
Brief Reports

Brief Report: Prompted Pretend Play in Autism¹

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A wealth of studies have confirmed Kanner's (1943) view that children with autism have impoverished pretend play (for reviews see Harris, 1993; Jarrold, Boucher, & Smith, 1993; Wulff, 1985). However, there is disagreement about the exact nature of the impairments, the conditions under which the impairments are manifested, and the processes underlying them (Harris, 1993; Jarrold et al., 1993; Leslie, 1987; Perner, 1993). One source of the controversy lies in the fact that the production of pretense in children with autism has been assessed under two general setting conditions: (a) unstructured, spontaneous conditions, and (b) structured, prompted, or elicited conditions. All studies show an impairment in the production of pretend play in children with autism (in comparison to mental-aged matched controls) in unstructured, *spontaneous* conditions (Baron-Cohen, 1987; Lewis & Boucher, 1988; Riguet, Taylor, Benaroya, & Klein, 1981; Sigman & Ungerer, 1984; Ungerer & Sigman, 1981). After general or specific prompts are given, children with autism tend to produce some pretend play, although in many studies the group differences remain (Riguet et al., 1981; Sigman & Ungerer, 1984). In two studies they disappeared: Children with autism were unimpaired in pretend play (object substitution) under prompted conditions (Jarrold, Boucher, & Smith, 1996; Lewis & Boucher, 1988). Jarrold et al. (1996) also investigated the ability of children with

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autism to generate play acts when prompted ("What else can you pretend to do?"). They found that although children with autism were able to generate pretend play acts, they did so at a significantly slower rate than controls.

The findings of intact pretend play under prompted conditions are important for an understanding of the core deficit that underlies the general (unprompted) pretend play deficits in autism. They have been used to challenge Leslie's (1987) notion that pretend play involves metarepresentation, the cognitive basis of the young child's developing theory of mind—both of which are impaired in autism (see Jarrold, Carruthers, Smith, & Boucher, 1994). Lewis and Boucher (1988) suggested that since prompting increases the amount of both functional and pretend play, this supports either a generativity or a motivational deficit theory, and that the production of pretend acts per se (and presumably the accompanying representational thinking) is not impaired in autism. In a related account, Jarrold et al. (1996) argue that children with autism can engage in the *mechanics* of pretend play, but are impaired at *producing* pretense due to generativity problems. Harris (1993) interpreted the increase in pretend and functional play, when more external structure (or scaffolding) is provided, as evidence of an executive dysfunction. Given the importance these accounts place on Lewis and Boucher's (1988) original demonstration of intact pretend play under prompted conditions, and the findings by Jarrold et al. (1996), the study reported below sets out to test the production of simple pretend play by children with autism under prompted conditions, employing a highly structured task previously used with normally developing children (Fein, 1975).

THE EXPERIMENT

Subjects

We tested 22 subjects with autism (18 male, 4 female), all of whom had been diagnosed according to established criteria (DSM-III-R, American Psychiatric Association, 1987; Rutter, 1978) and who were attending a special school for children with autism. In addition, 19 subjects with mental handicap (8 Down syndrome, 11 of uncertain etiology) but without autism (7 male, 12 female) were tested to control for verbal mental age (VMA) and chronological age (CA). Details of the subjects are summarized in Table I. Although there were no differences between the groups in terms of CA and VMA, the subjects with autism had a higher nonverbal mental age (NVMA), ANOVA, $F(1, 30) = 31.3, p < .001$. VMA was assessed using the Test of Reception of grammar (TROG; Bishop, 1983), or the British Picture Vocabulary Scale (BPVS; Dunn, Dunn, Whetton, & Pintillie, 1982)

Table I. Means, Standard Deviations, and Ranges of Chronological Age (CA) and Mental Age (MA) in Months

Groups	<i>n</i>	CA	Verbal MA ^a	Nonverbal MA ^b
Autism	22			
<i>M</i>		140.3	46.2	90.3
<i>SD</i>		48.0	14.8	27.7
Range		63-216	20-66	38-144
Mental handicap	19			
<i>M</i>		149.0	37.6	45.5
<i>SD</i>		41.3	16.0	12.8
Range		90-215	20-69	27-66

^aTROG, BPVS (VMA missing for 1 subject with autism, 2 with mental handicap).

^bRavens Matrices, Merrill-Palmer (NVMA missing for 2 subjects in each group).

for those subjects who fell below the floor of the TROG (48 months). NVMA was assessed using Raven's Coloured Progressive Matrices (Raven, 1956), or the Merrill-Palmer Scale of Mental Abilities for those subjects who fell below the floor of the Raven's (42 months).

