

Qualities of Symbolic Play Among Children with Autism: A Social-Developmental Perspective

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Abstract We hypothesized that the qualities of play shown by children with autism reflect their impoverished experience of identifying with other people's attitudes and moving among person-anchored perspectives. On this basis, we predicted their play should manifest a relative lack of the social-developmental hallmarks that typify creative symbolic functioning. We videotaped the spontaneous and modelled symbolic play of matched groups of children with and without autism. The two groups were similar in the mechanics of play, for example in making one thing stand for another and using materials flexibly. By contrast, and as predicted, children with autism were rated as showing less playful pretend involving self-conscious awareness of pretending, investment in the symbolic meanings given to play materials, creativity, and fun.

Keywords Symbolic play · Autism · Metarepresentation · Executive functioning · Intersubjectivity · Identification · Fun

Introduction

Children with autism display a limited capacity for creative symbolic play. Competing accounts to explain this phenomenon offer contrasting views of its relation to the children's impairments in social relations and

communication. The aim of the present study is to gain insights into the nature of play among children with and without autism by paying close attention to those qualities of symbolic representational play that might derive from and reflect specific aspects of social engagement.

Already there is research evidence that abnormalities in symbolic play among children with autism are not restricted to delays in the emergence of such play, nor can they be characterized as a straightforward inability to symbolize. As admirably reviewed by Jarrold et al. (1993) and Jarrold (2003), the developmental picture is complex, and much of the evidence equivocal in its implications. At an age in toddlerhood when one might expect to witness the emergence of representational play, this is seldom seen among children with autism. For example, Charman et al. (1997) reported that in structured play trials, all 20-month-old developmentally delayed infants produced at least one example of object substitution, but not one of the young children with autism did so even after prompting and modelling. Among older children, too, the relative paucity of symbolic play and predominance of an intermediate form of play referred to as stereotyped, repetitive, and/or copying play discriminate children with autism from those with mental retardation (e.g., Baron-Cohen 1987; Sigman and Ungerer 1984; Wing et al. 1976). Yet as they grow older, many children with autism are able to show pretend actions once modelled or directly instructed to do so (e.g., 'What can these do?', or 'Show me what you can do with these?': Jarrold et al. 1996; Lewis and Boucher 1988); and when cues are provided, they may show the ability to substitute one object for another in play, even though they tend not to generate novel pretend acts themselves (Charman and Baron-Cohen 1997; Jarrold et al. 1996). At the same time, their play tends to be limited, sterile and ritualised (Wulff 1985).

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How might we explain this perplexing pattern of strengths and limitations in the play of children with autism—and in doing so, perhaps, shed light on the developmental underpinnings of play in typically developing children? One well-known theoretical approach invokes cognitive/computational processes required to achieve symbolic play, and suggests how certain of these are compromised among children with autism. According to Leslie (1987), symbolic play requires that a child's computer-like mind can decouple representations of the world from whatever is represented, so that the child can exercise what was initially called the capacity to 'metarepresent' and apply representations (i.e., symbolic meanings) when objects are absent, or to objects that usually mean something else, or to objects that do not literally have the properties ascribed. Leslie suggested that children with autism have an innate lack of the decoupling mechanism needed to achieve this form of play. Although subsequent controversy over what is truly metapresentational (e.g., Perner 1990) have led to modifications in Leslie's terminology, here we shall refer to 'metarepresenting' in the sense operationalized by Leslie through the three features of symbolic play already listed.

Hobson (1990, 1991) delivered a critique of Leslie's thesis, and argued that what Leslie called 'decoupling' is a process one needs to explain in terms of affectively configured *social*-cognitive development. More specifically, Hobson suggested that intersubjective engagement with someone else's attitudes towards a visually specified shared environment lifts an infant out of a one-track, egocentric take upon objects and events, and in due course (from around the middle of the second year of life) enables the child to relate to his or her own relations with the world. With Leslie, Hobson stressed that in the typical case, symbolizing in play involves self-awareness of what one is doing, namely choosing to introduce new pretend meanings, but here again the two accounts differed in the role ascribed to social relations in the development of such awareness.

Hobson (e.g., 1993) has proposed that a foundation for self-awareness and perspective-taking is the biologically based propensity to *identify with* another person's bodily expressed attitudes. From the end of the first year of life, this affectively grounded process draws typically developing infants into adopting other people's orientations towards the world. Such non-inferential perspective-taking underpins toddlers' subsequent grasp what it means for people to hold different perspectives on a shared environment. To acquire such understanding around the middle of the second year *is* to 'decouple' descriptions-for-persons from whatever is at the focus of those descriptions, that is, to distinguish between people's takes on objects and events from the world-as-given. In the case of autism, impairments in this ability to identify with others' attitudes is said to

explain the children's limitations in perspective-taking and their restricted awareness of themselves as bearers of mental states—and therefore their limited capacity to generate and introduce the kinds of pretend meanings that are essential to play. There is now a body of evidence that bears upon this account (e.g., García-Pérez et al. 2007, 2008; Hobson 2002/4, 2005, 2007; Hobson et al. 2006, 2007, 2008; Hobson and Hobson 2007; and Bishop et al. 2005, for related considerations concerning symbolic play among congenitally blind children).

