musical intonation to their young infants, and the sounds they make have similarities of timing and modulation that transcend differences between languages. They utter expressions of affection, joy, surprise, sadness and disapproval in ways that are understood by all infants. Any person who wants a close and affectionate contact with a newborn infant has to display behaviours of this gentle, playfully happy kind by impulses that are unconsciously controlled and cannot be learned.

The similarities that appear in mothers' vocalizations to very young babies in different cultures, or when men or children attempt to talk with a baby, are evidence both for the universal needs of the newborn, and for 'intuitive parenting' (H. Papoušek, 1996; M. Papoušek, 1994). The rhythmic emotional 'codes' in infant and adult express the same kinds of impulse and confirm mutual awareness. The Papoušeks argued this is the foundation for the cognitive 'head start' of cultural learning. Dissanayake (2000) describes this melodious communication as the origin of 'art in intimacy'. Hobson (2002) conceives the communication with infants over the first 2 years as the 'cradle of thought'. While the baby is clearly seeking direct and instinctive emotional support from a parent, he or she is an active participant in the process at every stage.

FROM PLAYFUL INVENTION TO COOPERATIVE WORK ON TASKS WITH SHARED MEANING

With the inborn talents that enable intimate communication at the start of life, infants also carry within them a programme for 'age related changes' in body and brain that will transform communication and learning, causing companions to change with them (Trevarthen & Aitken, 2003).

At 3 or 4 months a baby is stronger and alert, attention is more lively and adventurous, and this tempts a partner to tuneful playfulness. A mother notices the baby is attracted to a song or an action game, joining in where there is an inviting pause, a marked gesture or a rhyming vowel. Baby songs from different countries with very different languages tend to have the same rhythmic and melodic features, and infants respond to them in the same ways. There is a universal delight in the musical stories and in the poetic sounds that tell them (Trevarthen, 1999; Mazokopaki & Kugiumutzakis, 2009). Malloch has defined the parameters of this shared spirit of life and learning, which we call 'communicative musicality', as *pulse*, *quality* and *narrative*, and we share interpretation of the theory with researches in education, therapy, child psychology, musicology and brain science in an exploration of its contribution to human companionship and cultural learning (Malloch & Trevarthen, 2009)

By 5 or 6 months infants quickly recognise songs or recorded music often heard — stopping to listen, smiling in recognition, then bouncing and waving arms and legs, often synchronising with the tune (Mazokopaki & Kugiumutzakis, 2009). A baby's selective orientation to musical sounds, critical discrimination of musical features of human-made sound, and vocal and gestural responses that are timed and expressed to contribute to a joint musical game, confirm that music, which is clearly in its polished forms a cultural achievement of human society, has strong roots in human nature.

Baby songs in many languages give us information on the rhythmic inner vitality of human experience and thinking, and how its timing is made apparent to other persons. The core element is a four line stanza lasting about 15 to 30 seconds, with a base pulse around *andante*, a dancing rhythm, simple pitch shifts and rhyming syllables at specific points, and variations in the beat to regulate excitement in the last two lines (Trevarthen, 1999; Trehub, 2003). It tells its story with the classical narrative form: *Introduction*, *Development*, *Climax* and *Resolution*. A lullaby to sooth a sleepy or unhappy infant will be *adagio* or slower with a gentle rocking rhythm.

GETTING INTO COMMON SENSE: THE GROWTH OF NARRATIVES WITH MEANING AND OTHER-AWARE SELF-CONSCIOUSNESS

Donaldson (1992) describes how the 'locus of concern' in human consciousness expands with growth of memory and activity in company. The infant about 7 or 8 months old is about to crawl. Now he or she can also share interest in

an expanded world of places and things with other persons, taking up their direction of gaze or their pointing, remembering discoveries. This means that by that age, at least, the other person's awareness can be linked to the infant's awareness in a common space of experience. Such 'joint awareness' of goals for action is a key element in communication leading to language (Tomasello, 2003).

At nine months, however, an infant is involved in more than convergent orientation of attentions. He or she is taking a new role in shared willfulness, sometimes taking the initiative, attempting to direct a partner to behave in a certain way or to repeat a playful act (Hubley & Trevarthen, 1979; Trevarthen, 2011). Hubley discovered that in the playful companionship with the mother this change in the infant's social will occurs in a short period around 40 weeks after birth. Previously the mother led in games. Hubley and I defined it as the development of 'person-person-object understanding' in 'cooperative awareness', or Secondary Intersubjectivity (Trevarthen & Hubley, 1978). These behaviours signal a transition to constructive sharing of interest in things and tasks, and the beginning of 'protolanguage', or 'learning how to mean' (Halliday, 1975). The baby's interest defines the goal of human cultural learning as how to share rituals, tools and tasks.