Procedure

Each subject was tested in a quiet room in his or her school. Subjects were given two functional play and two object substitution tasks (derived from Fein, 1975):

Functional Trial 1. Subject presented with a doll and a toy spoon.

Object Substitution Trial 1. Subject presented with a doll and a metal rod.

Functional Trial 2. Subject presented with a doll and a toy cup.

Object Substitution Trial 2. Subject presented with a doll and a wooden brick.

The order of Trials 1 and 2 were counterbalanced across subjects. However, to maximize the scaffolding provided on the object substitution trials these always followed on from the corresponding functional trials. In turn, each set of objects were placed onto a table in front of the subject. The following series of prompts (based on the elicited and instructed conditions employed by Lewis and Boucher, 1988) was given until a response was made:

1. An *open prompt* was given ("What can you do with these?") and the subject was given 20 seconds to respond.

2. A *specific prompt* was given ("Let's pretend. Give the dolly a drink of juice.") and the subject was given 20 seconds to respond.

3. The functional or pretend play action was *modeled* and a specific prompt was given ("Let's pretend. Give the dolly a drink of juice.") and the subject was given 20 seconds to respond.

On each trial, the first response made was scored according to the following criteria:

1. On the functional trials, *functional play* was scored if the spoon/cup was placed on the doll's mouth in a feeding/drinking motion.
2. On the object substitution trials, *situationally appropriate object substitution* was scored if the rod/brick was placed onto the doll's mouth in a feeding/drinking motion. *Novel or unprompted object substitution* was scored if the rod/brick was employed in a play action other than feeding and drinking with the doll (e.g., the subject pushed the rod horizontally to-and-fro on the doll's mouth and said "cleaning teeth"; the subject put the brick against the doll's hand and said "bag"). To minimize reliance on the rater's interpretation of the action, conservative scoring criteria were adopted, requiring the presence of *confirmatory vocalization* for the scoring of a novel object substitution. In fact, across all trials many subjects spontaneously named their actions or made appropriate drinking or eating sounds.

Thirty trials (15 from each of the two groups of subjects) were videotaped, and a second experimenter rated responses across the five categories: open prompt, specific prompt, modeled, no response, and novel object substitution. Interrater agreement was high. Measured in percentage terms the item-by-item agreement was 90%, and as measured by Cohen's kappa (Cohen, 1960) the agreement was 0.85.

RESULTS

The production of functional and pretend play across the two functional and two object substitution trials is shown in Table II. On the functional trials, in both groups the majority of subjects produced functional play in response to the open prompt on both trials. On the object substitution trials fewer subjects produced pretend play acts in response to the open prompts, with both groups requiring more specific prompting and modeling, or produced no response at all. However, the majority of subjects in both groups did produce examples of object substitution. For the subjects with autism, these tended to be a situationally appropriate object substitution and rarely novel object substitutions. Across the two object substitution trials, significantly more subjects with a mental handicap produced at least one example of novel pretend play (5 subjects produced one novel act, and 6 produced two), compared to the subjects with autism (4 subjects produced one novel act) ($\chi^2 = 5.3, p < .03$). Since the conservative scoring criteria adopted required the presence of confirmatory vocalization for the registration of a novel pretend action, it might be that these group differences reflect real differences in the number of vocalizations produced, and not

Table II. Subjects Producing Functional and Object Substitution Play Acts in the Functional and Object Substitution Trials

	Autism		Mental handicap	
	Spoon	Cup	Spoon	Cup
Functional play acts in functional trials				
Open prompt	17	19	17	17
Specific prompt	5	3	1	2
Modeled	-	-	1	-
No response	-	-	-	-
	Rod	Brick	Rod	Brick
Situationally appropriate object substitution play acts in object substitution trials				
Open prompt	9	4	4	1
Specific prompt	7	11	6	2
Modeled	2	-	1	3
No response	3	4	1	3
Novel object substitution play acts in object substitution trials	1	3	7	10

novel pretense. However, there were no differences between the mean number of vocalizations (mostly naming of actions and objects) produced by the subjects with autism ($M = 1.2, SD = 1.5$) and those with mental handicap ($M = 1.6, SD = 1.3$), ANOVA $F(1, 39) = 0.85, p > .10$.