Three further approaches to explaining constraints on symbolic play among children with autism have highlighted how one or another hypothesized component of play might be impaired. One set of cognitively-based views holds that executive functions such as the ability to disengage thinking from the real world and/or flexibly shift among alternative interpretations of play materials might underlie the children's deficits in pretend play (e.g., Harris 1993; and Rutherford and Rogers 2003, for discussion). A problem here is that the children's deficits in joint attention and play appear to arise earlier than at least certain difficulties with executive function (Griffith et al. 1999). A more specific proposal is that children with autism are limited in the ability to generate ideas, including those needed for creative play (Lewis and Boucher 1991; Jarrold et al. 1993, 1996). Another tack (see Jarrold et al. 1993) is to consider whether the children might lack the motivation to engage in symbolic play.

These latter accounts highlight important features of play among children with autism. Yet do the features in question amount to *components* that make potentially separate contributions to fully-fledged play, or is each an *aspect* of some more coherent process that underlies play and that has implications for (and is therefore expressed in) children's executive functioning, generativity, and motivation (Hobson 2008)? For example, children's lack of experience in taking multiple *social* (i.e. people's) points of view, including towards oneself, might underpin and/or contribute to executive dysfunction among children with autism (Hobson 1993). Or again, the propensity to shift among person-anchored stances through a fluid form of *social* role-taking may account for the generativity of play (as well as some other forms of thinking and communication), and the motivation to invest in the meanings of play. According to this alternative perspective, the different features of symbolic play accrue from the social-developmental grounding upon which such play is built. The flexibility, generativity, and motivation of play arise from the flexibility, generativity, and motivation that are part and parcel of moving to other-person-centred stances, as first manifest in typical infants towards the end of the first year of life. Rather than constituting social-independent domain-general components of psychological functioning

on which symbolic play needs to draw, these are developmentally critical aspects of identifying with others.

The aim of the present study is to seek empirical evidence for or against these alternative positions. More specifically, we anticipated there would be a dissociation between children's *potential* ability to achieve metarepresentation and manifest some kinds of flexibility in play on the one hand, and qualities of playful engagement that reflect social-developmental underpinnings of play on the other: awareness of self as creating new meanings, investment in symbolic meanings, creativity, and fun. According to our hypothesis, these are among the most prominent features of symbolic play that derive from engagement with other people's attitudes towards the world. Such identified-with attitudes include those directed towards young children themselves, not least in a spirit of playfulness. Expressed differently, we hypothesize that the *kind* of metarepresentation required for creative, generative symbolic play entails more than the decoupling of veridical from attributed meanings. It involves both the ability and motivation knowingly to shift among perspectives that are 'alternative-person-centred', even when the particular alternative person-centred position is only virtual, and has not been experienced before. A complementary hypothesis is that children with autism relatively lack those forms of interpersonal emotional engagement and identification that provide developmental foundations for truly creative and enjoyable play.

Therefore we predicted that the play of relatively able children with autism would be distinguished less by limitations in what Jarrold et al. (1996) called the mechanics of pretend play, in the sense of those abilities originally identified as expressions of metarepresentation or flexibility in relating to materials, than by limitations in playful pretend as reflected in measures of awareness of self as creating new meanings, investment in symbolic meanings, creativity, and fun. We followed a semi-structured procedure to compare such qualities of spontaneous and modelled play among school-age children with autism relative to matched children without autism.

Methods

Participants

We tested pretend play abilities in 16 children (all boys) with autism and 16 children (11 boys, 5 girls) with learning difficulties or developmental delays but without autism. Participants were selected on the basis of availability at school and the likelihood that they were able to comply with testing, and none were excluded once play sessions were underway. All participants with autism displayed the characteristic clinical features of autism defined by DSM-

IV (American Psychiatric Association 1994), with impairments in social interaction and communication coupled with repetitive or stereotyped interests and activities. We confirmed the clinical picture by systematically reviewing with teachers how far each child conformed to a checklist of DSM criteria. In addition, we completed the Childhood Autism Rating Scales (CARS: Schopler et al. 1988) after observing the children in their classrooms: the children's CARS scores were $M = 35.5$, $SD = 4.3$, range = 30–41.5, where a score of 30 or above is taken to indicate autism. Participant characteristics are presented in Table 1.

