The intersubjective motives of play: The case of autism.

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Abstract

A deficit in spontaneous or self-generated play, particularly in what is conceived as 'symbolic' or representational play, has been identified as core deficit of young children with autism. Most empirical research on the behavior of children with autism has relied on tests of their cognitive development as individual thinkers who must learn to recognize conventional meanings. This leads to the special attention given to 'symbolic' play, while socio-emotional or relational functions of play are left unattended.

In contrast, developmental research with typically developing children brings abundant evidence that inter-personal relatedness depends on mutual awareness of intentions with feelings between the child and other persons, with shared joy in purposeful movement, and that affectionate sharing is an essential element of play from birth prior to the capacity for meta-representation of experiences. In early infancy an emotional 'primary intersubjectivity' regulates playful 'proto-conversations' with voice and gesture, before sharing of imaginative actions in games and tasks, which is a prerequisite for later development of the cognitive abilities of language and story-telling that specify arbitrary meanings.

Taking in mind the evidence on the shared enjoyment of play by typically developing children, and its contribution to the invention of shared meanings, we explore comparable studies with children with autism to bring new light to our understanding of what is atypical in the developmental pathway that might lead to problems with interpersonal awareness, intimate relationships, and with mastery of representational skills.

Keywords: autism, play, symbolic play, intersubjectivity

Introduction

Among the many studies of the play of the children with autism, most attention has been given to 'symbolic' play, because this play with conventional meanings is conceived as a prerequisite for communication of ideas and rational thought. Research with children with autism based on this assumption claims to show that problems with a capacity to identify ideas and experiences with semantic or metaphorical substitutes, may influence negatively both intellectual development and mastery of language, and may be taken as the primary cause of autism, which, by these criteria, is diagnosed after infancy.

On the other hand, evidence from studies into the social origins of play and the relationship between imaginative 'symbolic' play and the expression of affective disorder in autism promises to enlighten our understanding about the psychological nature and early development of autism (Trevarthen, Aitken, Papoudi and Robarts, 1998), because "it appears likely that autism results from disorders of imaginative and sociable playfulness itself, for which the motives and emotions are apparent from birth (Trevarthen and Delafield-Butt, 2013, p. 3).

I propose in this paper that research on the development of play in typically developing children supports an alternative 'intersubjective deficit' hypothesis for explaining the impairment in the play of children with autism, a view that is closer to the original perception of the disorder by Leo Kanner (1943), who described the condition as "autistic disturbances of affective contact", which are primarily emotional. Recent evidence supporting Kanner's sensitive clinical work is reviewed by Hobson and Hobson (2011) and by Trevarthen and Delafield-Butt (2013), who emphasize the central role of affective engagement and affective sharing with people from birth, which raise questions concerning

disorders of prenatal development for emotional regulation of intersubjectivity in the pathogenesis of autism.

A critical review of the literature on play in autism leaves us with many unresolved problems. There is an attempt to analyse and explain these issues by bringing forward evidence from the development of play in typically developing children. The examination of autism within a framework of typical development is important from a theoretical point of view, to test concepts of the developmental process itself (Sigman, 1989), and it is essential for any attempt to identify the developmental psychopathology pathway in autism (Cicchetti, 1990).

The Development of Play in Typically Developing Children

Several definitions of children's play have been offered and there are many theories concerning the role of play in human development. However, ". . . the widely shared notion that the entity 'play' is a behavioural disposition that occurs in describable and reproduceable contexts and is manifest in a variety of observable behaviours." -- (Rubin, Fein and Vandenberg, 1983, p. 698) can be accepted as a basis for research analysing play as an adaptive behaviour. Although theories of play have been constructed within historical, evolutionary, psychoanalytic, anthropological, cognitive, animal, linguistic, communicative or philosophical frameworks (Sutton-Smith and Kelly-Byrne, 1984), here only the cognitive and communication theories of play will be discussed, because they: a) relate directly to the debate about the cognitive or affective nature of human play, and b) they provide a framework for re-interpreting the empirical studies of play in autism that have only focused on the cognitive aspects of play.

In the literature, children's play is found to be linked with the acquisition of language and symbolic representation (Piaget, 1962), language and thinking (Vygotsky,

1966), or wider cooperative understanding in 'companionship' (Trevarthen, 1979a, 1979b, 2001). It has also been considered essential in the development of tool use and problem solving (Bruner, 1972), social interaction (Garvey, 1974, 1977), meta-communication and social construction (Bateson, 1972), as well as the 'theory of mind' (Baron-Cohen, 1987; Leslie, 1987). 'Symbolic', 'imaginative', 'fantasy', 'pretend' or 'make-believe' play develops in childhood during the second year associated with the development of language, and generally with the emergence of representational thought (Piaget, 1962; Vygotsky, 1966), and this link between fantasy play and language also exists in the development of children with autism (McHale, Simmeonsson, Marcus and Olley, 1980; Riguet, Taylor, Benaroya, and Klein, 1981; Ungerer and Sigman, 1981; Mundy, Sigman, Ungerer and Sherman, 1987).