Reddy (2008) has researched how a baby's self-other awareness develops with increasing sensibility for humour and teasing, and for the quality and opportunities presented by other persons' appreciation. The baby shows delighted pride when performing for the pleasure of family and shame if not understood, especially by a stranger (Trevarthen, 1990). When regarded closely or held to a mirror the reaction may be one of 'coyness'. The child is at times highly sociable, playful and sensitive to others, or at other times concentrated with what Piaget called 'serious intent'. This capacity to be absorbed in a task is, of course, something teachers respect and cultivate. It may require standing back and giving the child full leadership in discovery, only helping if asked to. At around seven or eight months strangers may be treated with avoidance and distress and the infant seeks reassurance from a parent. This insecurity appears to be a premonition of the crucial change Hubley recorded in the infant's need to share interest and directives with a familiar companion at nine months.

In the second year, conventional use of tools, roles and rituals of performance attract the child's attention and are learned eagerly, preparing the way for rapid learning of language. The change from manipulating for private gain or discovery to imitation of others' directives, indications and evaluations leads to ideas that have already been coded in words by the older members of the community round the child (Tomasello, 2003). The words that are imitated name known persons, their actions or the objects that interest and actions indicate. They recall shared memories with delight. Different toddlers with differing parental support and differing temperaments may show preference for objects or persons as topics in their first speech (Locke, 1993). This cooperative learning of language needs flexibility of imagination that is expressed in the pretend play that began in the middle of the first year and that flourishes among toddlers and preschool age children.

Jacqueline Nadel shows how quickly collaborative parent–infant play transfers to communication between toddlers (Nadel & Pezé, 1993; Nadel et al., 1999). She has recorded how immediate imitation of actions and utterances is used by 18-month-olds for non-verbal negotiation of purposes and for sharing meaning, and she underlines the pleasure and humour of sharing signalled by exuberant gesture and vocal prosody. Social 'self-confidence' depends on a sense of security with communication of meanings and actions, and this confidence fluctuates with developmental change. Around the middle of the second year, at 15 to 20 months, a child is both demonstrative and proud of achievements and acutely aware of the potential difficulties of communication with strangers (Kagan, 1981). It would appear that the imagination that is reaching out to learn how other persons categorise their experiences is sensitive to the risks of imitating without intimate understanding of what is valued. Developments in preschool years display that mastery of thinking which is dependent on a free and flexible regulation of contact with other minds by the artful language of emotions (Dissanayake, 2000: Lüdtke, 2012; Trevarthen, 2012b).

HOW TEACHERS TALK: PUPILS NEED TEACHERS WHO LISTEN AND LEARN

Research inspired by Vygotsky has shown how teacher and child interact together in the child's

'Zone of Proximal Development', where he or she finds they can do something that would otherwise be impossible by effort on one's own (Vygotsky, 1978). Wood and Bruner (1976) identified techniques of 'scaffolding' by which adults assist a child's efforts in solving a problem or completing a task. Rogoff contrasts 'adult-run' and 'child-run' ways of teaching and describes a 'community-of-learners' model where all share responsibility for learning (Rogoff, 2003). The musicologist Bjørkvold observed the spontaneous 'children's musical culture' of vocal invention in the playground, comparing more regulated cultures with others where the context of meaning is expected to be shared spontaneously, and he found in the latter children's play sounds were richer in creation and enjoyment (Bjørkvold, 1992). All accept that the child is a creative learner

The teacher should be prepared to learn continuously from the learner, being 'guided, directed and inspired' by the children's understanding. Bruner (1996) conceives this kind of classroom organisation as 'a subcommunity of mutual learners with the teacher orchestrating the proceedings'. He highlights the crucial role of the school, as an institution that judges a child's performance and subsequently facilitates a process of self-evaluation. In many cultures 'intent participation' in meaningful and immediately useful activities is the way children become able to contribute to their community and culture (Rogoff, 2003). This contrasts with the 'instruction' model of education in industrialised and literate cultures where the value of what is taught may not be immediately evident to the learner.