In order to match the groups on verbal ability, we administered the British Picture Vocabulary Scales (BPVS; Dunn et al. 1982), the British version of the Peabody Picture Vocabulary Scale. The BPVS is a standardised, widely used measure of receptive vocabulary that also appears to assess a relative area of weakness for persons with autism (Jarrold et al. 1997; Lockyer and Rutter 1970). Verbal mental age, based on BPVS raw score age-equivalents, was closely similar in the groups, and on an estimate of their verbal intelligence calculated using BPVS verbal age-equivalents relative to chronological age, the children with autism ($M = 70$; $SD = 25$; range = 42–126) and those in the comparison group ($M = 75$; $SD = 21$; range = 40–104) were also similar.

Play Session Procedure

The children were tested individually in a quiet testing room in their school, and their play was videotaped for later rating. The experimenter was a male very well known to the participants. He sat on the floor with the child and the test materials. There were two sets of play materials introduced in fixed order, so that the set with more play props was available early in the testing session to facilitate participants' engagement in play. For each set of materials, a period of play without modelling by the tester preceded a period of modelled play. Throughout, except during the modelling or when specifically asked to take part, the tester observed the child playing and would ask and/or comment on what was happening, as well as offer encouragement and praise, but he did not participate in the play.

Table 1 Participant characteristics

	Chronological age			Verbal mental age		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Autism <i>n</i> = 16	9;6	2;11	7;1–13;9	5;3	1;11	2;6–10;2
Comparison group <i>n</i> = 16	10;4	1;6	7;10–12;3	5;0	1;2	3;2–6;9

Note: Ages presented in years;months format

Doll condition: The first play scenario portrayed a familiar routine for the children. The materials comprised a baby doll made of pliable plastic with a simple dress that was easy to remove, and a variety of objects that might be employed to represent bathroom and bedtime objects. These included a mixture of both miniature replicas that might elicit functional play (e.g., a small jug, a small sponge, a bath-shaped washing up bowl, a miniature brush, and a small clear plastic open bottle) and other non-representational objects that might be incorporated in the play (e.g., a piece of cloth, a small plastic-covered pad, the lid of a box, and a tea-cloth). Although the materials might be considered less suitable for boys than girls, all participants were willing to use them in play. There were two stages to the procedure, as follows:

- (1) *Spontaneous play:* Initially, the tester (AL) introduced the baby doll to the child as ‘Anne’ and pointed out some of the materials. He instructed the child to ‘Use these things to make up a story’. As the child played, the tester observed and sometimes commented on the play, but did not participate in the unfolding scenario. After the child was satisfied that his or her story was complete, usually between 2 and 4 min, the tester began the second part of the procedure.
- (2) *Modelled play:* Next, the tester set up a bathing routine, following a procedure illustrated by the following verbatim script: ‘I’d like to make up a story with Anne. I’m going to get Anne ready for a bath, and then it’s going to be bedtime, ok? So...here is her bed, this is the bath...Now let’s first of all undo this zip [taking off clothes]...She’s going to get ready for her bath...Oh, come on then [to doll]...Now I’m going to turn on the hot water [using exaggerated actions to turn on an imaginary tap]...oop, and some cold water [turning on another non-existent tap, and then testing the water]. Put in a bit of bubble bath [from an empty bottle, making glugging and then swishing noises as the tester stirred the bath]. I think that’s the right temperature, turn off the hot and cold water [turning the taps]. Pop Anne in, there we go. Here’s some soap [a small block], ok, and a towel [cloth], and a jug [miniature]. Now, what I want you to do, is carry on the game. So can you give Anne a bath and then get her ready for bed?’ The tester was free to give additional verbal prompts and commentary, and he continued to encourage the child’s efforts. In total this phase of play lasted for up to 5 min (mostly between 2 and 4 min), and was discontinued when the child indicated that he or she had finished.

School condition: The second play scenario involved two miniature figures, but otherwise with few props for the play so that children would need to generate and anchor play ideas with relatively little physical scaffolding. There was a cardboard box with a cut-out door (to represent a

school building), and two small toy figures (a boy and girl). There were two stages to the procedure, as follows:

- (1) *Spontaneous play:* Initially, the tester (AL) introduced the boy and girl to the child as ‘Tom’ and ‘Mary’ and pointed out the schoolhouse. He instructed the child to ‘Use these toys to make up a story’. After the child was satisfied that his or her story was complete, which occurred after a period of between 2 and 4 min, the tester began the second part of the procedure.
- (2) *Modelled play:* Next, the tester demonstrated how the play-figures were children playing on the playground during a break. One of the children, ‘Mary’, had a drink, which ‘Tom’ asked to share. The tester enacted the beginning of an argument in which Mary refused to share her drink, and the participant was asked to continue the story by making up what happened next. Again the period of play tended to last about 3 min, but could continue for up to 5 min.

Ratings

A person who had clinical experience in child psychology, but who was blind to the diagnoses of the children and the hypotheses and predictions of the study, rated all the videotapes of the entire play sessions. There were four sets of ratings for each child, in that spontaneous and modelled versions of each of the two play tasks were rated separately. A second judge (JH) who was a clinical and research psychologist very experienced in working with children and adolescents with autism rated just over one-third of the videotape excerpts (all conditions for six randomly selected children in each group) in order to calculate estimates of inter-rater reliability.

