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Performance of 3- and 4-Year-Olds on a New Symbolic Play
Assessment for Preschoolers

Louise Dumas

A Thesis
in
The Department
of
Psychology

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montréal, Québec, Canada

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ABSTRACT

Performance of 3- and 4-Year-Olds on a New Symbolic Play Assessment for Preschoolers

Louise Dumas

The purpose of this study was to obtain normative data for TAPS Form 2, a symbolic play assessment designed for preschoolers, aged 36 - 60 months, with developmental delay and/or language delay or disorder. Subjects were 38 3- and 4-year-olds from Montréal daycare centres. TAPS Form 2, assesses the capacity to pretend, use of substitute objects, as well as comprehension and use of toy animation, Behaviour Role Play, and Social Role Play. TAPS is videotaped and scored from written observations. A 4-minute free play period with all toys is followed by 3 structured trials with subsets of the toys on which the child responds before and after the tester's demonstration of symbolic play. Demonstrations are: Trial 1, Child doll using substitute objects as dish and spoon; Trial 2, Mother doll looking after Baby (Behaviour Role Play); and Trial 3, Mother/Child doll interaction about a spilled cup of tea (Social Role Play). Results with the normative sample confirmed modelling elicited higher level play and suggested a lag in 3-year-old boys' development of Behaviour Role Play. Findings with clinical implications were that early transitional forms of Behaviour Role Play and Social Role Play were identified, and the number of segments of the Social Role Play demonstration imitated while maintaining animation of the toys differentiated 4-year-olds from 3-year-olds.

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TABLE OF CONTENTS

INTRODUCTION	1
METHOD	21
RESULTS	32
DISCUSSION	62
REFERENCES	74
APPENDIX A. Letters to the daycare centres and parents, and consent form	79
APPENDIX B. Symbolic play, animation, and imitation scales	87
APPENDIX C. Spontaneous Behaviour Role Play and Social Role Play sequences	94
APPENDIX D. Symbols used by children for representing doll as active agent	101
APPENDIX E. Substitute object uses for the different toys and accessories	104
APPENDIX F. Intercorrelations of the different play measures	108

LIST OF TABLES

TABLE 1.	Medians and ranges for the children's chronological age (in months)	22
TABLE 2.	Proportion of children who performed their best play at different periods in the play session	33
TABLE 3.	Percentage of children demonstrating symbolic play at each developmental level spontaneously or in direct imitation only	34
TABLE 4.	Medians and ranges for highest level of spontaneous play in Free Play and over all	37
TABLE 5.	Medians and ranges for highest level of play elicited by the demonstrations	40
TABLE 6.	Medians and ranges for highest level of play in response to Trial 1 demonstrations and in Trial 1.2	42
TABLE 7.	Medians and ranges for highest level of play in response to Trial 3 demonstrations and in Trial 3.2	43
TABLE 8.	Medians and ranges for highest level of spontaneous animation in Free Play and over the whole session	45
TABLE 9.	Medians and ranges for highest level of imitation	47
TABLE 10.	Medians and ranges for the total number of Behaviour Role actions imitated regardless of animation and with animation	50
TABLE 11.	Percentage of actions in Behaviour Role imitated with animation	52

TABLE 12. Percentage of children imitating different components with animation in Social Role Play	53
TABLE 13. Number of demonstrations necessary to elicit the best response	55
TABLE 14. Medians and ranges for the number of different substitute objects uses and multiple substitute object uses	57
TABLE 15. Spearman's rank order correlations of age with different play measures	60

The early evaluation of preschool children with a language delay or disorder is important because it is clinically useful to differentiate children whose impairment is specific to language from those where the language delay is a manifestation of a broader developmental delay involving many cognitive functions. Different treatments and educational strategies will be applied with a child who has a language delay, but whose symbolic functioning is otherwise normal, than with a child who has no symbolic capacity. The former child, for example, could learn sign language more readily than the latter.

The assessment of preschool children with a language delay or disorder is complicated, however. First, these children may have problems in comprehending adult demands. In addition, because their language abilities are very limited, they usually experience difficulties when faced with the verbal instruction format used in many standardized tests of cognitive ability. It is difficult to conclude from the results on these tests whether a child's language delay reflects a delay in many cognitive functions, or whether it is restricted to language. Even when the delay is limited to language, the question remains of how to evaluate the mental capacity of a child when standardized tests are often primarily verbal in nature (Sattler, 1990). Therefore, these tests need to be supplemented when used with language-delayed preschoolers. It has been suggested that the systematic

assessment of the level of solitary symbolic play in language-delayed preschoolers may represent a valuable adjunct to standardized tests of intellectual abilities, because it does not require verbal responses from the child (Lowe, 1975; Power & Radcliffe, 1989; Riguet, Taylor, Benaroya, & Klein, 1981; Udwin & Yule, 1983). Such a test can be used to measure children's capacity for symbolic representation as well as developmental level of symbolic play, since systematic relationships have been found between mental age and level of symbolic play in children with Down syndrome and autism (Hill & McCune-Nicolich, 1981; Riguet et al., 1981). Few tests, however, have been developed to answer this need.

A symbolic play assessment (TAPS: Toddler & Preschooler Symbolic Play Assessment, Forms 1 and 2) recently designed to supplement standardized tests of cognitive ability for children aged 12 to 60 months with developmental and/or language delay or disorder is currently in use at the Constance Lethbridge Rehabilitation Centre, a Montréal centre treating language-delayed preschoolers (Taylor, 1993; Taylor, Moxley-Haegert, Ladd, Andonian, & Genin, 1993). Although Forms 1 and 2 of TAPS have obtained validation against other measures of cognitive ability in clinical samples, there remains a need to establish, for clinical purposes, an age equivalence, particularly for the older children's performance, since one-third of the Constance Lethbridge Rehabilitation Centre pediatric population falls within the 3-

to 5-year-old age range. The purpose of this study was to observe how normal 3- and 4-year-old preschoolers perform on TAPS, Form 2 which was designed for this age range.

Developmental Studies of Symbolic Play

Piaget was the first to point out that early forms of play provided evidence for the ability to symbolize. He linked the emergence of symbolic play to the development of the semiotic function, which he defined as the ability to represent an object or event, not perceptually present, by using a signifier which is differentiated and which serves only a representative purpose (Piaget, 1962; Piaget & Inhelder, 1969). He also proposed that this semiotic function gave rise to mental representation. Piaget stated the semiotic function made its appearance at the end of the sensorimotor period, at about one and a half to two years. Symbolic play, language, as well as deferred imitation, were seen as aspects of the semiotic function. Deferred imitation was defined as imitation after the disappearance of the model. Piaget gave the example of a 16-month-old girl who witnessed her playmate becoming angry, screaming and stamping her foot and who, a few hours after the playmate had left, imitated the scene while laughing (Piaget & Inhelder, 1969). The imitative gesture of stepping lightly on the floor with her foot was a symbol for her friend's stamping. According to Piaget, deferred imitation constitutes the beginning of representation. He also gave

examples of symbolic play in which the same little girl pretended to sleep with her eyes closed, her thumb in her mouth, smiling and holding the corner of a tablecloth as she did with her pillow at night (Piaget & Inhelder, 1969). The little girl provided Piaget with other examples of symbolic play when she put her stuffed bear to sleep, or when she slid a shell along a box while saying "meow" after she had just seen a cat walk on a wall (Piaget & Inhelder, 1969).

Before the appearance of mental representation, the child is limited to sensorimotor understanding of reality, when representations are in the form of physical acts and not thoughts. With the semiotic function, the child has the ability to act "as if" or to simulate real-world behaviours. In object substitution, the child can generate pretend schemes that are not highly dependent on present objects, and then can assimilate the present objects to the game. This capacity to let any object stand for a realistic object signals the infant's readiness to acquire symbol systems. Piaget (1969) also noted a growing ability to pretend the actions of others and not just one's own; this was taken as evidence of decentration which implies understanding that the world is made up of objects and agents that are independent of the self. He gave the example of a little girl who pretended to read the newspaper, pointing her finger at certain parts of the sheet of paper she was holding, and muttering to herself (Piaget, 1962). Finally, the enactment of pretend sequences

exemplifies one aspect of a more general combinatorial ability.

Inhelder and her colleagues (1972) conducted a systematic observation of the development of symbolic play in order to verify and extend Piaget's ideas (Inhelder, Lezine, Sinclair, & Stambak, 1972). In this study, children aged from 10-41 months were observed individually during free play. Of this population, 7 subjects were followed longitudinally every month between the ages of 10 and 24 months. Children were provided with three kinds of play materials: 1) typical household objects (e.g. mirror, plate, baby bottle); 2) typical toys including toys that could be animated (e.g. doll, teddy bear); and 3) objects with no determined use which were added in order to facilitate object substitution (e.g. pieces of cloth and paper).

The researchers found that between 10 and 12 months, the same motor actions were successively applied to different objects. Inversely, one object could be manipulated in many different ways regardless of its function. By 12 to 14 months, differentiation between motor activities and the function of the objects manipulated began to emerge. Accordingly, particular actions were applied to a restricted number of more appropriate objects. Beginning at 16 months, objects were treated according to their conventional use, although the object acted upon was not always appropriate. For example, the child might brush a book instead of his/her hair. At 18

months, both the object used and the object acted upon were appropriate most of the time. This ability to use objects in a conventional manner was considered an essential precursor to any symbolic activity. At the same age, the child's activities were concentrated on his/her own body. The objects without a particular function and the toys that could be animated were not used before 18 months.

After 18 months, single activities became behaviour sequences that increased in length and coherence. These sequences were characterized by very brief activities and a rapid passage from one activity to another. Around 21-22 months, the child began to explore systematically the bodies of the animate toys: poking their eyes, pulling their foot, etc. Up to this point, these toys were only hugged and kissed. Concurrently, activities in which the toy was treated as a partner in play began to appear. For example, the child began to put a spoon to the teddy bear's mouth to feed it or to brush the doll's hair instead of aiming these actions to him/herself. The child soon became capable of elaborating from a single action (i.e. feeding a doll), and later to combine a second elaborate action to the first one (i.e. feeding and grooming the doll). In addition, the child could apply the same behaviour sequences to several animate toys in succession. Around two years of age, the animate toys played an active role. For example, the child placed the brush in the doll's hand and made it comb its hair. Finally, the child

began to use substitute objects to represent absent objects. For example, the child used pieces of paper and put them in the doll's plate to represent food.

Lowe (1975) observed the meaningful use of miniature replicas of real objects in order to establish developmental trends in non-verbal play behaviour. Children from 12 to 36 months were observed while playing spontaneously with four sets of toys in a structured play situation. Before 21 months, the play activities were primarily centered on the child's own body, while after this transitional stage, activities were predominantly doll-oriented. By 12 months, children could relate a spoon to a saucer or cup, and stir. At 30 months, they used the replicas as substitutions for other objects needed in their play. The dolls were used as active agents around 30 months and this tendency was even more marked at 36 months. Overall, the girls were more likely to display doll-oriented activities than the boys. These results reveal similar trends to those found in Inhelder et al. (1972).

Nicolich (1977) developed a symbolic play scale which was derived from Piaget's description of play levels as developing from the initial appropriate use of objects to pretend activities which are increasingly complex and abstract, and further to the emergence of pretend activities, which are planned and therefore mentally represented prior to their performance. She proposed an assessment of symbolic maturity through an analysis of pretend play. The five levels of play

presented were validated by year-long longitudinal observations of five girls who were between the ages of 14 and 19 months at the beginning of the study.