As in the sharing of experience that grows between an infant and a parent, the rhythm and quality of expression in the communication are important in teaching and learning with older children. Erickson (2009) has explored how timing and 'contextualization cues' (such as volume and pitch shifts in the voice and in body motions) function in classroom discussion to help participants to anticipate impending courses of action: The members of the group collectively organise their attention and thus contribute to listening and speaking in a smooth, coherent manner that is cognitively stimulating. If the smooth 'orchestration' of turn-taking behaviour within an organised and expressive temporal framework breaks down, the teaching is not effective.

IDENTITY AND PRIDE, AND THE SHAME OF MISUNDERSTANDING: EMOTIONS BEYOND ATTACHMENT FOR CARE

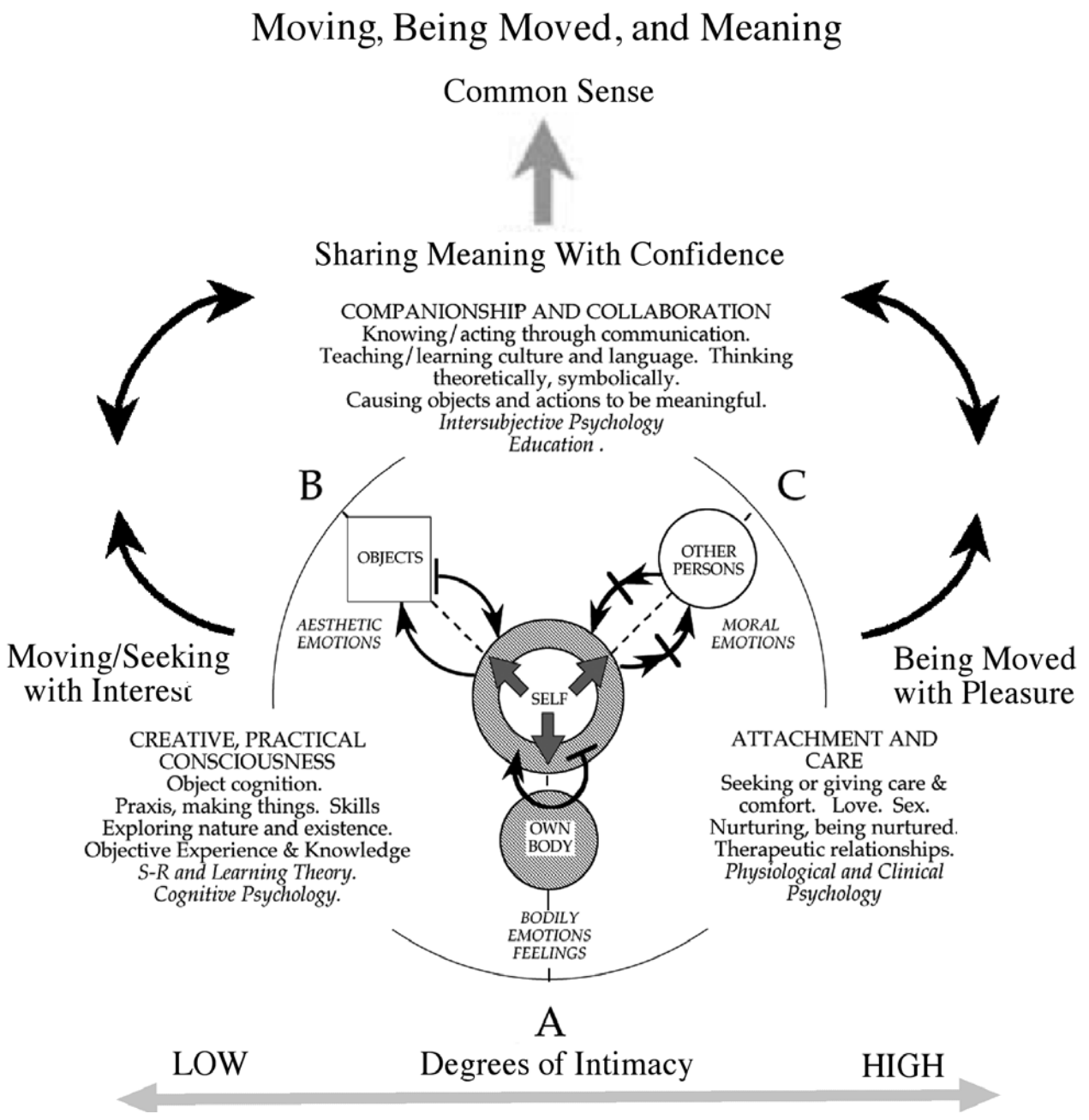
In every human relationship the pleasure of active discovery and the mastery of experience and skill are regulated both by self-related aesthetic emotions and by interpersonal or moral feelings. As long as essential needs are provided for and the child is not distressed, sick or exhausted, these feelings, of pride in knowing and doing, and embarrassment or shame at not understanding or 'being left out of things', are asserted powerfully in every young child. They guide the growth of knowledge and understanding, they regulate the growth of the brain, and they are manifested out of control in disorders of mania and depression (see Figure 1, next page).