For each of the four videotape excerpts, participants were rated as either good or poor in attentiveness to the materials, where ‘poor’ meant that the participant appeared distracted and unable to focus on the objects provided for the play. Here the two judges agreed on 93% of the clips, with only three disagreements.

The principal ratings involved six items that were each rated on a 3-point scale. The items are listed below with estimates of inter-rater reliabilities using intra-class correlation coefficients (ICC, Shrout and Fleiss 1979).

Attribution of symbolic meaning to play objects (ICC = .79): This item referred to the extent to which the child demonstrated a capacity to pretend through object substitution, attribution of false properties, and invention of imaginary objects. A score of 3 was given for children who clearly demonstrated at least one of these skills at some point, and who demonstrated thereby that he or she had the potential to ‘metarepresent’ in Leslie’s original sense of the term; a mid-range score of 2 was given to those children

who pretended, but only in a functional manner, for example in brushing the doll's hair with a miniature brush; and a score of 1 was given for those children who did not show these forms of pretend.

Potential for flexible use of objects (ICC = .87): This item referred to the extent to which the child demonstrated an ability to use objects in more than one way, including sensorimotor as well as symbolic usage. Children were given a score of 3 on this item if they were observed to use objects in first one way, and then another; they were given a score of 2 if they used objects in different ways but in a more fleeting or repetitive manner, and a score of 1 if they showed an absence of flexibility.

Self-awareness (ICC = .84): This item referred to the child's awareness of him or herself as 'creating meaning'. Here children were given a score of 3 if they showed an awareness of 'I can make this stand for that' as opposed to simply 'this can be that' when playing, a score of 2 if there was equivocal evidence for this, and a score of 1 if there were no indications of such self-awareness. Note that we did not require that participants were explicit about their role in pretending. Rather, ratings were of subtle but often unambiguous expressive and communicative gestures that conveyed a child's sense of involvement in inventing and/or in choosing to apply symbolic meanings.

Investment in symbolic meanings (ICC = .78): This item referred to the extent to which the child was invested in (cared about) the new meanings given to objects when pretending. Children were given a score of 3 if, in the context of pretending, she or he was engaged by or invested in the new meanings of the play materials. They were given a score of 2 if they were only somewhat invested in symbolic meanings as applied to play objects, and a score of 1 if they cared very little about such meanings or had not attributed any meanings during the play.

Creativity (ICC = .77): This item referred to the child's propensity to introduce new and creative ideas that served to enrich the play (score = 3). The mid-range score of 2 was given to children who introduced ideas that were limited/repetitive, or who gave a sense of becoming 'stuck'. Children were given a score of 1 if they failed to introduce new ideas while playing.

Fun (ICC = .85): Children who showed they were having fun during play were given a score of 3. Children who showed some pleasure or amusement, but not the liveliness and involvement that typifies having fun, were given a score of 2; and those without any such pleasure while playing were given a score of 1.

Composite Variables

On an a priori theoretical basis, we created a composite variable of the mechanics of pretend from the children's

mean scores for attribution of symbolic meaning ('meta-representation') and flexibility. These two items were highly inter-correlated within each of the groups (autism: $\rho = .78$, $p < .001$; comparison group: $\rho = .56$, $p < .05$). Secondly, also on an a priori theoretical basis, we created a composite variable of 'playful pretend' from the children's mean scores for self-awareness, investment, creativity, and fun. These four items were highly inter-correlated within each group (autism: ρ range = .72–.90; comparison group: ρ range = .64–.86).

Results

Attentiveness

By way of background, almost all of the children were rated as showing good attentiveness to the task materials on all four of the task conditions. The exceptions were one child (with autism) who was rated as inattentive to the materials on two out of the four conditions, and three children (all with autism) who were rated as inattentive to the materials on one out of the four conditions. Three of these inattentive ratings were given during the condition of spontaneous play in the doll condition, one during modelled play with the doll, and one during modelled play with the schoolhouse and figures.

Overall Play

We had predicted that participants with autism would show relative ability with the mechanics of pretend (potential to attribute symbolic meanings and to use objects in more than one way) but would be specifically limited in expressions of playful pretend (self-awareness in pretending, investment in symbolic meanings, creativity, and fun). The results are illustrated in Fig. 1. Here it may be observed that there were neither ceiling nor floor effects on either set of measures. It was also the case that within the group of children without autism, the 5 girls and 11 boys achieved almost identical mean scores and standard

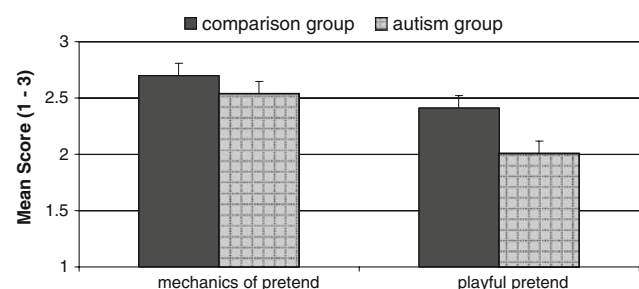


Fig. 1 Mechanics versus playful pretend across conditions

deviations on both the mechanics (for boys, $M = 2.7$, $SD = .2$, for girls $M = 2.7$, $SD = .2$) and playful qualities of pretend (for boys, $M = 2.4$, $SD = .4$, for girls $M = 2.5$, $SD = .5$).