Levels 1 and 2 of Nicolich's scale refer to the child's ability to demonstrate the conventional use of objects. In Level 1, the child shows understanding of object use by brief gestures; for example, the child picks up a comb, touches it to his hair and drops it. The second level is different in that the self-related activities are performed with a playful quality; for example, the child eats from an empty spoon. The third level involves a higher level of abstraction when the child extends his action to include others (e.g. feeding the doll or an adult), or pretends to perform the activities of other people or objects (e.g. dogs, trucks, etc.). This level is considered by Nicolich to be representative of the first true symbolic behaviour because children's representations are no longer fused with their own actions. Level 4 is characterized by combinations of symbolic activities. It can consist of either combinations of a single scheme in which one symbolic action is applied to several actors (e.g. child puts an empty cup to his mother's mouth, then the experimenter's, and self), or multi-scheme combinations in which several actions are related to one another to form a sequence (e.g. child kisses a doll, puts it to bed, and puts a spoon to its mouth). Finally, level 5 is the highest level and involves planned activities. Nicolich considers that planning indicates

a prior representational act and gives evidence of the distancing of the played symbol from reality. Evidence of planning includes 1) the verbal announcement of the child of her actions or, 2) the searching for the object needed to complete the play or, 3) the symbolic identification of one object to another. This sequence of symbolic play development was confirmed by Nicolich's longitudinal observations.

As more systematic studies of symbolic play development were conducted, researchers such as Lowe (1975) had suggested that play observation could be used as a means of assessing language potential in children with language delays. Wing, Gould, Yeates, and Brierley (1977) were the first to study symbolic play in relation to mentally retarded and autistic children. Children were observed during play at school, and at home when possible. In addition, a teacher, a nurse and sometimes the caregiver were interviewed concerning the child's play behaviour over the past month. Then, the children's play was placed into one of three categories: 1- symbolic play or other relevant activity such as active participation in pretend games with other children, and modelling or drawing with imaginative themes; 2- stereotyped play which is a symbolic play activity narrow in range and with a stereotyped quality; for example a child who repeatedly loaded and unloaded a toy truck; or 3- no symbolic play. The results indicated that symbolic play which was flexible and varied in theme was not seen in retarded children with a non-

verbal mental age below 20 months. The majority of children in which either no symbolic play or stereotyped play was observed had marked autistic features or the full autistic syndrome. Only two children with Down syndrome showed stereotyped play. The symbolic play capabilities of preschoolers with Down syndrome were found to be different from those of autistic children. Children with Down syndrome were the most likely group to show symbolic play when they were compared with autistic children, or with children with other identifiable organic anomalies associated with mental retardation.

In an experimental study, Riguet et al. (1981) assessed the effectiveness of modelling symbolic play in eliciting higher level play in 6- to 12-year-old autistic children. The modelled play behaviours involved having animate toys act as active agents using a realistic accessory or a substitute object. Level of play, regardless of play frequency, was scored on a 5-point scale. Imitation responses were scored according to a 6-point scale. Symbolic fluency was assessed by determining the number of different substitute symbolic uses of the objects. The autistic children were matched on verbal mental age, as assessed by the Peabody Picture Vocabulary Test (PPVT), with 6- to 12-year-old children with Down syndrome, and normal preschool children aged 2 to 4½ years.

The researchers found that the autistic children played less than Down syndrome or normal children of comparable verbal mental age. Although modelling of symbolic play was

effective in eliciting higher level play in autistic children, they imitated less well than the other groups. No significant differences were found between groups in level of play in initial free play, but on the modelling trials the autistic children engaged in lower level play and poorer imitation than the Down syndrome and normal groups. The autistic children also produced fewer different substitute object uses than Down and normal children. A close parallel was found between symbolic play levels in Down syndrome and non-handicapped children matched for mental age. The Down syndrome sample, however, showed significantly fewer different substitute object uses in free play and tended to produce the same idea repeatedly.

The authors also looked at the relationship of play level with two intelligence measures: the PPVT, and the Leiter International Performance Scale (LIPS), which was given only to the autistic children. Level of play was most highly correlated with PPVT mental age in the normal children; these measures were also significantly correlated for the autistic and Down syndrome groups. A positive correlation between the number of different substitute object uses and PPVT mental age was found in the autistic group. No significant correlation was found between these measures in the Down syndrome or the normal group. For the autistic group, no relations were found between the number of different substitute object uses or level of play and nonverbal mental age as assessed on the

LIPS. A significant positive correlation was obtained, however, between the number of different substitute object uses and LIPS IQ for this group. The authors concluded that a refined version of this experimental play situation and the symbolic play measure might be useful as an adjunct in the clinical assessment of autistic and autistic-like children.

The findings that autistic children seem to experience specific deficits in the production of symbolic play and in imitation were confirmed by Sigman and Ungerer (1984). As well, Beeghly and Cicchetti (1987) corroborated the findings from the Riguet et al. (1981) study that Down syndrome children use fewer substitute objects, that they tend to be perseverative in their play, and that their highest level of symbolic play does not differ from that of normal children matched on mental age.

Hill and McCune-Nicolich (1981) found that the cognitive development of children with Down syndrome aged 20 to 53 months, as measured by the Bayley scales, was more correlated with their level of symbolic play, as measured by Nicolich's (1977) rating scale, than with their chronological age, and that they went through the same sequence of play as did mental-age matched non-delayed children. These findings support the notion that increasingly complex symbolic play is reflective of growth in cognitive skills as measured by standardized measures of cognitive development. The authors concluded by suggesting that play assessment could be used to

identify the developmentally delayed children's current level of symbolic functioning.

Later studies of the symbolic development of children with Down syndrome have yielded similar results and suggest that despite the delayed rate of development, these children proceed through the same sequences as normal children, at approximately the same time when one corrects for mental age (Cunningham, Glenn, Wilkinson, & Sloper, 1985; Motti, Cicchetti, & Sroufe, 1983).

Social pretend and fantasy play in older preschoolers (ages 3-5) is a research area that has been widely explored and documented. Solitary pretend play in this age group, however, has received less attention. Watson and Fischer (1980) conducted two experiments in which they investigated solitary pretend play in older preschoolers. They have demonstrated the scalability of steps in children's capacity to represent a doll as an active agent, a behavioural role, and a social role. They defined the capacity to portray a behavioural role as making an agent perform two or more behaviours coordinated around a specific social role such as a doctor. Portraying a social role was defined as having one agent behaving according to one social role (e.g. doctor) and relating to a second agent behaving according to a complementary role (e.g. patient). The researchers studied the development of these capacities through the observation of solitary pretend play in children aged from 1 to 7 years

during elicited and spontaneous play conditions. The toys used consisted of rigid cardboard dolls in plastic stands as well as doll furniture and a doctor's kit. The elicited play condition was given first; the child was presented with particular toys and was told to watch how the tester acted out a story and then to take a turn acting his/her own story, using the same dolls and ideas that the experimenter used. The free-play condition took place after the elicited play condition; the child was left to play alone in the room and told to act out more stories of his own.

Watson and Fischer's hypothesized sequence for the development of social roles was constructed according to skill theory which proposes that children's skills develop through a set of hierarchical levels, each of which emerges at a given age. In the second experiment, the researchers had dropped one step in the proposed sequence which was then followed perfectly by 96% of the children in the elicited-assessment condition, but not the free play condition. According to the scalogram analysis they performed, children could make a doll act as an independent agent by age 2½. Most 4-year-olds could make a doll carry out a behavioural role, while most children aged 4½ could portray a social role.

Lowe's Symbolic Play Test (SPT) was the first formal symbolic play assessment designed for preschoolers (Lowe, 1975). It has been used in research with children with developmental delay (Cunningham et al., 1985; Power &

Radcliffe, 1989; Roth & Clark, 1987; Terrell, Schwartz, Prelock, & Messick, 1984; Udwin & Yule, 1983). The main drawback of the SPT according to these researchers is that it does not cover the full range of the preschool years; its upper limit is 36 months. In addition, the SPT ignores sequences or combinations of behaviours, whereas Nicolich (1977, 1981) has demonstrated that they are part of children's symbolic development. Further, the SPT procedure involves the use of realistic miniature replicas of objects, thereby failing to provide the child with an opportunity to show substitute object use.

TAPS, a symbolic play assessment without the drawbacks of the SPT has been designed to be used as an adjunct to standardized psychological tests at the Constance Lethbridge Rehabilitation Centre where preschool children with developmental and/or language delay or disorder are treated (Taylor, 1993; Taylor et al., 1993). This play assessment is an extension of the experimental procedure used in Riguet et al. (1981) and retained some of its critical features. The first one is the use of both free play and structured trials; the free play period provides the child with a number of playthings at the same time for a longer period of time than in the structured trials. Because it has been suggested that unstructured play may be possibly overstimulating for certain autistic children (Black, Freeman, & Montgomery, 1975; Hutt, & Hutt, 1968; Hutt, & Hutt, 1970), structured trials are also

used where the child is faced with restricted subsets of the toys. The use of modelling the doll acting as an active agent is another aspect that was maintained; it is used in the context of the structured trials in order to attempt to elicit higher level play under optimal conditions. This type of modelling, in which the examiner acts out a play sequence and then simply hands the toys to the child, was shown to be effective with normal as well as developmentally delayed children in the Riguet et al. study (1981). The play procedure also retained the use of realistic as well as substitute accessories. The latter were provided to offer the child with the opportunity to use these nonspecific objects as substitute objects. The behaviours modelled by the tester include dolls using both realistic and substitute objects.

In addition to the critical features retained from Riguet et al. (1981), the TAPS play assessment contains a number of modifications. First, two forms were designed; they both include a developmental component in which the symbolic play modelled is increasingly difficult across trials. The age range was extended. Form 1 of the play assessment is used for children aged 12-36 months, or children with autistic features. It assesses the capacity to pretend, use of substitute objects, and comprehension of toy animation. Form 2 was designed for children aged 36-60 months. In addition to the abilities assessed in Form 1, it also assesses use and comprehension of behaviour role play and social role play.

since Watson and Fischer (1980) have shown that these capacities develop over this age range. Some of the toys used were also changed from Riguet et al. (1981); the animated stuffed animals were replaced by animated dolls which were chosen to depict a family situation. Family roles were selected for modelling because they should be within the experience of all children and thus easier to portray than less common experiences such as the doctor-patient situation used by Watson and Fischer (1980). The procedure also includes Watson and Fischer's (1980) condition of asking the child to produce the best story they could at the end of the play session. A final change from Riguet et al. (1981) is that observations of play are based on the videotapes of the assessments rather than on the notes taken at the time by two observers.

The two forms of TAPS have been validated against different measures of development in two studies of clinic children (Taylor et al., 1993). In Study 1, 24 children aged 9 to 50 months with developmental and/or language delay were given Form 1 of TAPS; their scores on the three play scales (level of play, level of animation, and level of imitation) were correlated with age equivalents for their scores on the Griffiths Infant Scales (GIS) and the Vineland Adaptive Behaviour Scales (VABS), survey form, which is a standardized test in which the parent provides information about the child through an interview. Spearman rank order correlations were

high and significant for all GIS scales (Personal-Social, Hearing and Speech, Eye-Hand Coordination, Locomotor, and Performance) as well as all VABS domains (Daily Living Skills, Communication, Socialization, and Motor Skills). The strongest relations were with the Personal-Social Scale age equivalent for the GIS, and with the Motor Skills age equivalent for the VABS.

Study 2 included 17 boys aged from 38 to 63 months with language delay or disorder, who were given TAPS Form 2. The play scales were validated against the Leiter International Performance Scale (LIPS) and VABS age equivalents. Spearman correlations were found to be moderate and significant between LIPS mental age and all play scales, and between VABS Socialization Scale and the spontaneous play and animation scales.