For Piaget (1962) play is a symbolic system that provides the child with a means of assimilation needed in order to rethink past experience, and it is a reflection or product of egocentric thought. According to Piaget 'symbolic' play originates from experimenting with individual thought in action, and it can only be shared with others several years after it is mastered by the infant for their own satisfaction. Play is thus taken to progress from 'activity' to 'representation', and to resulting in forms of symbolic representation. The developmental process is a transition that takes the child from the earliest form of sensorimotor intelligence to the operational structures that characterize mature thought (Athey, 1984). Leslie (1987), a contemporary cognitive developmental theorist, following Premack and Woodruff (1978), proposed a 'theory of mind' hypothesis to explain meta-representation or the ability to 'pretend', and therefore, to exhibit 'pretend' play. He distinguishes between two kinds of representations in the child's mind: the primary representation which accounts for the child's capacity to represent the world as it is, and the meta-representation which accounts for representing the world as something different from

what it is. Meta-representation can explain internal or imaginative 'pretence'; 'I pretend the banana is a telephone', or understanding 'pretence' in others; 'Mother pretends that the banana is a telephone'.

Vygotsky (1978), in contrast to Piaget, emphasized the primacy of the social and affective role of play. Play is, for Vygotsky, the *source* of development, and it is created in the 'zone of proximal development', which is the functional space between what the child can do, or know how to do, on his/her own and what the child can do or know with assistance. It is not primarily an ego-centric activity. Every psychological function, including play, appears ". . . first, between people (inter-psychological), and then inside the child (intra-psychological)." -- (Vygotsky, 1978, p. 57). Symbolic representation is the significant result of play behaviour, which is a means for creation of roles and rules, and for formation of symbols (Vygotsky, 1966). Bateson (1955) also emphasized the communicative function of play for others. A prerequisite for play is, ". . . some degree of meta-communication, i.e., of exchanging signals which would carry the message 'this is play'." -- (Bateson, 1955, p. 41). The message of play is considered as a kind of paradox; the player indicates that one thing is so, but at the same time that it is not so. It is supposed to promote 'equilibration' between knowledge and new reality. The child learns the rules of meta-communication, and therefore implicitly the way in which reality is socially constructed. In this way, the child is learning through being social, as well as imaginative for self-satisfaction (Sutton-Smith and Kelly-Byrne, 1984).

Theories about children's play have generated many empirical studies most of which have focused on the development of young children's 'symbolic' play, taken as the most advanced form of play with a significant relationship to language acquisition (Lowe, 1975; Nicolich, 1977; McCune-Nicolich, 1981; Ungerer, Zelazo, Kearsley and O' Leary,

1981), but there are a few studies which have considered a broader spectrum of play categories, distinguishing, for example, ‘manipulative’, ‘exploratory’ and ‘functional’ play.

Solitary or Subjective Play With Objects

Fenson, Kagan, Kearsley and Zelazo (1976) in a cross-sectional study of 7-20 month old children categorized play behaviours into three classes, i.e. ‘relational’, ‘symbolic’ and ‘sequential’ acts. At 7 months infants’ play was characterized by visual, oral and tactual examination of objects. The first level of ‘relational’ play appears at 9 months, when an infant relates or combines two objects. Relational acts were distinguished into appropriate associations between objects (e.g. putting the lid on the pot), into inappropriate associations (e.g. touching the lid against the side of a cup), and into grouping objects (e.g. putting two spoons together). Symbolic activities, in the second class, took place from 9 to 20 months and included eating, drinking, pouring, stirring and spooning from one container to another. The last class of play, i.e. the sequential acts, from 13 to 20 months involved performing two identical consecutive acts (e.g. putting a cup on a saucer and immediately afterward placing another cup on another saucer), and combining two different but thematically similar acts into a sequence (e.g. stirring in a cup and then in a pot).

Fenson and Ramsay (1980) studied extensively the transition from self-centered or self-directed play acts to decentered play which is finally integrated into multiple scheme sequences, i.e., in Piagetian terms, the transition from ‘sensorimotor’ to ‘representational’ cognition. They observed that decentered acts were prominent by 19 months, single scheme combinations of centered and decentered acts were exhibited by 19 months and multiple scheme combinations emerged by 24 months.