A Group (autism–control) by Task (pretend–play) analysis of variance revealed that there was a main effect in that scores on mechanics of pretend were higher than scores for playful pretend, $F(1,30) = 77.86$, $p < .001$. As predicted, there was a significant group \times task interaction, $F(1,30) = 7.08$, $p < .05$. Planned comparison t -tests revealed that there was not a group difference in achieving the mechanics of pretend, $t(30) = .83$, ns , but participants with autism were significantly less likely than those in the comparison group to show playful pretending, $t(30) = 2.40$, $p < .05$ (Fig. 1).

Given that the ‘mechanics of pretend’ composite comprised scores for the attribution of symbolic meanings and flexibility, reflecting aspects of metarepresentation and executive functioning, respectively, special importance is attached to the results on these subscales. In order to focus specifically on the attribution of symbolic meanings, an item with a score of its own (maximum 3), we dichotomised each rating according to whether the participant did or did not show play that accorded with the criteria for ‘metarepresentation’ (score 3). The groups were very similar in the mean number of instances out of four (over the four conditions) that they showed metarepresentation: for participants with and without autism, $M = 2.63$ ($SD = 1.36$) and $M = 2.69$ ($SD = 1.08$), respectively. Here it is clear that the groups were *not* near ceiling in their scores. The groups were also similar in the distribution of scores (e.g. five children in each group showed metarepresentation in all conditions, whereas three children with autism and two without autism did so in fewer than two conditions).

The two groups were also similar in the mean number of instances out of four that they showed only functional play i.e., scored 2: for participants with and without autism, $M = 1.13$ ($SD 1.09$) and $M = 1.25$, ($SD = 1.07$), respectively. On ratings of flexibility, too, the two groups were not significantly different, although absolute scores for children with autism were somewhat lower: autism $M = 2.48$, $SD = .48$; control $M = 2.73$, $SD = .23$, $t(30) = 1.85$, $p < .10$. Similar numbers of children (4 with autism and 5 in the comparison group) received four scores of three, showing flexibility in all conditions, and of the remaining children, most (8 with autism and 10 in the comparison group) showed flexibility (scores of three) in at least half of the conditions.

The group contrasts in playful pretend were not confined to a minority of the items in the playful pretend composite, but were apparent in each of the four individual sub-scales. Although we had made directional predictions, it may be

most appropriate to convey the pattern of results with exploratory two-tailed t -tests (and, for these illustrative purposes, without adjustment for multiple comparisons). Group differences were significant for self-awareness in pretending, $t(30) = 2.76$, $p < .01$ and investment in symbolic meanings, $t(30) = 2.76$, $p < .01$, and there were trends in the expected direction for creativity $t(30) = 1.76$, $p < .10$, and fun $t(30) = 1.81$, $p < .10$.

Spontaneous and Modelled Pretend and Play

The scores for spontaneous versus modelled mechanics of pretend are presented in Fig. 2. It can be seen that the groups were not different in their scores in either condition. On the other hand, modelling appeared to benefit the children with autism, $t(15) = 2.17$, $p < .05$ —especially in relation to using toys in more than one way, $t(15) = 2.18$, $p < .05$ —but not those in the comparison group, $t(15) = 1.24$, ns .

The scores for spontaneous versus modelled playful pretend are presented in Fig. 3. Here it can be seen that for playful pretend, the children with autism were given significantly lower scores than those in the comparison group on both the spontaneous, $t(30) = 2.22$, $p < .05$ and modelled $t(30) = 2.32$, $p < .05$, conditions.