Although both forms of TAPS have been validated against measures of cognitive ability in clinical samples, there remains the need to establish age equivalences for performance on Form 2 of TAPS in order to be able to determine the functional level of the older children in the clinic. One-third of the Constance Lethbridge Rehabilitation Centre pediatric population falls within the 3- to 5-year-old age range. Little normative information is available for this age group, except from the Watson and Fischer (1980) study in which a different procedure from the one used in this study was applied. The purpose of this study was therefore to

observe how normal children aged from 36 to 60 months performed on Form 2 of the play assessment.

Our first prediction was that modelling would be effective in eliciting higher level play. Many researchers have reported this technique to be valuable for eliciting emerging symbolic behaviour (Bretherton, 1984; Corrigan, 1987; Fenson, 1984; Fenson & Ramsay, 1981; Riguet et al., 1981; Watson & Fischer, 1977).

The predictions about the play behaviours to be observed in 3- and 4-year-old children were based on the scalogram analysis in the Watson and Fischer study (1980). These predictions were made for the structured trials which involved modelling, but not the initial free play, since the steps in Watson and Fischer proved to be scalable only in their elicited play condition which involved instructions to imitate. The predictions were that all children would be capable of showing doll as an active agent, that the ability to show Behaviour Role Play would emerge in the 3-year-olds, while Social Role Play would appear in the 4-year-olds. Specifically, in response to modelling, 3-year-old children were expected to show doll as active agent and most to show Behaviour Role Play, while all 4-year-olds were expected to show doll as active agent, almost all to show Behaviour Role Play, and some to show Social Role Play. In order to state that any symbolic play ability assessed in this study was present at a given age, it was decided that 70% or more of the

children at that age had to show the ability either spontaneously or in direct imitation. The 70% value represents a clear majority of the group; it seems unreasonable to expect all the children at any one age to achieve a given play level. As well, others have accepted a similar criterion for age placement of items. The percentage of at-age passes for items on the Stanford-Binet III between the ages of 3 and 5 averaged 70% (Anastasi, 1968; Golden, Sawicki, & Franzen, 1984).

A final interest of the study was to examine sex differences in performance on TAPS Form 2. The scales used with the assessment assess level of play, not frequency. Although there are no reports in the literature of any difference in level of play between boys and girls of the same age, Lowe (1975) has reported that girls showed more doll-related play than boys.

Method

Subjects

The final sample consisted of 38 middle-class children aged 3 (10 boys and 10 girls) and 4 years (10 boys and 8 girls). They were selected from a total of 58 children, who completed the assessment, to create groups with matched age ranges. The median ages and ranges for the sample are presented in Table 1. There were 4 3-year-old boys, 3 3-year-old girls, and 4 4-year-old boys who were anxious, distressed, or refused to participate. An additional 4-year-old girl was not included in the sample because of a procedural error.

The majority of the sample (87%) was caucasian; the other 5 subjects were oriental (1), black (2), and South Asian (2). Slightly over half of the children (53%) spoke French at home, while 39% had English as their first language. Only 3 children (8%) used a language other than French or English at home. Forty-four percent of the children were tested in English and 55.3 percent were tested in French.

The subjects were tested in nine daycare centres in the Montréal area. Daycare directors were contacted by telephone and asked if they would be interested in cooperating with the researchers on the present study. If they were interested, they were provided with a summary of the study, a copy of the explanatory letter for the parents as well as the consent

Table 1

Medians and ranges for the children's chronological age (in months)

Sex	Age	
	3 Years	4 Years
Boys		
Mdn	44.00	52.25
Range	39.5 - 46.0	48.0 - 57.5
n	10	10
Girls		
Mdn	44.75	53.0
Range	40.0 - 46.5	48.0 - 58.5
n	10	8

form. A copy of these documents is provided in Appendix A. Once they agreed to participate in the study, daycare directors were asked to distribute a copy of the letter and consent form to the parents involved. The children for whom consent was obtained were later tested at the daycare itself.

Experimental Setting

Because the children were tested in several different daycares, it was difficult to maintain exactly the same testing conditions with respect to the room in which the play assessment took place. The experimenter asked to have access to a well-lighted, quiet room which was as free of toys as possible.

On entering the testing room, the child was faced with the complete set of test toys arranged in a semi-circle on the floor of the play area. The video camera was not concealed; it was explained to the child that the experimenter would make a movie of both of them playing. If the child requested to see how the camera worked, the experimenter agreed and said that it would be done after they were finished playing.

Equipment

The toys were put in a plastic dishpan when they were not used during the testing trials. The container and toys were kept out of reach and view of the child during the play session.

A Sony video 8 camera (CCD-F401) was used to videotape the children with a Sony wide conversion lens (VCL-0746C); the camera was placed on a Velbon tripod. Videotapes were viewed using a Sony Trinitron colour receiver monitor (CVM-1990) and a Sony Video 8 cassette recorder (EV-C3).

Toy Materials

The play materials included the following toys and accessories: a small baby doll ("Precious Playmates" from Playmates Toys Inc., stock No. 409488), two adult dolls: a "father" (non-talking Pee-Wee Herman from Matchbox Toys) and a "mother" ("Always Sisters" from Kenner Parker Toys), a little girl doll dressed in pants and T-shirt tops (from the Marissa Punklook series from Horsman Division of Gata Box Ltd, No. 7145-6), a toy teapot without lid and two cups, a round, uncoloured, opaque plastic refrigerator container (5.5 cm high by 7 cm diameter) and its lid, a miniature baby bottle, two pieces of printed cloth (a 40 by 53 cm piece of medium blue with white dots cotton, and a 18 x 34.5 light green gingham check piece of cotton), and a wooden coffee stirrer.

The dolls' limbs were mobile and their respective height was: Mother = 52 cm; Father = 45 cm; Child = 31 cm; Baby = 21 cm. They were chosen to suggest a family with a mother and a father, a little girl, and a baby. The dolls were therefore of the right relative sizes and were also appropriately dressed.

Accessories such as shoes and jewels as well as some extra clothing were removed from the dolls.

Scales

The revised play, animation, and imitation scales developed for the study were validated in the Taylor et al. (1993) Study I of older boys given Form 2 of the play assessment. The level of solitary symbolic play was assessed on a 14-step play maturity scale. It incorporates levels used by other researchers (Nicolich, 1977; Riguet et al., 1981; Tamis-Lemonda & Bornstein, 1990; Watson & Fischer, 1980). In order to permit an adequate assessment of developmentally-delayed young children, the first 6 steps are presymbolic; five of them (mouthing, simple manipulation, functional activity, juxtaposition, functional relational activity) are from the play scale used by Tamis-Lemonda and Bornstein (1989) to assess play in normal 13-month-olds; the other (repetitive motor play) is from the play scale used by Riguet et al. (1981). Steps 7 to 11 incorporate Steps 1 to 5 of the Nicolich (1977) symbolic maturity scale: presymbolic schemes, autosymbolic schemes, decentered symbolic games, combinatorial symbolic games, and internally directed symbolic games. Step 11 was further divided into steps 11.1 to 11.4. The next three levels (12, 13, and 14) were adapted from Watson and Fischer (1980); they are Behaviour Role Play, Social Role Play, and Social Role Play with three active agents. Levels 11 through

14 of the play scale were refined and extended on the basis of data from the Study I of the validation study of developmentally delayed children and from observation of videotapes of our daycare sample (Taylor et al., 1993). The major changes involved the inclusion of transitional levels such as Behaviour Role Fragment and Social Role Segment. The final version of the scale used to score the sample for this study is included in Appendix B.

The animation scale was extensively revised from the Riguet et al. (1981) study. It assesses the child's ability to treat dolls as having life and being capable of independent action. The number of actions performed by a particular actor as well as the number of dolls animated in a particular play sequence are taken into account in this scale. The level of animation scale was extended to reflect the play behaviours observed on the videotapes. The animation scale can be found in Appendix B.

The quality of imitation in response to modelling was also assessed. The scale was adapted from Riguet et al. (1981) and was refined and extended to give credit for alternative responses and imitations of Behaviour Role and Social Role demonstrations seen in the present study of older normal children. This scale can be seen in Appendix B.

In addition, the number of different substitute object uses were calculated for each child. This score is a kind of symbolic fluency measure. The child is given one point for

each different example of using one object to stand for another. A particular substitute use is counted only once, no matter how often it occurs in the child's play. Only substitute uses that occurred spontaneously were counted.

Procedure

The play assessment was administered by a Master's student in clinical psychology. Most subjects were tested in the morning. The play session was videotaped and lasted approximately 22 minutes. Both the experimenter and the child were sitting on the floor during the assessment.

The assessment began with a period of free play with the entire toy set: i.e. all toys and accessories to be used at any time in the rest of the procedure. The child was simply requested to play with the toys. This period lasted 4 minutes. If after one minute, the child had not touched the toys or showed interest, the experimenter said: "Show me what the toys can do, then I will show you something with the toys." After the free play period, the structured procedure began. It consisted of three trials in each of which the child's spontaneous response to a specific subset of the entire toy set was observed for one minute, then the tester modelled specific play behaviours for the child to observe, and finally the child's response to this modelling was observed, again for one minute. On each trial, the demonstration, followed by a chance to respond, was repeated to a maximum of 3 times, until

the child imitated what was shown or produced an alternative response at the same or higher level. Trials 1 and 3 contained an additional final component in which specific toys from the toy set available in free play were reintroduced without further modelling in order to provide an opportunity for higher level play and to test for transfer.

Trial 1 (test for play level 11 - doll as active agent using a substitute object) consisted of presenting the Child doll, the small plastic container and the coffee stirrer to the child. The tester said: "Play with the toys, (child's name)". The child's spontaneous response to the toys was observed for one minute. Then, the tester modelled up to three times the Child feeding itself using the coffee stirrer as a spoon and the plastic container as a bowl. While modelling, the tester said: "Look (child's name), look what the toy is doing!" The toys were then handed back to the child with a smile. The child's response was again observed one minute. After the child had responded to the last demonstration of Trial 1, the adult female doll was added to the toys already available along with the lid of the plastic container (Trial 1.2) to allow the child to produce a sequence with both dolls and show a different substitute object use with the lid. The response was observed for one additional minute.

The same general procedure was repeated for the two other trials; only the toys and modelled play behaviours changed. In Trial 2 (test for play level 12 - Behaviour Role Play), the

child was presented with the Mother doll, the Baby, two pieces of printed cotton, and the miniature baby bottle. The tester modelled the Mother holding Baby, rocking Baby in her arms, feeding it, and washing it using one piece of cotton as a facecloth. The second piece of cotton was made available for the child to use as another substitute object, as a blanket for example.

With Trial 3 (test for play levels 13 and 14 - Social Role Play with two and three active agents), the child was presented with the Mother, the Child, the teapot and two cups. The modelling consisted in having the Mother fill the Child's teacup and then her own from the teapot; the Child then kicks her cup away saying "No!". Then, the Mother spreads her arms and says "Why?" to the Child. After the child's response to the final demonstration of Trial 3, the Father doll was presented (Trial 3.2) to allow the child to show Social Role Play with 3 active agents. The play was then observed for one more minute.

Finally, the tester brought out all the toys and asked the child to "SHOW me the best story you can, using all the toys." The purpose of this last part was to make sure that the children had every opportunity to show their highest level of play. Then, the child was thanked for his/her good play.

Videotape Observations and Scoring

The majority of videotapes (66%) were viewed by two experienced observers who recorded play behaviours from the videotapes. An agreement on ambiguous symbolic behaviour was reached by consensus after repeated viewing of the relevant videotape segment. One observer, fluent in the language used to administer the assessment, was always present. One observer viewed all videotapes and produced the protocols used for scoring.