Ungerer and Sigman (1984), in an investigation of the relation of play and sensorimotor behaviour to language in the second year, defined five play behaviours. The first behaviour, included 'simple manipulation' of objects (12 months) such as mouthing, waving, banging, fingering or throwing a single toy. The second category, 'relational' play (12 months), involved: a) combination of objects, such as touching or banging two objects together in a non-functional manner, b) stacking objects and c) using one object as a container to hold another object. The last two sub-categories excluded those behaviours which were considered functional associations of objects, e.g. placing a cup on a saucer or putting a spoon into a cup. The third category, 'functional' play (12-18 months) included functional or conventional associations of objects. Four different sub-categories were recorded: a) self-directed acts, e.g. brushing one's hair, b) doll-directed acts, e.g. feeding a doll with a spoon, c) other-directed acts, e.g. holding a telephone receiver to the mother's ear and d) object-directed acts e.g. placing the top on the teapot. The fourth category, 'symbolic' play (18-24 months) was classified into three types: a) the use of one object as if it were a different object (substitution play), e.g. using a cup as a telephone receiver, b) use of a doll as an independent agent of action (agent play), e.g. propping a bottle in a doll's arms as if it could feed itself, and c) creation of objects or people having no physical representation in the immediate environment (imaginary play), e.g. making pouring sounds as imaginary tea is poured from a teapot into a cup. 'Sequences' (18-24 months) was the last category and it was recorded to measure meaningful integrated sequences of functional and symbolic acts in play. Vondra and Belsky (1989) used the additional category of 'transitional' play, which is characteristic of 8-9 month old children and signifies the transition from 'functional' to 'symbolic' play.

Intersubjective Play, With Others

Play has been associated with the acquisition of language, and if one takes Halliday's (1979) account of learning language as learning how to 'mean' through a social learning of experiences, then the framework of a theory of interaction between the child and other people must be accepted. In this view, the child does not merely acquire knowledge about what words refer to, but gains understanding of the meanings or interests of the others' intentional acts, which can be communicated by both verbal and non-verbal means. Furthermore, play is a productive element of this social interaction. Smith (1977) expresses this view as follows:

> "Social play is one form of social interaction. Social interaction implies that two or more participants are making appropriate responses to each other so that the sequence of interactions is continued - they are making alternating and contingent responses to their partner or partners. Play is generally taken to imply a sequence of behaviours which shows marked combinatorial flexibility. . . If these characteristics are accepted, then social play must have the characteristics of both social interaction and play." -- (Smith, 1977, p. 123).

Social play has been studied in the playful interactions of children with their mothers or with their peers. The value of skilled participants, who can be either caregivers or peers, in interactions with children has been described by Rogoff (1990) using the concept of 'guided participation', which involves ". . . children and their caregivers and companions in the collaborative processes. . . . Underlying the process of guided participation is intersubjectivity: a sharing of focus and purpose between children and their more skilled partners . . . " -- (Rogoff, 1990, p. 8).

Parten (1932) was the first to classify children's social play with peers. She distinguished play into social categories such as 'solitary' play, 'unoccupied', 'onlooker', 'parallel' and 'associative' play. In 'solitary' the child plays alone and independently with whatever toys are of interest. When 'unoccupied', the child does not appear to be engaged with anything specific and his behaviour seems aimless. As 'onlooker' the child watches the play but does not enter into the play, while in 'parallel' play the child plays independently and beside rather than with other children. In 'associative' play the child plays with other children but their play is not organized and during 'cooperative' play the child plays in a group with activities organized for some purpose. Garvey (1974) described the dyadic play of peers as 'nonsocial' when one or both peers engage independently in an imaginative activity, and as 'social' or 'ritual' when both children are mutually engaged in, for example, a housekeeping activity.

Others have suggested that negotiations (Göncü, 1987), intersubjectivity (Trevarthen, 1989; Göncü, 1992, 1993) and establishment of shared objects (Werner and Kaplan, 1963) or a shared world (Giffin, 1984; Nelson and Seidman, 1984) are elementary foundational features in children's acquisition of play and 'pretend' play. Trevarthen (1979a) who first used the term 'primary intersubjectivity' to describe the interactions between mothers and young infants, argues that interpersonal communication is characterized by transmission and feedback of emotional information and sharing of purposeful control. Infants can share mental control with other people if they have two skills: a) subjectivity, wherein they exhibit to others the rudiments of individual consciousness and intentionality, with 'affective appraisal', and b) intersubjectivity, by means of which they are able to adapt or fit this subjective control to the subjectivity of others by sharing expressions of vitality and emotions, as described by Daniel Stern (1985/2000, 2010).