In the spontaneous condition, the group contrasts could be seen in each of the four domains of play. Once again using uncorrected two-tailed tests for illustrative purposes, the group differences were significant for creativity,

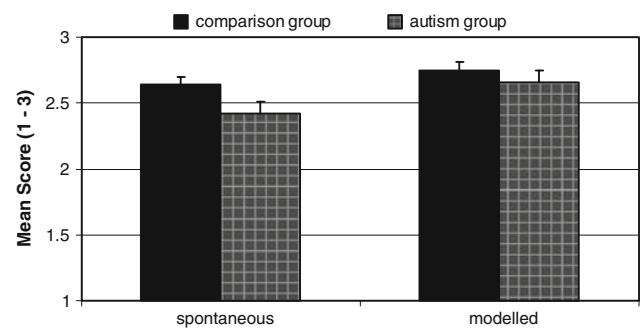


Fig. 2 Mechanics of pretend in the spontaneous versus modelled conditions

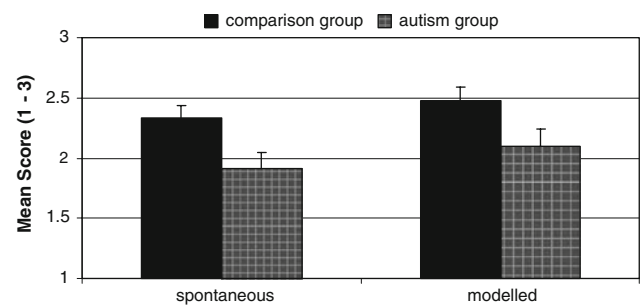


Fig. 3 Playful pretend in the spontaneous versus modelled conditions

$t(30) = 2.25, p < .05$ and fun, $t(30) = 2.11, p < .05$, and there were trends in the predicted direction for self-awareness in pretending $t(30) = 1.82, p < .10$, and investment in symbolic meanings $t(30) = 1.72, p < .10$. In these latter two respects, modelling led to significant group differences: for self-awareness in pretending $t(30) = 3.53, p < .01$, and investment in symbolic meanings $t(30) = 3.37, p < .01$.

Among participants with autism, modelling led to increases in scores for playful pretend, $t(15) = 2.26, p < .05$, with trends ($p < .10$) in the subscales on self-awareness in pretending, creativity and fun; among children in the comparison group, the overall scores for playful pretend showed a trend towards improvement, $t(15) = 1.75, ns$, and exploratory analyses on specific items were significant for self-awareness in pretending $t(15) = 3.09, p < .01$, and investment in symbolic meanings $t(15) = 2.45, p < .05$.

Discussion

The results from this study are relatively clear-cut, for the reason that (as it turned out) the two groups of participants were equally adept in the mechanics of play. In other words, not only were the groups similar according to a measure of verbal ability, but *also* the children in each group were equally able to ‘metarepresent’ in the sense of manifesting play in which they invented imaginary objects and/or made one thing stand for another and/or attributed pretend properties, as well as to demonstrate flexibility in using toys. Despite these similarities, as predicted, the play of children with autism was distinctive for a lack of those qualities of playful pretend—awareness of self as creating meanings, investment in symbolic meanings, creativity, and fun—that had been hypothesized to reflect the social-developmental underpinnings of typical creative play. There were significant group differences on composite measures of playful pretend for both spontaneous and modelled play conditions, and the direction (although not the level of statistical significance) of the group difference on each of the individual sub-scales of the composite was consistent.

It is of interest that the children’s abilities in the mechanics of symbolic and flexible play should correspond so closely with a measure of their receptive language. Given the unusual profile of linguistic abilities among children with autism, scores on the BPVS should not be taken as representative of all aspects of their language functioning; and for a similar reason, it is not strictly true that the groups of children with and without autism were equivalent in linguistic abilities, when the profile of such abilities would be expected to differ across groups. Nor should it be presumed that insofar as language was implicated in much of the play produced, levels of language ability (of whatever

kind) were somehow determining performance on the play tasks. It could equally be the case that aspects of the children’s language development depended upon the kinds of flexible attribution of meanings assessed in the measures of the mechanics of symbolic play.

Having said all this, it remains the case that in relation to the BPVS, there was a singular lack of evidence that participants with autism were distinguished by their inability to invent imaginary objects and/or make one thing stand for another and/or attribute pretend properties, or that they were inflexible in their use of the objects of play. In the present study with relatively able participants (and the situation might be very different for younger or less able children with autism), these particular qualities of play failed to distinguish the groups with and without autism. Here it is relevant to note that in the study by Rutherford and Rogers (2003), too, much younger children with autism were no less generative than matched control participants in their usage of concrete objects.

It is in this context that the group contrasts in playful pretend, as well as the effects of prompting, assume importance. Following the tester’s own lively involvement in pretence, the children with autism (only) showed an increase in the mechanics of play, and specifically in using toys in more than one way. For both groups such personal modelling also led to increase in some aspects of playful pretend, but only among the participants without autism were there significant improvements in self-awareness in pretending and investment in symbolic meanings. The beneficial effects of modelling, which in this case meant the tester unfolding a play scenario with some gusto, are in keeping with results from previous research (e.g., Charman and Baron-Cohen 1997; and see Jarrold 2003, for an overview), and here extend beyond mechanical to playful aspects of pretend.