The initial scoring of the play behaviours was done independently by the experimenter and the main videotape observer. Then, the two scorers discussed disagreements and reached consensus, consulting the videotapes if necessary. Scales were extended and refined as necessary during this process to accommodate higher level behaviour. Finally, the experimenter reviewed and rescored the play protocols in accordance with the revised scales. The appropriateness of the three scales for older language-delayed children was confirmed by using them to rescore play protocols of 3- to 5-year-old developmentally delayed boys and establishing significant correlations for all scales with a nonverbal test of intelligence (Taylor et al., 1993).

Level of spontaneous play was scored for the free play period, the baselines of the three Trials, as well as for Trials 1.2 (addition of Mother and plastic container lid) and 3.2 (addition of Father doll), and the Best Story period.

Responses to the modelling that were different from the behaviours demonstrated were also scored as spontaneous. Children were also given a score on their level of play in response to the demonstrations for each trial.

Level of spontaneous animation was scored for the free play period, the baselines of the three Trials, Trials 1.2 and 3.2 as well as the Best Story trial. Again, play behaviours that were performed following the demonstrations but which represented an alternative were also scored for spontaneous use of animation. No credit was given if a child only described animation, but did not show it.

A score was given on the imitation scale for each response to the three demonstrations of the three Trials. The best score of the three for each trial was used in the analyses.

Because the observations obtained in this study will be used for comparison with children with little or no speech, the substitute object score did not include substitute objects identified only by verbal label and not accompanied by an action which clearly indicated its use.

Results

Because the data obtained were ordinal, nonparametric tests were used for the analyses. Thus, all statistical comparisons for differences between the groups were performed using the Mann-Whitney U Test, while the relationships between variables were analyzed using Spearman's Rank Order correlations. The significance levels reported are based on two-tailed tests.

Level of Play

To verify the effect of modelling on level of play, the point in the session at which the children's highest level of play first appeared was examined. The proportion of children who first performed their best play in a particular play period (Free Play to the end of Trial 1 baseline, structured trials beginning with Trial 1 modelling, and Best Story) are presented in Table 2. For all groups, it is evident that the highest level of play (whether spontaneous or imitative) occurred during the structured trials, after some modelling had occurred. This finding confirms the prediction that modelling would be effective in eliciting higher level play.

Table 3 presents the percentage of boys and girls at each age who demonstrated the higher levels of symbolic play and the groups meeting the criterion of 70% for age placement of an ability. Although spontaneous demonstration of a particular

Table 2

Proportion of children who performed their best play at
different periods in the play session

Group	N	Play Periods		
		Free Play ^a	Structured Trials	Best Story
Boys				
3 Years	10	20%	70%	10%
4 Years	10	10%	90%	0%
Girls				
3 Years	10	20%	80%	0%
4 Years	8	0%	87%	13%

^aincludes Trial 1 baseline.

Table 3

Percentage of children demonstrating symbolic play at each developmental level spontaneously or in direct imitation only

Levels		11.4 DAA ^a	12 BRF ^b or BR ^c	12.5 BR ^c	13 SRS ^d or SR2 ^e	13.5 SR2 ^e
Boys	n					
3 Yrs	10	<u>90(10)</u>	<u>40(60)</u>	0(10)	0(50)	0(10)
4 Yrs	10	<u>80(20)</u>	<u>60(30)</u>	<u>40(30)</u>	<u>20(60)</u>	0(30)
Girls						
3 Yrs	10	<u>100(0)</u>	<u>70(30)</u>	<u>70(10)</u>	20(20)	20(10)
4 Yrs	8	<u>100(0)</u>	<u>88(12)</u>	<u>75(12)</u>	<u>50(37)</u>	12(25)

Note. The number in parentheses is the percentage of children showing the ability in direct imitation only. Underlined values meet the 70% criterion for age placement of the ability.

^aDAA = Doll as active agent. ^bBRF = Behavior Role Fragment. ^cBR = Behavior Role Play. ^dSRS = Social Role Segment. ^eSR2 = Complex Social Role Sequence with 2 active agents.

level of symbolic play might be considered the best evidence for having the ability, in accordance with Watson and Fischer (1980) who used imitative play as an index of a child's capacity, children who showed a play ability only in imitation are considered to have the ability. Children showing an ability spontaneously (i.e. in free play, on a baseline, as an alternative response to a demonstration, or in Best Story) are indicated separately. The data in Table 3 for play levels 12, 12.5, and 13 suggest that emerging play abilities usually appear first as imitations and then at a later age are produced spontaneously. As predicted, all children at both ages were able to portray a doll as an active agent, although 30% of the boys demonstrated the ability only in imitation.

Our prediction about Behaviour Role Play was that most 3-year-olds and almost all 4-year-olds should show this ability. Table 3 shows that all children except one 4-year-old boy were able to portray at least a Behaviour Role Fragment, which appeared to be a transitional form of Behaviour Role Play as defined by Watson and Fischer (1980). For Behaviour Role Play, although most girls (80% of the 3-year-olds and 87% of the 4-year-olds) and 4-year-old boys (70%) demonstrated this ability, only one 3-year-old boy did, and that in imitation only. One additional 4-year-old girl, who was not included in the sample because of a procedural error also showed Behaviour Role Play spontaneously in the Free Play period.

Our prediction about Social Role Play was that this ability would be present in some 4-year-olds. A Complex Social Role Sequence with two active agents was scored for a direct imitation when the child imitated all 3 elements of the sequence that was modelled. To get credit for a Social Role Segment, defined as the transitional level to a Complex Social Role Sequence, in direct imitation, the child had to imitate 2 consecutive elements of the modelled sequence. Although a few children at both ages demonstrated the capacity for Social Role Play, it was not present in any of the groups according to the 70% criterion. If the transitional behaviour (Social Role Segment) is considered as well, however, both 4-year-old groups meet the criterion at the 80% level. Only one girl, aged 4 years 10.5 months (12%), engaged in Social Role Play with three active agents.

Table 3 shows that, in general, more girls than boys spontaneously played at the higher play levels of the scale. The 3-year-old boys did not show the ability for Behaviour Role Play, whereas girls of the same age did.

The medians for highest level of spontaneous play in Free Play and over the whole session are shown in Table 4. The medians for level of play during the Free Play period indicated that children's spontaneous play prior to any modelling lies between the use of substitute objects and having a doll act as an active agent using a substitute object. The only significant comparison was between boys and

Table 4

Medians and ranges for highest level of spontaneous play in
Free Play and over all

Group	N	Level of Play	
		Free Play	Over All
Boys			
3 Years	10		
Mdn		11.15	11.8
Range		11.1 - 12.0	11.1 - 12.0
4 Years	10		
Mdn		11.1	12.25
Range		0 - 12.5	9 - 13.5
Girls			
3 Years	10		
Mdn		11.3	12.4
Range		11.1 - 12.5	11.4 - 13.5
4 Years	8		
Mdn		11.4	12.75
Range		11.1 - 12.5	11.4 - 14

girls aged 4 with $U = 17.5$, $p < .05$. At four, girls played at a higher level during the Free Play than same-age boys. The Mann-Whitney U values for the comparison between 3-year-old boys and girls was nonsignificant, $U = 38.0$. Level of play during Free Play did not differ significantly between 3- and 4-year-old boys, and 3- and 4-year-old girls. The Mann-Whitney U values for these comparisons were $U = 36.0$ and $U = 31.5$, respectively.

The medians for highest level of spontaneous play over the whole session in boys were lower than the ones for girls. The Mann-Whitney U value for the comparison between 3-year-old boys and girls was significant, with $U = 19.5$, $p < .05$. The difference in over all highest level of spontaneous play between 4-year-old boys and girls was not significant, $U = 24.0$. Level of play did not differ significantly between 3- and 4-year-old boys, and 3- and 4-year-old girls. The Mann-Whitney U values for these comparisons were $U = 34.5$ and $U = 30.5$, respectively. The highest level of play observed was Social Role Play with three active agents (Level 14). It was seen in a 4-year-old girl during a play sequence in Trial 3.2 which continued in the Best Story trial. This play sequence is described in Appendix C which presents a description of all the spontaneous play which represented an alternative to the demonstrations.

The medians and ranges for highest level of play elicited by the demonstrations for each trial are presented in Table 5. For Trial 1, the highest score for either the best response to demonstrations or for Trial 1.2 was used. For Trial 3, the highest score assigned to play after a Trial 3 demonstration, in Trial 3.2, and Best Story was used.

For Trial 1, a sex difference for the highest level of play elicited by the demonstrations was found at age 3, with girls obtaining higher scores than boys, $U = 25.5$, $p < .05$. Although there was a tendency for the younger boys to obtain lower scores than the older boys in response to Trial 1 demonstrations, the comparison was not significant, with $U = 32.5$, $p < .10$. None of the following comparisons were significant: 4-year-old boys and girls, $U = 39.5$; and 3- and 4-year-old girls, $U = 30.5$.

None of the comparisons for Trial 2 were significant. The 4-year-old boys tended to obtain higher scores in response to Trial 2 demonstrations when compared to the younger boys, but the comparison was not significant, with $U = 28.5$, $p < .10$. The Mann-Whitney U values for the comparisons of 4-year-old boys and girls, and 3- and 4-year-old girls were nonsignificant, with $U = 28.0$ and $U = 27.0$, respectively.

For Trial 3, no sex differences were found between boys and girls at both 3 and 4 years old, with $U = 41.0$ and $U = 36.5$, respectively. Although this comparison was not significant, the older boys tended to obtain higher play

Table 5

Medians and ranges for highest level of play elicited by the demonstrations

Group	N	Trials		
		1 ^a	2 ^b	3 ^c
Boys				
3 Years	10			
Mdn		11.29	11.7	12.5
Range		6 - 11.4	11.1 - 12.5	11.4 - 13.5
4 Years	10			
Mdn		11.57	12.25	13.25
Range		11.1 - 12.5	11.1 - 12.5	11.4 - 13.5
Girls				
3 Years	10			
Mdn		11.80	12.25	12.75
Range		11.1 - 12.5	11.2 - 12.5	11.4 - 13.5
4 Years	8			
Mdn		11.67	12.33	13.25
Range		0 - 12.0	12.0 - 12.5	12.5 - 14.0

^amaximum possible score including Trial 1.2 = 13.5. ^bmaximum possible score = 13.5. ^cmaximum possible score including Trial 3.2 and Best Story = 14.0.

scores than the younger boys in response to Trial 3 demonstrations, $U = 28.0$, $p < .10$. There was no age effect for the girls, with $U = 24.5$.

The effect of adding Mother doll and the container lid on Trial 1.2 was tested for each group; Wilcoxon Matched-pairs Signed-ranks test were performed. The medians and ranges for best level of play in response to Trial 1 demonstrations and for level of play during Trial 1.2 are presented in Table 6. At age 3, the boys played at a significantly higher play level in response to Trial 1 demonstrations than during Trial 1.2, $Z = -2.24$, $p < .05$. There was no significant difference between level of play in response to Trial 1 demonstrations and level of play during Trial 1.2 for the other groups, with $Z = -.700$ for the 3-year-old girls, $Z = .000$ for the 4-year-old boys, and $Z = -1.35$ for the 4-year-old girls.

To verify the effect of adding Father doll at the end of Trial 3 (Trial 3.2) on level of play, Wilcoxon Matched-pairs Signed-ranks tests were performed. The medians and ranges for best level of play in response to Trial 3 demonstrations and for level of play during Trial 3.2 are presented in Table 7. At age 3, level of play in response to Trial 3 demonstrations in the boys did not differ significantly from level of play in Trial 3.2, $Z = -1.362$. The same is true for girls aged 3, although their play scores tended to be higher in response to Trial 3 demonstrations than in Trial 3.2, $Z = -1.820$, $p < .10$. At age 4, both boys and girls obtained significantly higher

Table 6

Medians and ranges for highest level of play in response to
Trial 1 demonstrations and in Trial 1.2

Group	N	Trial 1	Trial 1.2
Boys			
3 Years ^a	9		
Mdn		11.4	9.0
Range		6 - 11.4	0 - 11.2
4 Years	10		
Mdn		11.57	11.3
Range		11.1 - 12.5	3 - 12.5
Girls			
3 Years	10		
Mdn		11.80	11.3
Range		11.1 - 12.5	9 - 12.5
4 Years ^a	7		
Mdn		11.4	11.1
Range		11.1 - 12.0	11.1 - 12.0

^aOne child was not administered Trial 1.2 because of a procedural error.