In a dyadic proto-conversational exchange (Bateson, 1979), infants adapt to expressions of the mother and the mother generates expressions adapted to her infant's changing interest. Infant expressions, infant responses, maternal expression and maternal responses are the four main functions which regulate a dyadic intersubjective communication. There is a transition from person-to-person interaction in 'primary intersubjectivity', to person-object-person interaction in play, to 'secondary intersubjectivity' near the end of the first year when infants begin to take up the special purpose of the other persons actions. Infants of 3-8 months old show exploratory behaviour with objects and later, when they are around their first birthday, act cooperatively with their mothers or other companions in a joint task (Trevarthen, 1979b, 2001).

Göncü (1993) argues that intersubjectivity in 'pretend' play develops simultaneously but in three different planes. First, social 'pretend' play is affective and children engage in play to share emotional significant experiences with others. Second, social 'pretend' play is meta-communicative and children negotiate to reach an agreement that identifies the activity as 'pretend' play. Third, social 'pretend' play is communicative in which children use non-verbal exchanges, verbal exchanges and actions to construct with others 'pretend' play. Howes, Unger and Matheson (1992) describe three functions of social 'pretend' play with a varying degree of importance depending on the child's developmental stage. The first function of social 'pretend' play is mastery of communication of meaning which plays a central role in the toddler period. The expression and exploration of control and compromise is an important function in the early preschool period and mastery of intimacy and trust is the major function of social 'pretend' play in older children. This collaborative play is driven by imitation of actions to make enjoyment of displays in groups of children too young to learn language, and Jacqueline Nadel has shown how this mutual imitation with peers 'boosts development', and how the principles

of its motivation and negotiation may be applied to benefit children with autism, drawing them into cooperation and facilitating their use of language (Nadel, 2014).

Empirical studies have been carried out to investigate the mothers' role in play with young children. Dunn and Wooding (1977) observed the play of 24 children between 18 and 24 months when their mothers were doing some housework or were relaxing. They defined two levels of maternal involvement: 'joint attention' to indicate that the mother was looking at the child's play and commenting on it, and 'joint play' when the mother actively took part in the child's activity. They found that 'pretend' play took place when the children were in joint attention with their mothers or were seeking their mothers' attention, and that the mothers' initiations were mainly focused on 'pretend' play activities. Haight and Miller (1992) carried out longitudinal observations of everyday pretending with 12 to 48 months old children in middle-class American families and they found that at 12 months any child pretending was initiated by their mothers. By 24 months 'pretend' play was fully and jointly established, where 'pretend' episodes in pretend play with the mother were longer than solitary episodes and mothers remained the primary play partners until the children were 36 months. Similarly, Zukow (1986) and Fiese (1990) found that children's performance during interactive play sequences with their caregivers in the second year was significantly more advanced than non-interactive sequences.

At the same period of development, children and mothers are playing at parallel levels and change in one partner's 'symbolic' play is associated with changes in the other partner's play (Tamis-LeMonda and Bornstein, 1991). The fact that reciprocity and turn-taking can lead to 'symbolic' play confirms the intersubjective basis of this complex level of play. In contrast, simpler forms of play, such as 'manipulative' play, are more dependent on maternal direction and instruction (Fiese, 1990).

At 2 years children could enact mothering behaviours to a doll with the help of their mothers, as well on their own. Six months later, children showed more elaborate mothering behaviours independently and their mothers tended to observe their play and suggested more elaborate activities (Miller and Garvey, 1984). O' Connell and Bretherton (1984) found that the play of 20- and 28-month olds was generally more diverse in collaborative sessions with the mother than when the children played alone. Also, 20-month olds showed an increase in exploratory and combinatorial play, while 28-month olds showed an increase only in 'symbolic' play during play with their mothers. The mothers of the 20-month and 28-month olds gave the same amount of suggestions for 'symbolic' play, but only the 28-month old children readily accepted their mothers' suggestions (O' Connell and Bretherton, 1984). Similarly, Slade (1987) investigated the effects of maternal involvement on 'symbolic' play during the period from 20 to 28 months of age. Maternal involvement was distinguished into three categories: 'no involvement' in child's play, 'commentary' when the mother uses affirmative or elaborative comments and 'interaction' when the mother is actively involved in play or suggests 'pretend' activities. She found that 'interaction' was associated with lengthier and higher-levels of 'symbolic' play than the category 'commentary'; 'commentary' was also associated with lengthier and higher levels of 'symbolic' play than 'no involvement'.

Overall, these results from studies of natural collaboration in play through the period when language learning is just beginning support Vygotsky's (1978) and Bateson's (1955) claim that children gain cultural knowledge through social interaction and Rogoff's (1990) description of learning as occurring by means of 'guided participation'. They carry important implications for how development of motives for communication in children with autism may be supported, in enjoyment of play.

The Fault in Development of Play in Autism: Is It More Than Lack of Symbolic Intelligence?