Before concluding with a final discussion of theoretical matters, it is appropriate to consider potential limitations of the present study. One possible concern that attends many studies of children with autism, is whether the particular measures employed to match the children are appropriate. In the present instance, it might be suggested that although receptive language has been reported to correlate with symbolic play abilities (e.g., Sigman and Ungerer 1984; but Stanley and Konstantareas 2007, for contrary evidence), the BPVS does not measure aspects of productive language that might be most relevant for the ability to generate new meanings in play. As we have already stressed, however, the groups in the present study were similar in their abilities to engage in the mechanics of symbolic play, and it is difficult to see how other approaches to matching would have been more appropriate when the remaining, critical dependent measures concerned such features of play as self-awareness in creating meanings, and fun. Moreover, issues of matching become less pivotal when critical

findings involve a group difference in profiles of performance, in this case represented by a group-by-task interaction on the mechanics of play vis-à-vis features of playful pretend. Whatever importance levels of linguistic ability might have for symbolic play, they would not determine this kind of specificity in the qualities of whatever play was produced. Of course it remains to establish whether the results reported here would be replicated among individuals of different ages or intellectual levels, for example adolescents with relatively high abilities.

A second feature of the study that might provoke criticism is that several of the measures of qualities of play depend on ‘subjective’ judgements of a rather subtle kind. There are two potential problems here. Firstly, it might seem implausible that one can accurately judge such phenomena as fun, or especially ‘awareness of self as creating meanings’. The fact is that, as borne out by the high inter-rater reliability with which such ratings were made, it is perfectly possible to make such judgements. We adopted these measures because they were the most direct way to assess the characteristics that, on the basis of our hypothesis, would distinguish between the groups, and because we anticipated that these would be among the aspects of play that human raters can rate objectively (that is, with inter-rater agreement), albeit using their subjectivity.

The second potential problem is that if children with autism are inexpressive *tout court*, then no wonder if they are rated as showing little expressiveness in play. Although there is evidence that children with autism are *not* globally inexpressive (see Hobson et al. 2006, for evidence in this regard), it is not possible on the evidence presented here to refute this possible explanation for parts of the data. However, it would not account for other aspects of the findings such as the ratings of creativity or investment in meanings which depended on more than emotional expressiveness. In addition, one might question the plausibility of suggesting that the children with autism were really having fun or were really invested in the play, but this was not manifest in any way that could be rated—especially when it is commonplace to observe occasions when children with autism *are* having fun or *are* intensely invested in what they are doing.

Before returning to our interpretation of the data, we acknowledge that a cross-sectional study such as this cannot establish developmental precedence for one or another aspect of psychological functioning. Although the hypothesis underpinning the study is couched in developmental terms, and the predictions were derived on the basis of developmental considerations, it remains to establish whether the qualities of play that distinguished the groups do indeed reflect differences in the ways their play had developed. It is even possible to argue that the findings seem to indicate that, rather than being an essential

grounding for the ability to ‘metarepresent’ in a way that allows a child to engage in creative symbolic play, such characteristics as the likelihood of manifesting self-awareness in creating new meanings, or having fun, are quite separate: after all, the two groups were similar in the mechanics of symbolic play, not different.

This brings us to the nub of the matter. According to the interpretation just given, these particular groups were, for whatever reason, similar in their abilities to show meta-representation (in the sense used here), so they might be said to be similar in their symbolic play abilities—only they were *also* less generative, and/or less emotionally expressive, and/or less motivated and engaged in symbolizing. Apart from its lack of parsimony, this approach seems to undermine the claim that there is something autism-specific in the inability to metarepresent. According to our preferred interpretation, on the other hand, the *kind* of symbolizing that characterises typical development, but is relatively lacking among children with autism, is generative/creative *and* involves investment *and* is likely to involve fun in virtue of the processes that underlie the play—processes that result from the interiorisation of interpersonal-affective transactions, in the manner Vygotsky (1978) described.

Therefore we suggest that what appear to be ‘metarepresentational’ abilities that are common to children with and without autism, are so *only at one formal level of description*. This interpretation of the data posits that by whatever means children with autism do make one thing stand for another and/or invent imaginary objects and/or attribute pretend properties and/or show flexibility in using the objects of play, in important respects (and/or to a very substantial degree) these means do *not* correspond with those of children without autism. This is betrayed by the fact that only among the latter are the qualities of self-awareness in creating new meanings, investment in symbolic meanings, creativity/generativity and fun *also* part and parcel of the playful symbolizing activity. It might also be relevant for explaining the observation that much of the spontaneous symbolic play among children with autism involves object substitutions (Libby et al. 1998), where the children may have learnt ‘a this can be a that’ rather than savoured the pleasures of ‘I can choose to give new meanings’. Similar considerations apply to the kinds of flexibility in play (as well as flexibility in thinking and social relations) that are and are not characteristic of children with autism. These same considerations are also relevant for interpreting reports that children with autism are less inclined to engage in functional play (e.g., Jarrold et al. 1996). The reason is that even when they do not need to symbolize in a generative way, still children with autism relatively lack a socially embedded and perspectively engaging motivational background to their acts of attributing object-bound meanings.