Table 7

Medians and ranges for highest level of play in response to
Trial 3 demonstrations and in Trial 3.2

Group	N	Trial 3	Trial 3.2
Boys			
3 Years	10		
Mdn		12.5	11.4
Range		6 - 13.5	6 - 12.0
4 Years	10		
Mdn		13.25	11.2
Range		11.4 - 13.5	0 - 13.0
Girls			
3 Years	10		
Mdn		12.25	11.67
Range		11.4 - 13.5	10.1 - 13.5
4 Years	8		
Mdn		13.25	12.17
Range		12.0 - 13.5	11.2 - 14.0

level of play scores in response to Trial 3 demonstrations than in Trial 3.2, with $Z = -2.520$, $p < .05$, and $Z = -2.100$, $p < .05$, respectively.

Level of Spontaneous Animation

The medians for highest level of spontaneous animation in Free Play and over the whole session are presented in Table 8. The medians for level of animation during Free Play indicated that, before modelling, most boys at both ages did not animate a doll. Most girls aged 3 did perform simple animation with a doll without prior modelling, while at 4 they showed an animation sequence in which a doll is made to perform actions that do not correspond to a specific role. As in the case of highest level of spontaneous play, the only significant comparison was between 4-year-old boys and girls, with $U = 17.5$, $p < .05$; girls used higher levels of animation than boys during Free Play. Boys aged 3 did not differ significantly in terms of level of animation during Free Play from girls of the same age, $U = 37.5$. The Mann-Whitney U values for the comparisons between 3- and 4-year-old boys, and 3- and 4-year-old girls were nonsignificant with $U = 42.0$ and $U = 34.5$, respectively.

The median level of spontaneous animation over the whole session for 4-year-old girls was higher than that for the boys of the same age. The Mann-Whitney U value for the comparison of 4-year-old boys with girls of the same age indicated that

Table 8

Medians and ranges for highest level of spontaneous animation
in Free Play and over the whole session

Group	N	Level of Animation	
		Free Play	Over All
Boys			
3 Years	10		
Mdn		4.5	7.79
Range		0 - 8.1	4 - 8.1
4 Years	10		
Mdn		4.17	8.05
Range		0 - 7	4 - 8.1
Girls			
3 Years	10		
Mdn		5.17	8.0
Range		4 - 8.1	5 - 8.2
4 Years	8		
Mdn		6.0	8.6
Range		4 - 8.1	6 - 9.2

the girls' median highest level of animation over all was significantly higher than for the boys, $U = 16.5$, $p < .05$. The difference in level of spontaneous animation over all between 3-year-old boys and girls was not significant, $U = 39.0$. This finding does not parallel the results for highest level of spontaneous play. The comparison between 3- and 4-year-old girls, and 3- and 4-year-old boys were also nonsignificant, with $U = 22.5$ and $U = 42.0$.

Four 4-year-old girls could show three dolls animated in the same play sequence. The animation of the dolls was only implied in some cases; an example of this kind of scene was Child sitting on Father while holding Baby. None of the boys animated three dolls in the same play sequence. The highest level of animation observed was three actors in a reciprocal interaction (level 9.2); it was performed by the same 4-year-old girl in a play sequence during Trial 3.2 which continued in the Best Story trial.

Level of Imitation

The medians for the highest level of imitation for each trial are presented in Table 9. The scores were treated by trial because each one tests a specific level of play associated with a maximum imitation score.

The medians for highest level of imitation for Trial 1 (Doll as active agent using substitute objects) suggest that

Table 9

Medians and ranges for highest level of imitation

Group	N	Trials		
		1 ^a	2 ^b	3 ^c
Boys				
3 Years	10			
Mdn		4.9	5.0	6.5
Range		1 - 6	4 - 7	0 - 8.5
4 Years	10			
Mdn		4.88	6.5	8.25
Range		4 - 5	4 - 7.5	6 - 8.5
Girls				
3 Years	10			
Mdn		4.93	7.25	7.25
Range		4 - 6	4.5 - 7.5	5 - 8.5
4 Years	8			
Mdn		4.7	7.25	8.17
Range		0 - 5	5 - 7.5	6 - 8.5

^amaximum score = 6. ^bmaximum score = 7.5. ^cmaximum score = 8.5.

close to half of the children showed animation on this trial. No significant differences were found for any of the following comparisons: 3-year-old boys and girls, $U = 48.5$; 4-year-old boys and girls, $U = 33.0$; 3- and 4-year-old boys, $U = 48.0$; and 3- and 4-year-old girls, $U = 30.5$.

The Mann-Whitney U values for highest level of imitation in Trial 2 (Behaviour Role) indicated that the younger boys had inferior scores to both girls of the same age and older boys, with $U = 24.5$, $p < .05$, and $U = 25.5$, $p < .06$, respectively. Although the medians suggest that at both ages girls' imitations were more advanced than that of boys, there was no significant difference between the performance of 4-year-old boys and girls, $U = 33.0$. No age effect was found for girls who have identical medians at both ages, $U = 36.0$.

For Trial 3 (Social Role Play), the median for highest level of imitation suggested an increase in imitation abilities for boys from 3 to 4 years of age; girls showed the same increase but to a lesser degree. The comparison between 3- and 4-year-old boys was found to be significant, $U = 24.0$, $p < .05$. The other comparisons were nonsignificant: 3-year-old boys and girls, $U = 38.0$; 4-year-old boys and girls, $U = 38.0$; 3- and 4-year-old girls, $U = 27.0$.

Because the boys obtained lower imitation scores than the girls for Behaviour Role Play (Trial 2), the total number of elements they were able to imitate regardless of animation was analyzed for Trial 2. This was done in order to verify that

this difference in the imitation scores was not due to differences in memory or motivation. The medians for the total number of elements imitated and those imitated with animation of the dolls for Trial 2 (Behaviour Role) are presented in Table 10. The total number of elements imitated include the actions reproduced with animation, as demonstrated, as well as the actions reproduced without animation (e.g. the child feeds Baby himself with the bottle instead of showing Mother feeding Baby). Each separate action in this demonstration was scored as 1 with a maximum of 4 actions: Mother holds Baby, Mother rocks Baby, Mother feeds Baby, and Mother wipes Baby's face. The best play sequence which followed one of the demonstrations was selected and scored. Alternative play behaviours that were equivalent to the ones demonstrated were also counted as an imitative action; for example, an alternative way of showing Mother holding Baby was accepted. The symbols for active agency ("the doll is doing it") which some children used were also counted as actions imitated with animation. A list of these symbols for active agency is provided in Appendix D.

No significant differences were found between boys and girls or 3- and 4-year-olds in the total number of elements imitated in Behaviour Role regardless of animation. The Mann-Whitney U values were as follows for the different comparisons: 3-year-old boys and girls, $U = 46.5$; 4-year-old

Table 10

Medians and ranges for the total number of Behaviour Role actions imitated regardless of animation and with animation

Group	N	Behaviour Role Actions	
		Total	With Animation
Boys			
3 Years	10		
Mdn		1.83	0.83
Range		0 - 4	0 - 2
4 Years	10		
Mdn		2.17	2.0
Range		0 - 4	0 - 4
Girls			
3 Years	10		
Mdn		1.5	1.5
Range		0 - 4	0 - 4
4 Years	8		
Mdn		2.87	2.17
Range		2 - 4	1 - 3

boys and girls, $U = 30.0$; 3- and 4-year-old boys, $U = 40.0$; and 3- and 4-year-old girls, $U = 24.5$. Thus, the boys' inferior performance in the Behaviour Role trial was not related to memory or motivation problems.

It is important when using the play assessment in the clinic to know which specific behaviours are most often imitated with animation by normal children. The percentages of children who imitated each Behaviour Role action with animation are presented in Table 11. The action most often imitated by children was Mother holding Baby.

It is also of clinical interest to find out which aspects of the Social Role interaction were imitated and understood by our sample. They were not expected to be able to reproduce the whole social interaction since Watson and Fischer (1980) reported that children comprehend Social Role at around age 4½. The Social role demonstration was divided into three components: 1- Mother pouring into cups; 2- Child kicking her cup and saying "No"; 3- Mother gesturing toward Child (showing a reaction) and saying "Why". The second and third components were scored even if the child did not say the word accompanying the doll's gesture. Children were also credited if they showed an alternative behaviour which indicated that they understood the nature of the interaction demonstrated. Only the best of the three imitative responses was analyzed. The percentage of Social Role components imitated with animation for each group are presented in Table 12.

Table 11

Percentage of actions in Behaviour Role imitated with
animation

		Behaviour Role Actions			
Group	N	Holding	Rocking	Feeding	Wiping
Boys					
3 Years	10	60%	10%	10%	0%
4 Years	10	70%	50%	60%	10%
Girls					
3 Years	10	70%	40%	40%	30%
4 Years	8	100%	50%	37%	12%

Table 12

Percentage of children imitating different components with animation in Social Role Play

Group	N	Components		
		1 ^a	2 ^b	3 ^c
Boys				
3 Years	10	40%	60%	20%
4 Years	10	70%	80%	30%
Girls				
3 Years	10	50%	70%	50%
4 Years	8	75%	87%	50%

^aMother pouring into cups. ^bChild kicking her cup and saying "No". ^cMother spreading her arms toward Child and saying "Why".

The component most often imitated was Child kicking her cup. Eight children (3 4-year-old boys, 2 3-year-old girls, and 3 4-year-old girls) imitated all three components and seemed to understand Social Role; three of these children offered an alternative response that indicated that they comprehended the social interaction portrayed, for example Mother pours tea for Child who refuses and Mother tells Child that she can have it later and Child says "Okay.". Two additional children (one boy and one girl, both aged 3) imitated the play sequence perfectly, but then added their own component which indicated they did not understand the interaction completely; for example, after imitating the whole sequence one 3-year-old girl had Mother say "What?" and then said "Poop." in her own voice. The proportion of children who imitated two consecutive components demonstrated in the Social Role Trial were as follows: 30% of the 3-year-old boys, 80% of the 4-year-old boys, 20% of the 3-year-old girls, and 62.5% of the 4-year-old girls.

It is also important to know how many demonstrations are needed to be given before the children gave their best performance on a particular trial. The medians for the number of demonstrations necessary to elicit children's best response for each trial are shown in Table 13. For Trial 1, no significant differences were found. The Mann-Whitney U values for the comparisons of 3-year-old boys and girls, and 4-year-old boys and girls were $U = 36.0$ and $U = 31.5$, respectively.

Table 13

Number of demonstrations necessary to elicit the best response

Group	N	Trials		
		1	2	3
Boys				
3 Years	10			
Mdn		2.0	2.7	2.5
Range		1 - 3	1 - 3	1 - 3
4 Years	10			
Mdn		1.5	1.75	1.9
Range		1 - 3	1 - 3	1 - 3
Girls				
3 Years	10			
Mdn		1.3	1.9	2.17
Range		0 ^a - 3	1 - 3	1 - 3
4 Years	8			
Mdn		1.17	1.17	1.5
Range		1 - 3	1 - 3	1 - 3

^a One child performed the modelled behaviour before the demonstrations.

There were no age differences for boys or girls with $U = 37.5$ and $U = 34.5$, respectively.