The play of children with autism has been recognised as limited by fascination with the immediate presentation of objects to the senses rather than their possible, imagined meanings or representational uses (Eisenberg and Kanner, 1956), leading to excessively repetitive activities (Kanner, 1943; Eisenberg and Kanner, 1956; Tilton and Ottinger, 1964; DeMyer, Mann, Tilton and Loew, 1967; Black, Freeman and Montgomery, 1975; Rutter, 1978; DSM-III-R, 1987, DSM-IV, 1994; DSM-V, 2015).

Researchers in the area of autism studies have been interested in 'symbolic' play because this relates to the importance it is presumed to have for the acquisition of language (Piaget, 1962; Vygotsky, 1966; Bruner, 1972) and for the development of representations of all kinds (Leslie, 1987), and thus for understanding of how cultural conventions are learned in communication (Mead, 1934; Bateson, 1972; Trevarthen, 1979a, 1979b). This range of estimates of the importance of an acquired 'symbolic' imagination for cooperative intelligence in human society has given rise to many concepts of the 'symbol', which may be defined more: 1) as product of an adaptation of the mental processes in one individual for their own interest and pleasure, because: a) a symbol is ". . . something that stands for, represents, or denotes something else, not by exact resemblance, but by vague suggestion or by some accidental or conventional relation." -- (Ricks and Wing, 1975, p. 192), or b) a symbol is ". . . a representation of a representation, or is a 'second-order' representation." -- (Baron-Cohen, 1987, p. 146), and 2) as a product of communication and cooperation promoted within interpersonal engagements with shared emotional evaluations from the start because: a) symbols are ". . . experiences and actions with interest and usefulness given to them by the motives for cooperative awareness." -- (Trevarthen and Logotheti, 1987, p. 61)

or b) “symbols direct and organize, record and communicate.” -- (Ogden and Richards, 1923/1985; cited in Hobson, 1993, p. 131).

Early studies in autism looked more for clear deficits of the performance of play as restricted by repetitive activities, but recent studies are more influenced by theories of the cognitive representations of play in typical development. With the cognitive interpretation of the motives or function of playful behavior, estimating that conventional representations, as in language, is the highest level, it has been presumed that the less imaginative ‘sensorimotor’ and ‘combinatorial’ play of children with autism is unimpaired (Riguet et al., 1981; Ungerer and Sigman, 1981; Doherty and Rosenfeld, 1984; Sigman and Ungerer, 1984; Wetherby and Prutting, 1984; Baron-Cohen, 1987; Lewis and Boucher, 1988; Stone et al, 1990). The ‘functional’ play of children with autism, using objects as tools, has also been reported to be unimpaired, in both observational studies of spontaneous behaviour (Ungerer and Sigman, 1981; Doherty and Rosenfeld, 1984; Baron-Cohen, 1987) and tests of elicited responses (Lewis and Boucher, 1988). On the other hand, some studies have reported that the amount of ‘functional’ play children with autism show is both less diverse and less elaborated than in control groups during spontaneous or free play sessions (Sigman and Ungerer, 1984; Lewis and Boucher, 1988; Stone et al, 1990; Williams, Reddy and Costall, 2001).

It is a common belief that the ‘symbolic’ play of children with autism is poor or absent (Wing, Gould, Yeates, and Brierly, 1977; Rutter, 1978; Ungerer and Sigman, 1981; Doherty and Rosenfeld, 1984; Wetherby and Prutting, 1984; Wulff, 1985; Baron-Cohen, 1987; DSM-III-R, 1987; DSM-IV, 1994). The findings claimed for the ‘symbolic’ play of children with autism are varied and in some cases are contradictory. A deficit in ‘symbolic’ play in free and unguided situations has been claimed (Sigman and Ungerer, 1984; Baron-Cohen, 1987; Lewis and Boucher, 1988), but others find that it is unimpaired in such

situations (Stone et al, 1990). Furthermore, while it has been reported that children with autism typically lack 'symbolic' play in structured, elicited or modeled tests (Riguet et al, 1981; Sigman and Ungerer, 1984; Mundy, Sigman, Ungerer and Sherman, 1986), other investigators find that relatively able children with autism do show symbolic pretense when tested in this way (Lewis and Boucher, 1988).

Different Situations for Testing Play of Children With Autism

Researchers have been particularly interested in looking for a deficit in the 'symbolic' play of children with autism because it has been presumed to be typical of their behavior, and indicative of a special, and human, cognitive deficit. The settings for data collection and the explanation of 'symbolic' play deficit have been designed according to hypotheses originating in theories of the development of human intelligence and cognitive processes for learning verbal communication. A variety of situations that differ in their demands for cooperation have been used.

Wing and Gould (1978) analysed parents' and teachers' interviews about the children's play, and also made observations of the children playing at school or at home. Three studies have observed the spontaneous play of children with autism (Baron-Cohen, 1987; Mundy et al, 1987; Stone et al, 1990), and one study included appropriate comparison groups (Baron-Cohen, 1987).