Analysis of CA, VMA, and NVMA for subjects in each group who produced the appropriate play act under open, specific, or modeled prompting, or no response, revealed only two differences. In the autism group, subjects who produced a pretend play act in response to open prompting on the Doll-Rod object substitution trial had a lower CA than those subjects who required specific prompting, or who made no response (99 months vs. 178 months and 179 months, respectively; ANOVA $F(3, 18) = 10.6$, both post hoc Scheffé $p < .01$). In the mental handicap group, subjects who produced a pretend play act in response to open prompting on the Doll-Brick object substitution trial had a higher VMA than those subjects who required specific prompting or modeling (51 months vs. 23 months and 25 months, respectively; ANOVA $F(3, 14) = 4.58$, both post hoc Scheffé $p < .01$). In the autism group, those subjects who produced one example of novel object substitution had a higher NVMA than those who did not (124 months vs. 81 months; ANOVA $F(1, 17) = 7.56, p < .02$). In the mental handicap group, those subjects who produced at least one example of novel objects substitution had a higher VMA than those who did not, although the difference just failed to reach significance (48 months vs. 40 months; ANOVA $F(1, 19) = 5.91, p < .08$).

DISCUSSION

The present study found that when prompted, school-age and adolescent subjects with autism did not differ from controls with mental handicap in their production of functional play acts *and* situationally appropriate object substitution. Such results are consistent with those obtained by Lewis and Boucher (1988) and Jarrold et al. (1996). They contrast with those of Sigman and Ungerer (1984), who found that children with autism were impaired on both functional and object substitution play even when prompted. This may be because Sigman and Ungerer used younger, less able, subjects with autism. The finding that in the present study subjects with autism produced fewer novel, or unscaffolded, pretend play acts is also consistent with Jarrold et al.'s (1996) finding that children with autism generate fewer examples of novel play acts, both with and without props.

Does the finding that subjects with autism produced situationally appropriate object substitution challenge Leslie's (1987) thesis? To reiterate, Leslie claims that a deficit in metarepresentation underlies the pretend play and theory of mind impairments in autism. The present study only challenges Leslie's thesis if the acts necessarily involve metarepresentation. However, like Lewis and Boucher's (1988) study, the present study deliberately employed specific prompting and instruction, in order to maximize the chances of object substitution occurring. Thus, we cannot rule out what Baron-Cohen (1990) called "intelligent guessing": With only limited junk objects available, the subjects may relate the objects together in a manner that resembles pretense without the mental attitude *pretend* being necessarily represented. This is because, for situationally appropriate object substitution, all the cues are provided by the experimenter, while the ability to generate or create the idea for pretense is not tested. Boucher and Lewis (1990) replied to this criticism by listing examples of play acts by all 15 subjects with autism that they claim demonstrate truly imaginative play. In fact, in the present study, although most subjects with autism produced situationally appropriate object substitutions, very few subjects with autism were able to demonstrate an ability to actively generate and produce novel, unprompted object substitutions.

Another factor that limits interpretation of the present findings is that the object substitution trials followed the related functional trial, so that a perseverative response from one trial to the next could be scored as object substitution. To produce novel object substitution the subjects had to overcome any tendency to perseverate actions in the previous trial. Since children with autism may have problems inhibiting prepotent responses (Hughes & Russell, 1993), this may have made the production of novel play acts in this context more difficult for them. Furthermore, the junk

objects also shared some perceptual similarity to the functional objects, and object substitution of perceptually similar objects may not require the same sophistication of representational thought as when perceptually dissimilar objects are used in object substitution (Jarrod et al., 1996).

In addition, the study demonstrates only that subjects with autism with a VMA of 4 years are able to produce very basic-level object substitution pretend play under prompted conditions, at a level seen in normally developing children in the second half of the second year of life (Fein, 1981; Leslie, 1987). There may therefore be a delay in this domain, particularly with younger children with lower developmental levels. Particular caution is warranted in this respect, since the autism group had a significantly higher NVMA than the controls with mental handicap. Further work is needed to track the development of more complex and social play in autism, under both prompted and spontaneous conditions.

In summary, we have replicated Lewis and Boucher's (1988) and Jarrod et al.'s (1996) findings that children with autism are able to produce what looks like pretend play under prompted conditions. In addition, in line with Jarrod et al.'s findings, fewer subjects with autism produced novel, unprompted pretend play acts. As argued earlier, this may pose no challenge to Leslie's (1987) metarepresentation thesis, although neither does it provide specific support. Whether it additionally supports Harris's (1993) executive dysfunction account or the generativity thesis set out by Lewis and Boucher (1988), Baron-Cohen (1990), and Jarrod et al. (1996) awaits the outcome of further research.

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