Our argument might seem speculative or post hoc were it not elaborated in substantial theoretical work that antedates the present study (e.g., Hobson 1990, 1993), and were there not a body of empirical research suggesting that children with autism are restricted in perspective-taking of various kinds in virtue of their limited propensity to identify with other people's attitudes (e.g., Hobson et al. 2006, 2007; Hobson and Hobson 2007; Hobson and Lee 1999; Hobson and Meyer 2005). Indeed, there is a tradition of theory from Werner and Kaplan (1963/1984) through to more recent writings (e.g., Adamson et al. 2004; Hobson 2000; Tomasello 1999; Wolf and Gardner 1981) in which young children's engagement with the stance of other people is considered to be critical for distancing as well as relatedness between a person and his or her symbols, between the person's symbols and what they signify, and between the person and objects of reference. On a more down-to-earth level, developmentalists have taken the view that pretend play is special for the emotional atmosphere in which it is conducted: as Lillard (1993, p. 349) writes, pretend play is 'the projecting of a supposed situation onto an actual one, in the spirit of fun'. In addition, of course, we predicted the results of the present study on the basis of our hypothesis. Although we do not suppose that the study amounts to a conclusive test of the theory from which it was derived, it seems reasonable to think of symbolic functioning as *essentially* connected not only with a certain level of self-awareness, but also a certain quality of emotional investment, generativity, flexibility, and fun.

In this context, the effects of adult participation in play raise an intriguing theoretical question. We have emphasized the developmental significance of young typically developing children's propensity to identify with the attitudes of other people, if they are to disembody from their own, one-track take on the world. According to this account, there are a range of attitudes that can be identified—with as a typically developing child is moved to adopt the psychological stance of someone else, for example in diverse situations of social referencing. This account of the social interplay of person-centred attitudes might need elaboration when applied to collaborative play. Just as playfulness and pretending are characteristics of a given child's symbolic play, so, too, identifying with *another person's* playfulness and pretending may be of special importance for the development of symbolic play. This possibility leads one to consider whether there might be forms of playfulness manifest in typically developing infants before the emergence of symbolic play (e.g., as discussed by Reddy 2003) that *also* require differentiation as well as co-ordination between self and other—a suggestion that has already been made in relation to some aspects of self/other emotional relations (Hobson et al. 2006)—and that not only allow the child to identify with

playfulness with others, but are also relatively limited among young children with autism.

Insofar as these views are valid, they challenge arguments that in relation to symbolizing in play, children with autism may be limited more in performance than in competence, exemplified in the conclusions drawn by Jarrold et al. (1996, p. 296) that 'they are able to pretend, but suffer from difficulties in producing pretence'. The reason is that what children with autism do and what they experience when they pretend may be different from what children without autism do and experience. This is what the present study has been exploring. Jarrold (2003, p. 385) pinpoints the crux of the matter, when he writes: 'The question that remains to be answered, and it is one that research in autism may help to answer, is what exactly lies at the heart of the child's experience when they engage in or comprehend pretend play'. In the same paper, Jarrold quotes from Vygotsky's seminal essay on Play and its Role in the Mental Development of the Child (1976, p. 537; originally 1933) thus: 'The trouble with a number of theories of play lies in their tendency to intellectualize the problem'. We believe this to be true of theories that fail to recognize the pivotal role that affectively configured interpersonal engagement, and specifically identification with other people's attitudes, plays in the development of perspective-taking and symbolizing—and also true of theories that marginalize the developmental significance of biologically based social-affective impairments for the pathogenesis of autism.

We should add a final note about where this kind of research might lead for future studies, and whether there are implications for intervention. There appears to be value in developing further measures to capture and examine those *qualities* of play among children with autism that have so far evaded scientific study. Indeed there is scope to study the validity and broader implications of the present measures, for instance in exploring whether ratings of 'awareness of self as creating meanings' are related to other indices of self-awareness such as those discussed in Hobson et al. (2006). We ourselves are taking a different tack in studying the relation between children's moment-by-moment shifts in attributing symbolic meanings, and their interpersonal communication with a play collaborator. We hope this might inform approaches to intervention. Our theoretical stance, together with evidence from the work of clinicians whose prime focus is on fostering personal relatedness and cognitive flexibility among individuals with autism (especially Gutstein et al. 2007), encourages us to believe that the most promising route to fostering creativity in symbolic play is to exploit and enhance opportunities for joint engagement and negotiation of meanings with play partners.

In conclusion, it remains open to other workers to argue that the sources of limitation in creative symbolic play among children with autism are *either* in a lack of

computational devices *or* executive dysfunction *or* impaired abilities to generate ideas *or* motivational constraints. In our view, however, to take any of these positions is not only to magnify one small part of the clinical picture at the cost of appreciating the picture as a whole, but it is also to underestimate *social-emotional/motivational* sources of perspective-taking, generativity, flexibility, and investment that are manifest in creative symbolic play.

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