In a study by Riguet et al (1981) a sequence of five experimental conditions was used: a free play session, a structured situation, a session involving modeling, a second structured session including different toys and a final free play period. Lewis and Boucher (1988) observed the solitary spontaneous play of able children with autism followed by elicited and instructed play. In the elicited situation the experimenter said, for example, to the child 'Show me what you can do with these', and in the instructed session the child was

told ‘Make the car go to the garage’. This method of testing the imagination of the child has been criticized by Baron-Cohen, as allowing an alternative explanation, “such that sensible guessing will lead to behaviour strongly resembling pretence.” -- (Baron-Cohen, 1990, p. 207).

Other studies have combined unstructured and structured situations (Ungerer and Sigman, 1981; Sigman and Ungerer, 1984; Wetherby and Prutting, 1984; Mundy et al, 1986). The purpose of the unstructured session in these studies was to observe the spontaneous, inventions in play of children with autism. However, the experimenter first modeled four different symbolic acts, following which the child was permitted to play alone, after which a second structured setting was used to observe the children’s use of objects in one-to-one interaction with the experimenter. In cases where the child did not use the objects functionally, the experimenter directed the child in the functional use by verbal cueing, and if there was still no response modeled acts were presented.

Most of the above studies observed directly the play of children with autism. Other studies tested the deficits in ‘symbolic’ intelligence by employing specified tasks to measure the ability for comprehension of ‘pretence’ (Jarrold, Boucher and Smith, 1994), or they tested the ‘executive function’ (Jarrold, Smith, Boucher and Harris, 1994) in children with autism. But if play is by nature flexible, spontaneous and also interactive, it cannot be assessed by measures limited to performance on specific tests of predefined capacities of individual subjects in set tasks.

Different Theories of How Children With Autism Think, Imagine, or Relate

Ricks and Wing (1975) were the first to claim that children with autism are impaired in the formation and manipulation of symbols, and to propose a ‘symbol deficit’ theory to explain their problems in ‘thinking’. Later, Baron-Cohen (1987) proposed a

‘cognitive symbol deficit’ theory derived from his study of the development of pretend play in children with autism and inspired by the ‘theory of mind’, which posits a capacity to represent states of mind of the self or of others. He argued that ‘pretend’ play, with symbols, is developed on the basis of second-order representations, which children with autism lack, and he concluded that this is evidence that the children with autism do not have the capacity to produce symbols. Children with autism can have first-order representations which refer to the real states in the world which may be used in immediate response, e.g. ‘a banana is something to eat’, but they lack second-order-representations which refer to a representation of the first-order representation by imaginative cognition, e.g. ‘a banana is a telephone headset’.

Identification of an impairment in ‘functional’ play raises problems for a symbol deficit theory and the meta-representation hypothesis, which claims that children with autism have a specific impairment in imagination for signs. Additionally, Lillard (1993) argued that ‘pretend’ play does not require competence for understanding second-order mental representations on the basis of the evidence between the relationship of ‘pretend’ play to children’s supposed ‘theory of mind’. This is in disagreement with Baron-Cohen (1987), who claims that the ‘symbolic’ play deficits of children with autism can be explained entirely by a specific developmental delay in generation of second-order representations (Baron-Cohen, 1989). This theory fails to recognize early developments, which may be affected by autism, of imagination for sharing purposes without interest in second-order representations. Typically developing children pass tests measuring meta-representation at the age of 4 years, but instinctive intersubjectivity for sharing imaginative purposes for activity by imitation is established from birth (Kugiumutzakis and Trevarthen, 2015; Trevarthen, 1979a, 1979b; Stern 1985/2000), and intersubjective ‘symbolic’ play is

normally strong in familiar relationships by 24 months (Haight and Miller, 1992; Nadel, 2014).

Other hypotheses attempting to explain why 'symbolic' play is impaired in autism give consideration to other functions of the mind, besides perception and reason. Lewis and Boucher (1988) suggested that the impaired spontaneous 'symbolic' play of children with autism could be explained as some form of conative (motivational) abnormality, possibly associated with the lack of pleasure that these children experience during 'pretend' play. Similarly, Harris (1989, 1993) claims that the impairment in 'symbolic' play is attributable to motivational deficits as revealed in the indifference to social contact and social appraisal observed in children with autism. It has been also argued that the failure in 'symbolic' play might arise from the 'executive function' deficits, of action planning and reasoning, in children with autism (Harris, 1993) but empirical data have not supported this view (Jarrold, Boucher and Smith, 1994). Hughes, Russell and Robbins (1994) have described executive functions as 'mental operations which enable the individual to disengage from the immediate context in order to guide behaviour by reference to mental models or future goals' (p. 477), which could include the generation of novel ideas or behaviours, or generativity (Bishop and Norbury, 2005; Jarrold, Boucher and Smith, 1993; 1996). Furthermore, Jarrold, Boucher and Smith (1993) argued that a 'performance' deficit could explain the difficulties with 'symbolic' play of children with autism as opposed to a 'competence' deficit (Baron-Cohen, 1987). The argument for a 'performance' deficit is based on a study carried out by Lewis and Boucher (1988) which showed that some children with autism can produce 'symbolic' play under structured conditions, in contrast with Baron-Cohen (1987) who argued the 'competence deficit' because children with autism are not able to initiate 'symbolic' play. There is no clear evidence that could support the 'performance' or the 'competence' deficit hypothesis (Jarrold et al, 1994) and the fact