Attachment itself, if it is a *friendship* and not just the very asymmetric relationship between a weak and immature 'patient' and sensitive caregiver, is animated by emotions of shared discovery and the creation of inventive art. Even the most disciplined and authoritative teaching regime guided by a curriculum requires a minimal mutual respect between teacher and taught, or its purpose is totally defeated. A child who is ashamed does not learn new understanding, except how to avoid further humiliation. The needs for learning shared meanings can be represented as a 'circle of attachments' – of emotionally charged relationships to persons who can be relied on for care and comfort, of curiosity and pleasure for places and things that foster our discoveries and adventures, and to companions who want to share adventure, discovery and invention, friends who share the impulses of our thinking and acting generously, and who join in play with roles and meanings.

THE ALL-IMPORTANT SENSE OF BELONGING

Being 'at home' in a community appears to be essential for confiding teaching of a parent, and for confident learning of a child. Maya Gratier has found that the musical measures of a mothers communication with her infant, which signal her intimate pleasure with the baby and confidence in herself, maybe affected if she has been taken from her home culture to a strange land. Gratier calls this the effect of emotions of 'belonging'. She believes she has shown that consciousness of meaning begins in an intimate coordination of the motives of mother and infant, in their seeking to generate and share experience

Figure 1. The circle of attachments of human consciousness, to one's body, to objects and to persons, and how its motives in children and adults lead to cultural learning and sharing common sense.



within one space and time of companionship. Her data show that the capacity of the mother to successfully share experience with her infant through dynamic negotiation of states of interest, purpose and emotion is predicated on her having her own 'sense of belonging', and that this can be weakened by migration (Gratier & Apter-Danon, 2009).

If a mother cannot find a secure attachment to her adult world that gives her a coherent identity with its specific grammar and expressive signature, she may not be able to meet her infant's desire for company. A mother brings to her child both personal and cultural ways of moving, speaking and singing. These influences shape the infant's developing sense of self and agency. They may be said to constitute a person's prima-

ry sense of "core culture" (Hall, 1989), the deeply rooted sense of being in tune and in time with certain non-verbal, intuitive, communal ways of being. In happy communication mother and infant are anticipating the other's intentional motions, sharing present circumstances and practiced routines.

By making joint narratives, adults and infants come to share their history and invoke ideas from the community. The narrative form contains both the security of an ending and the exciting tension of its timing. The contrasting elements of security and tension, or familiarity and novelty, or repetition and variation, constitute the crucial vectors that give impetus to the infant's developing mind, and the one-year-old has begun to find fascination for the conventional 'topics' of this sharing. This is the 'flow of common sense'.

The infant's future sense may loose clarity and direction if he or she is not provided the opportunity to develop these natural skills in intimate companionship. That is an important consideration for child care, and especially for the establishment of consistency and affectionate trust in relationships with foster parents for children taken into care from their families, and also in the transitions from home to nursery, increasingly a problem in a culture where both parents of the infant or toddler need employment away from home, and again in moving from familiar playmates at nursery to the strange rituals of school.

A mother's future sense that supports her to be a confident and confiding companion may become perturbed in a variety of ways. A depressed mother, for instance, will have trouble in precisely that way, in her use of intimacy: her interactive behaviour is less contingent and thus less meaningful to the infant, she has lost her sense of time and is unable to share her mental space with her infant with an even, playful grace. This difficulty of maintaining hopeful 'time in the mind' with others has been highlighted by many researchers as being characteristic of depression; people who suffer from depression have difficulty projecting themselves into the future, making plans, envisaging possible worlds. A depressed person lacks self-esteem – he or she experiences shame in company of confident others, and is out of touch with them (Gratier & Apter-Danon, 2009; Marwick & Murray, 2009).

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