No significant differences were found in the number of demonstrations necessary to elicit higher level play in Trial 2 when the data were examined separately for boys and girls. After collapsing the data across sexes, however, an age effect was found, with $U = 114.0$, $p < .05$. Children aged 3 needed more demonstrations (Mdn = 2.21) than at 4 (Mdn = 0.90) to give their best response.

For Trial 3, no differences were found in the number of demonstrations necessary to elicit higher level play. The Mann-Whitney U value for the following comparisons were: 3-year-old boys and girls, $U = 44.5$; 4-year-old boys and girls, $U = 35.0$; 3- and 4-year-old boys, $U = 38.5$; and 3- and 4-year-old girls, $U = 31.0$.

To verify if children needed an increasing number of demonstrations across trials to give their best response, Friedman two-way analyses of variance by ranks were conducted on the number of demonstrations needed for each group. There were no significant differences across trials for any of the four groups on the number of demonstrations needed to get the best response.

Use of Substitute Objects

The medians for the number of different substitute object uses for each group are shown in Table 14. Although this

Table 14

Medians and ranges for the number of different substitute
object uses and multiple substitute object uses

Group	N	Substitute Object	
		Different Uses	Objects with Multiple Uses
Boys			
3 Years	10		
Mdn		7.0	1.83
Range		1 - 16	0 - 4
4 Years	10		
Mdn		5.5	0.5
Range		0 - 12	0 - 3
Girls			
3 Years	10		
Mdn		6.5	2.0
Range		4 - 13	0 - 3
4 Years	8		
Mdn		7.0	2.0
Range		3 - 11	0 - 4

variable is not related to the other measures of play, information about this measure is clinically useful. A list of the different substitute uses for every toy and accessory is provided in Appendix E. It seems that children aged 3 and 4 tended to show 6 to 7 different substitute object uses during the assessment. None of the Mann-Whitney values for the following comparisons were significant: 3-year-old boys and girls, $U = 49.0$; 4-year-old boys and girls, $U = 36.5$; 3- and 4-year-old boys, $U = 40.5$; and 3- and 4-year-old girls, $U = 34.5$.

The use of the same object to represent different objects at different times was scored as a multiple substitute object. Table 14 shows the medians for multiple substitute object scores for each group. None of the Mann-Whitney U values for the following comparisons were significant: 3-year-old boys and girls, $U = 48.5$; 4-year-old boys and girls, $U = 29.5$; 3- and 4-year-old boys, $U = 36.0$; and 3- and 4-year-old girls, $U = 40.0$.

Relation of Age with Level of Play, Animation, Imitation, and Use of Substitute Objects

Because the results indicated that boys differed from girls in their play abilities, the relationship of age (in months) to level of play, animation, imitation, and use of substitute objects was examined separately for both sexes. Spearman's Rank Order correlations were conducted to assess

these relationships. The most relevant Spearman's Rho values are presented in Table 15; correlations were calculated between age and level of animation for each separate trial but since these correlations were nonsignificant, they were not reported in Table 15. Appendix F shows the intercorrelations between those measures.

Spearman's Rho values were not significant for the boys or the girls when age was correlated with highest level of spontaneous play, or level of spontaneous play during Free Play. Level of play (whether imitative or alternative response) in response to Trial 1 demonstrations (including Trial 1.2 responses) was significantly correlated with age in the boys, with $r = .387$, $p < .05$. This relationship was not significant for the girls. Level of play (whether imitative or alternative response) in response to Trial 2 demonstrations was found to be significantly correlated with age in both boys and girls, with $r = .455$, $p < .05$, and $r = .546$, $p < .01$, respectively. A correlation with age was also found for the best play elicited by Trial 3 demonstrations (including Trial 3.2 and Best Story) in the boys, with $r = .461$, $p < .05$, this relationship was not significant in the girls, however, with $r = .348$, $p < .10$. Highest level of animation over all was significantly correlated with age only for the girls, $r = .429$, $p < .05$, and not the boys. Highest level of imitation for Trial 1 did not correlate significantly with age in either boys or girls. The correlations of age with level of imitation

Table 15

Spearman's rank order correlations of age with different play measures

	Sex	
	Boys n = 20	Girls n = 18
Highest level of play over all	.182	.239
Level of play in Free Play	-.323	.242
Trial 1 - Best play elicited by demonstrations	.387 *	-.076
Trial 2 - Best play elicited by demonstrations	.455 *	.546 **
Trial 3 - Best play elicited by demonstrations	.461 *	.348
Highest level of animation over all	-.120	.429 *
Highest level of imitation - Trial 1	.055	-.186
Highest level of imitation - Trial 2	.447 *	.226
Highest level of imitation - Trial 3	.510 **	.388
Number of different substitute objects uses	-.045	-.166

* p < .05. ** p < .01.

in Trial 2 and Trial 3 were significant for the boys, with $\sigma = .447$, $p < .05$, and $\sigma = .510$, $p < .01$, respectively. The same correlations were not found to be significant for the girls although there was a tendency for age to be correlated with highest level of imitation in Trial 3, $\sigma = .388$, $p < .10$. No significant correlation was found between age and substitute object score in either boys or girls.

Discussion

The purpose of this study was to obtain normative data for TAPS, Form 2, which is designed to evaluate the symbolic play capacities of children aged 36 to 60 months. Observations for the normative study were obtained from 38 boys and girls, aged 39.5 to 58.5 months, who were selected to create groups with matched age ranges. Results in general indicated numerous sex differences on the play, animation, and imitation scales. The children in the sample engaged in play mostly at the Behaviour Role Play level.

The first prediction, stating that the use of modelling would be effective to elicit higher level play was confirmed. The majority of children at both ages were found to perform their highest level of play during the structured trials, that is, after some modelling had occurred. Many children did not show certain play abilities spontaneously, but only following the demonstrations. In particular, none of the boys showed a Complex Social Role Sequence with two active agents spontaneously, but 20% could demonstrate this ability after the appropriate modelling. In addition, younger children needed one more demonstration of Behaviour Role Play than older children before they could give their best response. Modelling also seemed to have a triggering effect on some children. Although they sometimes did not seem interested in the toys at the beginning of the assessment, these children

were observed to "switch on the pretend mode" after some modelling had occurred and then began to pretend and became absorbed in their play.

These findings underline the importance of using modelling to elicit higher level symbolic play in normal children as well as in the clinic with developmentally delayed children. These effects of modelling are consistent with findings from other studies with normal and developmentally delayed children (Bretherton, O'Connell, Shore, & Bates, 1984; Fenson & Ramsay, 1981; Riguet et al., 1981; Watson & Fischer, 1977).

The predictions about the play abilities expected to be present in 3- and 4-year-olds using both spontaneous and imitative behaviours were drawn from the Watson and Fischer (1980) study and were essentially confirmed by our findings, except for the 3-year-old boys. As predicted, children at both ages were able to show a doll as an active agent. It was also predicted that the ability to portray Behaviour Role Play would be present in most 3-year-old children and in almost all children aged 4. At age 3, the girls met the 70% criterion for age placement for Behaviour Role Play; only 10% of the 3-year-old boys, however, could show this ability as defined by Watson and Fischer (1980), and that in imitation only. When the transitional level for this ability is considered (Behaviour Role Fragment), however, the 3-year-old boys reach the 70% criterion. Almost all children aged 4 demonstrated the

ability to portray Behaviour Role Play. Therefore, this ability is present in children aged 4 as well as in 3-year-old girls and is emerging in boys aged 3.

The prediction that the ability to show a Complex Social Role Sequence with two active agents, as defined by Watson and Fischer (1980), would be present in some children at 4 was confirmed, although it should be noted that it was present in some 3-year-olds as well. Very few children, however, engaged in Social Role Play and 4-year-olds as a group did not meet the 70% criterion for age placement of this ability. When the transitional level (Social Role Segment) is considered as well, however, both 4-year-old boys and girls meet the criterion. Most of the 4-year-old boys who showed this transitional level did so only in direct imitation, while most 4-year-old girls did it spontaneously. The analysis of the imitation of 2 consecutive elements of the Social Role Play demonstrations clearly indicated that there is a sharp change in performance between 3 and 4 years which appears to reflect an increasing competence with the early transitional form of Social Role Play.

There was a consistent sex difference in the number children who portrayed the play abilities spontaneously or in direct imitation only. The girls performed at the Behaviour Role Play and Social Role Play levels of the play scale spontaneously more often than the boys, who mostly played at these levels following the demonstrations. In addition, sex

differences were also found for the play, animation, and imitation scales. The 3-year-old girls obtained significantly higher scores than the 3-year-old boys on spontaneous level of play over the whole session, level of play elicited by Trial 1 demonstrations, and level of imitation for the Behaviour Role Trial. This last result reflects the finding that boys aged 3 cannot perform Behaviour Role Play even in direct imitation. The 4-year-old girls obtained significantly higher scores than the same-age boys on the level of play scale during Free Play, and on level of animation both in Free Play and over the whole session. This last difference reflects the fact that some 4-year-old girls showed a higher animation level (use of 3 actors in the same play sequence), while none of the boys did.

Although there is no such report to date in the research literature, these findings suggest that there might be sex differences in the symbolic play abilities of 3- and 4-year-old children, with the girls showing more mature play. Watson and Fischer (1980) did not report any sex differences in their study of solitary pretend play in older preschoolers. Some researchers have found qualitative differences in younger children's use of toys. For example, Lowe (1975) found that from 21 to 36 months, girls tended to perform more doll-related play than boys who were more interested in toys such as a truck and a trailer.

The 70% criterion for age placement of a symbolic ability included both spontaneous play and play performed directly

following the demonstrations. The fact that more girls showed the higher play levels spontaneously more often than the boys (see Table 3) raises the question of whether play in direct imitation reflects the same level of understanding as spontaneous play does. Watson and Fischer (1980) as well as Piaget (1969) have suggested a relation between imitation and cognitive development; children tend to imitate pretend behaviours near their cognitive capacity and to ignore the ones that were already mastered. These authors concluded that children do not blindly mimic what they were demonstrated, but show only what they can understand. The findings for this sample indicate that if symbolic play imitation was considered an index of cognitive capacity, the boys' play abilities were equivalent to the girls', except for the 3-year-old boys' inability to show Behaviour Role Play.

From the data in Table 3, however, it seems that the play abilities usually appear first as imitation and are then produced spontaneously. In addition, the quality of some imitations sometimes indicated that the play abilities reproduced in direct imitation might not be as well integrated and understood as play abilities produced spontaneously. For example, a few children imitated perfectly what the tester had demonstrated for Social Role Play, but ended their performance with actions which indicated that they did not understand fully the nature of the social interaction that was presented to them.

On the other hand, the fact that children do not imitate a play ability does not mean that it is not present. Most children did not show doll as active agent in direct imitation on Trial 1, but they spontaneously showed it at some later point in the assessment, thereby demonstrating their comprehension of this play level. Trial 1 demonstrations might not have been stimulating enough for the children, since the play sequence that was modelled was below their overall play ability. In fact, many children looked bored while the tester demonstrated doll feeding herself. Another factor contributing to the finding that many children did not imitate doll as active agent is that the action portrayed (i.e. doll feeding herself with a wooden stick) was physically more difficult to perform than actions portrayed in the other demonstrations. This first trial also served as a warm-up period for the children who did not know exactly what was expected of them at this point in the session. It is therefore difficult to decide whether a play behaviour performed in direct imitation is equivalent in terms of comprehension level to a response that is performed spontaneously.

Even if imitative responses were equivalent to spontaneous play behaviours, some sex differences would still remain. These differences were found despite the fact that the scales were designed in terms of level of play instead of play frequency. Thus, the boys got credit for higher play behaviours they showed only once. This eliminated a sex bias

in favour of the girls who were probably more familiar with the toys used in the play assessment than the boys. The scales were also refined to include transitional levels of Behaviour Role and Social Role Play (Behaviour Role Fragment and Social Role Segment) so that the emergence of these abilities could be detected.