that children with autism do not show the same type of play as control groups of children with developmental delay or of typically developing children is an indication that this is a feature of their experience that differentiates autism from other disabilities and, therefore, the 'motivational' or 'performance' deficit hypothesis cannot be supported.

Sigman and Ungerer (1984) initially proposed a 'cognitive-affective' model, and they offered two hypotheses to explain the deficits in autism. The first hypothesis claims that there are two systems involved in children's play: the first is reflected in the development of sensorimotor skills and involves the capacity to recall information, and the second one is reflected in the capacity to translate experiences into language and symbols for play. It seems that the second imaginative system must contribute to the deficits of the children with autism. The second hypothesis claims that the cognitive deficits of these children also result from an impaired capacity for social development. As the two hypotheses are not independent Sigman and Ungerer (1984) proposed that a 'socio-cognitive model' should be adopted.

The 'cognitive-affective' hypothesis (Mundy et al, 1987) can be clarified only by one empirical study so far. The interpretation of the findings from this study is difficult because results are inferred from differing testing procedures and correlation analysis has been used. The Reynell Developmental Language Scales (Reynell and Huntley, 1985) was used to assess the understanding and production of language, the Early Social Communication Scales (Seibert and Hogan, 1982) assessed non-verbal communication and play was observed separately. It was found that the correlation between 'symbolic' play and receptive and expressive language was highly significant, but the correlation between 'symbolic' play and responding to 'joint attention' only approached significance. From these results, Mundy et al (1987) concluded that non-verbal communication and play reflect

independent psychological factors associated with language acquisition in children with autism.

It is suggested by others that the deficit in symbol use stems from the primary deficit of the child with autism to engage in social relations (Fein, Pennington, Markowitz, Braverman and Waterhouse, 1986), to form social-affective relations (Hobson, 1989a, 1989b, 1990, 1991), or to participate in social interaction (Klin, 1989). Rogers and Pennington (1991) propose a 'socio-affective' theory as an explanation of the deficits in symbolisation, claiming that impairments in imitation, emotion sharing and 'theory of mind' cause deficits in 'pretend' play in autism. To investigate this view further, recently Hobson, Hobson, Cheung and Caló (2015) conducted a study and they found that individuals with autism showed lower level of joint engagement, lower levels of 'symbolic' play and fewer shifts in symbolic meaning compared to matched individuals with developmental delay.

Furthermore, regarding the socio-affective hypotheses, there are a few studies with peers, but the analysis of the data has not focused on different categories of play, such as 'sensorimotor', 'relational', 'functional' and 'symbolic', or on the level of interpersonal contact. These studies assessed the communicative quality of peer interaction and how this interactional process is influenced depending on the familiarity of the observational setting, on the developmental level and behaviour of the interactive partner, on the acquisition of basic social skills, and on the structure and amount of interaction (Howlin, 1986; Lord and Magill, 1989).

It is important that children with autism, like children without autism, demonstrate impulses for play that requires meta-representation, e.g. in making one thing stand for another. It is also important to show awareness of playful pretend rather than mechanical

pretend play because recent research finding indicate that children with autism showed less playful pretence or 'showing off', self-conscious awareness of pretending, symbolic meanings given to play materials, creativity, and fun (Reddy, 2008, 2012; Hobson, Lee and Hobson 2009). Furthermore, relationships are crucial in human development and it has been found that children with autism can show 'symbolic' play while playing with their mothers, but, in absence of the shared enjoyment of play that their mothers support, their play is repetitive without thematic coherence and creativity (Papoudi, 1993). Children with autism also find it difficult to join peer play (Papoudi, 2008) and they show a lack of motivation for initiating communication to engage with an other child (Argyropoulou and Papoudi, 2012) which are considered as paramount developmental milestones.

Conclusions

To conclude, the existing empirical data do not offer clear evidence to support any of the hypotheses offered to explain the deficits in play of children with autism. It is not firmly established whether both 'functional' and 'symbolic' play are selectively impaired and the lack of 'symbolic' play is attributed to impairment in an imaginative representation, rather than to a lack of an understanding with other persons, and of sharing knowledge of conventional means, leading to lack of meaning-making in social and cultural contexts. Our discussion about the typical developmental pathway of play has shown that the missing element is information from investigations of the shared social play of children with autism. Existing studies have analyzed solitary 'pretend' play, not social 'pretend' play. The representations of the child are inferred by the experimenter and there is no intention for sharing these representations with an actual partner (Howes and Norris, 1993). There might be a potential partner at a meta-representation level, but a complete theory of 'pretence' and an autotelic theory of developing minds should explain how intersubjective awareness is either constructed or discovered in social 'pretend' play, and how 'pretend' play develops

and becomes a socially shared activity among young children (Fein and Glaubman, 1993). Therefore, there is a need to depart from traditional cognitively based 'single head' interpretations of representation, and to examine 'symbolic' play with social theories as an intersubjective and meta-intersubjective experience, because a child's development of mind should integrate affective, sensory-motor, communicative and cognitive processes of attention to objects and persons (Reddy, 2008, 2012). This proposal could be confirmed by future research directed towards investigations of how children with autism play in interaction with different partners, including caregivers, siblings and peers.

Autism is a 'pervasive developmental disorder' (DSM-III-R, 1987, DSM-IV, 1994), it is recently considered as a unique spectrum disorder (DSM-V, 2013) and therefore should be examined in a developmental spectrum. Existing studies do not offer enough information about the developmental sequence of the play of children with autism. Developmental studies with typically developing children have observed play in natural settings, but the play of children with autism has been observed mainly in experimental and laboratory conditions.

Another issue concerns the psychological nature of play and mainly that of 'symbolic' play. Research with children with autism is restricted into play categories such as 'sensorimotor', 'relational', 'functional' and 'symbolic' play, overlooking more imaginative and shared forms of play such as play with language, role-taking, games, group play etc.

A last limitation of our existing knowledge regards the development of play in children with autism with different behavioural, linguistic and cognitive characteristics. There is evidence that there are differences between low- and high- functioning children with autism (Bartak and Rutter, 1976), including differences in their play (Ungerer and

Sigman, 1981). Most of research until now has been carried out with verbally and cognitively able children with autism, and there is a lack of knowledge regarding the behaviors of minimally verbal school-aged children with autism (Tager-Flusberg and Kasari, 2013).

There is also a pressing need to bridge the gap between academic research and school practice, and to study the play of children with autism within the schools (Kossyvaki and Papoudi, 2016). The development of play for children with autism should be facilitated in special settings and be part of an inclusive ethos in mainstream schools (Papoudi, 2008) building up a 'culture of play' (Papoudi, 2013). Play is important for learning and "all types of learning aiming at enriching children's natural abilities must be 'taken up' by the child's imagination and feelings" (Trevarthen and Panksepp, 2016, in press).

The development of play, and mainly that of 'symbolic' play, in typically developing children, is intersubjective from the start. This invites consideration of the possibility that a primary impairment in children with autism for engaging in social relationships with other people inhibits or restrains the development of higher-level play. Limitations in creative, playful pretend play among children with autism is related to their restricted interpersonal communication and engagement (Hobson et al, 2013). The fact that caregiver-mediated intervention facilitating joint engagement between caregivers and toddlers with autism results in gains in functional play (Kasari et al., 2010) and that teacher-mediated intervention with a child with autism facilitating interactive play results in gains in joint engagement (Argyropoulou and Papoudi, 2012) reinforce the belief that intersubjective engagement and play are involved in mutual interplay. This is strongly supported by studies of imitative communication, and of its use as an aid or therapy for development of children with autism (Nadel, 2014).

Research on the development of ‘symbolic’ play in autism can improve our knowledge about typical development, confirming that ‘symbolic’ play has intersubjective origins, which clarifies the relationship between affective contact and symbolic structures. “It appears likely that autism results from disorders of imaginative and sociable playfulness itself, for which the motives and emotions are apparent from birth” (Trevarthen and Delafield-Butt, p. 213), and if future research reveals that the level of ‘symbolic’ play in children with autism is dependent on the level of intimate communication and on the dynamic forms of vitality, this finding would then bring strong evidence that impairment in intimate regulations of social development is a primary feature of autism, and would further support the ‘intersubjective deficit’ hypothesis. As early play stemming from intersubjective engagement between infants and mothers supports the programming of intellectual abilities and sensitivities (Trevarthen and Panksepp, 2016, in press), and as intersubjective awareness first appearing in infancy remains as foundation of development throughout life (Stern, 2000), intersubjective play can be used in educational systems and in therapeutic settings with children and adults.

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