Although it could be argued that the sex differences found in this sample may be caused by a practice effect of the girls with dolls and a difference in toy preference, the analysis of the number of elements imitated regardless of animation in the Behaviour Role trial indicated no sex difference in the number of actions imitated. The 3-year-old boys imitated as many of the demonstrated actions as the girls of the same age, but the level of the boys' imitation was inferior, since they imitated those actions without animation. This finding suggests that the sex difference is not a matter of toy preference or motivation, since the 3-year-old boys played as much and imitated as many actions as the girls of the same age. There was also a developmental improvement in imitation for Trials 2 and 3 for the boys between 3 and 4 years that would not have been present if the sex differences in symbolic play were due to a practice effect of doll play or a lack of interest.

It could also be argued that the lag in showing Behaviour Role Play observed in the 3-year-old boys might not have been found, if the Father doll had been used as the parent taking

care of Baby doll instead of Mother doll in the Behaviour Role demonstrations. This alternative would probably not prove useful since, according to our observations, the children tend to portray the stereotypical behaviours of Mother taking care of the children and Father scolding them. In addition, the Father doll was available both in the Free Play period, and in Trial 3.2 after all demonstrations had taken place, and the younger boys did not generalize the Behaviour Role Play demonstrations to the Father doll even when they had the opportunity to do so.

The relationship between age and the different measures of play capacities indicates that there are sex differences in developmental effects as well. For the boys, age was related to level of play in response to Trial 1, 2, and 3 demonstrations, while age for the girls was related to response to demonstrations for Trial 2 only. The findings suggest that for all trials, the boys needed the demonstrations in order to give their best performance. The correlations between age and level of play in response to demonstrations in the boys also suggest that they were motivated to perform; otherwise, age effects would not be present. Level of animation was related to age only in the girls; this might be explained by the fact that only the girls used 3 actors in the same play sequence which is the highest level on this scale. One reason why the boys did not use 3 actors in the same sequence might be that this behaviour was

not modelled in the assessment, and boys seem to need modelling to be able to show specific behaviours. One interesting finding is that highest level of spontaneous play over all was not correlated with age in either the boys or the girls. This result can be explained by the fact that the majority of the boys performed their best play not spontaneously, but in response to modelling, and that the play performed spontaneously by the girls at both ages was not very different in terms of level of play. Level of imitation for Trials 2 and 3 were related to age only in the boys, a finding which reflects that they improved from 3 to 4 years, whereas the girls showed little change.

The findings in this study suggest that for Form 2 of the play assessment, different norms should be used for boys and girls when used in the clinic. At age 3, girls should be able to show doll as active agent, and Behaviour Role Play spontaneously. At 4, they should be able to portray doll as active agent and Behaviour Role Play spontaneously, as well as a Social Role Segment spontaneously or in direct imitation. At age 4½, the girls are also expected to be able to use 3 actors in the same sequence. Boys aged 3 should be able to portray doll as active agent spontaneously and Behaviour Role Fragment, mostly in direct imitation, while at 4 they are expected to show doll as active agent spontaneously, and Behaviour Role Play as well as a Social Role Segment whether spontaneously or in direct imitation. In addition, Behaviour

Role Play and Social Role Play imitations can be used to establish age equivalences for the boys. The 3-year-olds usually imitate one Behaviour Role Play action with animation, Mother holding Baby, and one Social Role Play action with animation, Child kicking the cup. At age 4, the boys can show two consecutive elements of the Social Role Play, usually Mother pours tea followed by Child Kicks the cup. The simplest way to assign an age equivalence to 3- and 4-year-old girls who show Behaviour Role Play is to see whether they reproduce with animation one or two consecutive elements in Social Role Play.

The use of modelling has proven to be effective in eliciting higher level play in normal children. The use of demonstrations is therefore very important when using the play assessment with developmentally delayed preschoolers. Since the results for this sample did not show many differences between the play abilities of girls at age 3 and 4, it would be especially important to find symbolic play abilities which differentiate these two groups. The data obtained in this study point in the direction of the number of dolls animated in the same play sequence as a possible variable that could discriminate girls between the ages of 3 and 4. This finding should be further investigated. In addition, one trial could be added to the assessment that would portray Social Role Play with 3 active agents in order to elicit the use of 3 actors in

the same sequence in 4-year-old boys. These changes would be useful if the test is to be extended to 5- to 6-year-olds.

The Behaviour Role Fragment and Social Role Segment levels which were added as transitional steps to the corresponding play levels from Watson and Fischer (1980) seemed to be useful in detecting the emerging abilities of Behaviour Role Play and Social Role Play. Many children performed at these transitional levels. From our observations, boys aged 3 appear to be in the transitional phase of acquiring the ability to portray Behaviour Role Play, while girls aged 3 are already beyond the transitional phase and have fully developed the ability to portray Behaviour Role Play. The ability to show a Complex Social Role Sequence does not appear to be present at age 4 in this sample; however, the transitional form of this ability (Social Role Segment) emerges at age 4 in both sexes.

In conclusion, the present study obtained observations of normal 3- and 4-year-old preschoolers' performance on Form 2 of TAPS, a new symbolic play assessment. Data suggested a lag in the 3-year-old boys' development of Behaviour Role Play. The imitation scores provided the most useful information in terms of age equivalences; the number of consecutive elements imitated for Social Role Play differentiated 3- from 4-year-old boys and girls. Early transitional forms of Behaviour Role Play and Social Role Play were found which will be useful when

evaluating and analysing the performance of developmentally delayed preschoolers.

References

- Anastasi, A. (1968). Psychological Testing. MacMillan Company: London.
- Beeghly, M., & Cicchetti, D. (1987). An organizational approach to symbolic development in children with Down syndrome. In D. Cicchetti & M. Beeghly (Eds.), Symbolic development in atypical children. New Directions for Child Development, no. 36. San Francisco: Jossey-Bass.
- Black, M., Freeman, B.J., & Montgomery, J. (1975). Systematic observation of play behavior in autistic children. Journal of Autism and Childhood Schizophrenia, 5, 363-371.
- Bretherton, I. (1984). Representing the social world in symbolic play: Reality and fantasy. In I. Bretherton (Ed.), Symbolic play: The development of social understanding. Orlando: Academic Press.
- Bretherton, I., O'Connell, B., Shore, C., & Bates, E. (1984). The effect of contextual variation on symbolic play development from 20 to 28 months. In I. Bretherton (Ed.), Symbolic play: The development of social understanding. Orlando: Academic Press.
- Corrigan, R. (1987). A developmental sequence of actor-object pretend play in young children. Merrill-Palmer Quarterly, 33, 87-106.

- Cunningham, C.C., Glenn, S.M., Wilkinson, P., & Sloper, P. (1985). Mental ability, symbolic play and receptive and expressive language of young children with Down's syndrome. Journal of Child Psychology and Psychiatry, 26, 255-265.
- Fenson, L. (1984). Developmental trends for action and speech in pretend play. In I. Bretherton (Ed.), Symbolic play: The development of social understanding. Orlando: Academic Press.
- Fenson, L., & Ramsay, D.S. (1981). Effects of modelling action sequences on the play of twelve-, fifteen-, and nineteen-month-old children. Child Development, 52, 1028-1036.
- Golden, C.J., Sawicki, R.F., & Franzen, M.D. (1984). Test construction. In G. Goldstein & M. Hersen (Eds.), Handbook of psychological assessment. New York: Pergamon Press.
- Hill, P.M., McCune-Nicolich, L. (1981). Pretend play and patterns of cognition in Down's syndrome children. Child Development, 52, 611-617.
- Hutt, C., & Hutt, S.J. (1970). Stereotypies and their relation to arousal. In S.J. Hutt & C. Hutt (Eds.), Behavior studies in psychiatry. Oxford: Pergamon Press.
- Hutt, S.J., & Hutt, C. (1968). Stereotypy, arousal, and autism. Human Development, 11, 277-286.

- Inhelder, B., Lezine, I., Sinclair, H., & Stambak, M. (1972). Les débuts de la fonction symbolique. Archives de Psychologie, 41, 187-243.
- Lowe, M. (1975). Trends in the development of representational play: An observational study. Journal of Child Psychology and Psychiatry, 16, 33-47.
- Motti, F., Cichetti, D., & Sroufe, L.A. (1983). From infant affect expression to symbolic play: The coherence of development in Down syndrome children. Child Development, 54, 1168-1175.
- Nicolich, L.M. (1977). Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. Merrill-Palmer Quarterly, 23, 89-99.
- Piaget, J. (1951). Play, dreams, and imitation in childhood. New York: Norton.
- Piaget, J., & Inhelder, B. (1969). The psychology of the child. New York: Basic Books.
- Power, T.J., & Radcliffe, J. (1989). The relationship of play behavior to cognitive ability in developmentally disabled preschoolers. Journal of Autism and Developmental Disorders, 19, 97-107.
- Roth, F.P., & Clark, D.M. (1987). Symbolic play and social participation abilities of language-impaired and normally developing children. Journal of Speech and Hearing Disorders, 52, 17-29.

- Riguet, C.B., Taylor, N.D., Benaroya, S., & Klein, L.S. (1981). Symbolic play in autistic, Down's, and normal children of equivalent mental age. Journal of Autism and Developmental Disorders, 11, 439-448.
- Sattler, J.M. (1990). Assessment of children (3rd ed.). San Diego: Jerome M. Sattler, Publisher.
- Sigman, M., & Ungerer, J.A. (1984). Cognitive and language skills in autistic, mentally retarded, and normal children. Developmental Psychology, 20, 293-302.
- Tamis-LeMonda, C.S., & Bornstein, M.H. (1990). Language, play, and attention at one year. Infant Behavior and Development, 13, 85-98.
- Taylor, N.D. (1993). Laboratory Manual for the Toddler and Preschooler Symbolic Play Assessment (TAPS). Document with limited circulation.
- Taylor, N., Moxley-Haegert, L., Ladd, H., Andonian, I., & Genin, B. (1993). Validation studies for a preschool play assessment of symbolic capacity. (Abstract). Annual meeting of the Canadian Psychological Association, Montréal, Québec. Canadian Psychology, 34:2a, 284.
- Terrell, B.Y., Schwartz, R.G., Prelock, P.A., & Messick, C.K. (1984). Symbolic play in normal and language-impaired children. Journal of Speech and Hearing Research, 27, 424-429.

- Udwin, O., & Yule, W. (1983). Imaginative play in language disordered children. British Journal of Disorders of Communication, 18, 197-205.
- Watson, M.W., & Fischer, K.W. (1977). A developmental sequence of agent use in late infancy. Child Development, 48, 828-836.
- Watson, M.W., & Fischer, K.W. (1980). Development of social roles in elicited and spontaneous behavior during the preschool years. Developmental Psychology, 16, 483-494.
- Wing, L., Gould, J., Yeates, S.R., & Brierley, L.M. (1977). Symbolic play in severely mentally retarded and in autistic children. Journal of Child Psychology and Psychiatry, 18, 167-178.

APPENDIX A
DOCUMENTS AND CONSENT FORM GIVEN TO THE DAYCARE CENTRES AND TO
THE PARENTS

Date

To the director of the daycare,

I am presently conducting a study for my Master's thesis in the Department of Psychology at Concordia University. I work under the supervision of Dr. Nancy Taylor. The purpose of the study is to observe how normal 3- and 4-year-old children perform on a play assessment that evaluates the quality of solitary pretend play. This play assessment is already in use at the Constance Lethbridge Rehabilitation Centre where it serves to supplement standard tests when evaluating preschool children with developmental delay.

More details about the project are provided in the research proposal joined to this letter. Your participation will only consist in giving the documents we will provide you to the parents. The documents contain the information necessary for them to decide if they want or not their child to participate in the study. A proposed explanatory letter and consent form for them to read and sign is enclosed. We will conduct the research at the daycare itself during regular hours. The play assessment, which will be videotaped, does not require a lot of room space; it can be carried out in some quiet corner of the playroom. We will supply a summary of our findings when we have completed this phase of the project.

If you need further information, please contact myself, Louise Dumas at 848-2222. Your participation will be greatly appreciated.

Louise Dumas
Master's student

Nancy Taylor, Ph.D.
Concordia University

RESEARCH PROPOSAL

The Constance Lethbridge Rehabilitation Centre treats preschool children with a developmental delay; the majority of these children also suffer from a language delay. It is therefore difficult to evaluate their cognitive abilities since the standard tests used to assess these abilities require mostly verbal answers from the child. Thus, language-delayed children often perform in the mentally deficient range of intellectual functioning when evaluated with these tests (e.g. the Stanford-Binet or the Wechsler Intelligence Scale for Children-Revised). It is difficult to know whether these results simply reflect the children's language delay or if they are a reflection of their true cognitive abilities. The assessment of solitary pretend play represents an alternative that is advantageous in that it does not require verbal responses from the children.

At the Lethbridge Centre, we are presently using a play assessment designed to elicit solitary pretend play. It provides us with a language-free measure of the children's capacity for symbolic representation. The purpose of the proposed study is to obtain data on how normal 3- and 4-year-old children perform on the play assessment described above.

From our observations, we obtain two measures: level of spontaneous solitary pretend play and quality of imitation. Level of solitary pretend play is assessed on a play maturity scale which includes 14 steps. The uniqueness of the scale is that it covers the pretend play behaviours from ages 1 through 5. Usually, scales of this kind cover only the younger age range thereby overlooking the pretend play abilities of older preschoolers (3 and 4 years old). A copy of the solitary play scale is appended. A modelling procedure is used to allow the observation of the child's quality of imitation and to elicit higher levels of pretend play. A copy of the imitation scale is appended.

Methods

Subjects

The sample will consist of approximately 32 children. The first group of 16 children will be aged from 3 years-0 months to 3 years-11 months. The second group (16 children) will range from 4-0 to 4-11 months. There will be 8 boys and 8 girls in each group.

Materials

The material used will include toys and accessories such as a small baby doll, two adult dolls (a "father" and a "mother"), a child doll in overalls, a tea pot with two cups, a small plastic jar and lid, a miniature baby bottle, two pieces of printed cotton, and a coffee stirrer. The dolls were chosen to suggest a family with a mother, a father, a little girl, and a baby. They are therefore of the right relative sizes and are also appropriately dressed. We decided to use the context of a family because it was found that preschool children can relate easily to this type of situation.

Procedure

The whole play assessment will be administered by a Master's student in clinical psychology (myself). The procedure will be videotaped. It lasts 15-20 minutes in addition to a warm-up period that will allow the child to get acquainted with the researcher.

I would like to come to the daycare for a few hours on the day prior to the assessments in order to get acquainted with the children. By doing this, the children who will participate in the study will feel more comfortable playing with the researcher on the assessment.

The assessment begins with a period of free play with all the toys and accessories that will be used in the structured procedure. The child is simply requested to play with the toys. This period lasts 4 minutes. Then, the structured procedure begins. It consists of three trials in which the child is presented with specific toys, then the spontaneous response to these toys is observed for one minute. Following this, the tester models specific play behaviours up to three times for the child to observe, then the child's response to this modelling is observed, again for one minute.

Trial 1 (test for play level 11 - symbolic play with a substitute object) consists of presenting the child doll, a small plastic jar and a coffee stirrer to the child. The tester says: "Can you play with the toys, (child's name)?". The child's spontaneous response to the toys is observed for one minute. Then, the tester models up to three times the child doll pretending to feed itself using the coffee stirrer as a spoon and the plastic container as a dish (this is a high level of symbolic play in which the toy is an active agent). While modelling, the tester says: "Look (child's name), look what the toy is doing!" The toys are then handed back to the child with a smile. The child's response is again observed one minute. Then, the adult female doll is added along with the lid of the jar. They are introduced to allow the child to

extend the sequence that was modelled. The response is observed one minute.

The same general procedure is repeated for the two other trials; only the toys and modelled play behaviours will change. In trial 2 (test for play level 12 - Behaviour Role Play), the child is presented with the adult female doll, the baby doll, two pieces of printed cotton and the miniature baby bottle. The tester models (modelling of Behaviour Role) the mother rocking the baby doll in her arms, feeding it, and washing it using one piece of cotton as if it was a facecloth. The second piece of cotton is provided for the child to use as another substitute object, a blanket for example.

With trial 3 (test for play levels 13 & 14 - social role play with two and three active agents), the child is asked to play with the mother doll, the child doll, the tea pot and two cups. The modelling consists in having the mother doll fill her own tea cup and then the child doll's tea cup from the tea pot; the child doll then kicks her cup away saying "No!". Then, the mother doll spreads her arms and says "Why?". After one minute of observation, the father doll is added; the child is observed for one more minute. The father doll is introduced to allow the child to show the highest level of symbolic play which is the interaction of three active agents. Finally, the tester asks the child to "show me the best story you can, using all the toys." The purpose of this last part is to make sure that the child has had every opportunity to show his/her higher level of play. Then, the child is thanked for his/her good play.

Because the children's play may be very rapid and complex, we are recording their responses on videotape. This will permit us to study their spontaneous and imitative responses closely and to determine what actually happened with the greatest accuracy. We proceed to analyze the tapes by first systematically recording every response to the toys seen on the tape and then afterwards score the play from these transcripts.

The videotapes will only be viewed for scoring purposes in the psychology department by the researchers and their assistants; they will be kept in a locked file cabinet at all other times. The results of the play assessment and videotapes will identify children by code numbers. All publications arising from this research will not present individual results, but will only report general findings applying to different age groups.

Department of Psychology
Concordia University
1455, de Maisonneuve Blvd.

Montréal, Québec H3G 1M8

Date

Dear parents,

I am presently conducting a study for my Master's thesis in the Department of Psychology at Concordia University. I work under the supervision of Dr. Nancy Taylor. The purpose of the study is to observe how normal 3- and 4-year-old children perform on a play assessment that evaluates the quality of solitary pretend play. This play assessment is already in use at the Constance Lethbridge Rehabilitation Centre where it serves to supplement standard tests when evaluating preschool children with developmental delay.

The Constance Lethbridge Rehabilitation Centre treats preschool children with a developmental delay; the majority of these children also suffer from a language delay. It is therefore difficult to evaluate their cognitive abilities since the standard tests used to assess these abilities require mostly verbal answers from the child. The assessment of solitary pretend play represents an alternative that is advantageous in that it does not require verbal responses from the children.

The toys used for the assessment will consist of four dolls (father, mother, child, and baby doll), a tea pot with two cups, a small plastic jar and lid, a miniature baby bottle, two pieces of printed cotton, and a coffee stirrer. The structured procedure was designed to elicit pretend play following a 4-minute free play period with all the toys and accessories that will be used during the structured procedure. The procedure will last approximately 15 to 20 minutes. The structured trials will involve presenting toys in specific combinations to the child, observing the spontaneous response first, and then observing the response to specific play behaviours modelled by the tester.

The play assessment will be administered by a Master's student in clinical psychology (myself) while a research assistant will videotape it. The videotapes will only be

viewed for scoring purposes at the Department of Psychology by the researchers and their assistants; they will be kept in a locked file cabinet at all other times. The results of the play assessment and the videotapes will identify children only by code numbers. All publications arising from this research will not present individual results but will only report general findings applying to different age groups. After this phase of the project, a summary of my findings will be sent to you.

I would like to come to the daycare for a few hours on the day prior to the assessments in order to get acquainted with the children. By doing this, the children who will participate in the study will feel more comfortable playing with me on the assessment.

If you are interested in our project, please read and sign the attached consent form and hand it back to the responsible person at the daycare.

If you need further information, please contact my supervisor, Dr. Nancy Taylor, or myself, Louise Dumas at 848-2222. Your participation will be greatly appreciated.

Louise Dumas
Master's student

Nancy Taylor, Ph.D.
Concordia University

Parent Consent Form

I agree that my child _____, born on the
(please write the month in letters and not numbers) _____
_____ participates in the study described in the letter.
The purpose of the research is to observe how normal 3- and
4-year-old children perform on a play assessment presently
used at the Constance Lethbridge Rehabilitation Centre as an
initial assessment tool with children with developmental
delay. The assessment of my child will be conducted by a
Master's student in clinical psychology.

I understand that the videotapes of my child will be only
identified by a code number and not by my child's name. The
results of the play assessment will be kept confidential. I
also understand that the videotapes will be viewed only for
scoring purposes by the researchers and their assistants at
the Department of Psychology at Concordia University. At all
other times, the videotapes will kept in a locked file
cabinet. Publications arising from this research will not
present individual data but only general findings applying to
groups of children.

I am aware that the procedure will be carried out at my
child's daycare (please write the name of the daycare),
_____. The assessment will last
15-20 minutes in addition to a warm-up period that will allow
my child to get acquainted with the researcher.

I know that I can withdraw my child from the study at any
time without prejudice. I also know that if my child does not
want to participate, he/she will not be pressured to.

I have read the description of the research and have had
all my questions answered. To discuss further questions that I
have, I know that I can contact Louise Dumas at 848-2222.

I give permission for my child _____ to
participate in this study.

Print your name

Signature of the parent

Date

Signature of a witness

APPENDIX B
SYMBOLIC PLAY, ANIMATION, AND IMITATION SCALES

Solitary Symbolic Play Scale

1. **Mouthing**
2. **Repetitive Motor Play**
3. **Simple Manipulation** (visually directed exploration of an object)
4. **Functional Activity** (appropriate use of toy, e.g. turning a telephone dial)
5. **Juxtaposition** (putting together two unrelated objects, e.g. cube on dish)
6. **Functional Relational Activity** (e.g. stacking blocks, covering a container, putting pegs in holes)
7. **Presymbolic Schemes** (demonstration of conventional use of object, e.g. drinking from an empty cup, brushing hair with toy brush)
8. **Autosymbolic Schemes** (self-directed demonstrations of the conventional use of an object, but with a playful quality - confined to drinking, eating, grooming)
9. **Decentered Symbolic Games** (pretense directed at a toy, e.g. eating, drinking, grooming, telephoning, cleaning, reading, etc.)
10. **Combinatorial Symbolic Games** (sequences of pretend acts)
 - 10.1 either the same act applied to different participants or,
 - 10.2 different acts applied to the same participant
11. **Internally Directed Symbolic Games** (games having a hierarchical structure involving at least two representational structures - a transformation or an intention and a separate but related pretend behavior, e.g. use of substitute objects, OR evidence of planning through search or verbalization, OR doll or object treated as capable of agency)
 - 11.0 pretend on the phone but no substitute object use
 - 11.1 use of substitute objects

11.2 simple animation (stepping)

11.3 sequence in which child alternates use of substitute objects and animation

11.4 toy uses a substitute object, speaks, performs two or more actions in sequence, or acts on another toy in a manner that does not meet the criteria for Behaviour Role. (e.g. Father doll rides on mother's shoulders)

12. Behaviour Role

12.0 **Behavior Role Fragment.** One component of the typical actions commonly seen in Behaviour Role sequences of 4-year-olds: e.g. mother or father doll kisses, holds, carries, feeds, or rocks child or baby doll; child doll or baby kisses mother or father doll; mother does exercises; father shaves himself; baby holds and drinks from its bottle; mother or father doll stands leaning over sleeping child or baby doll.

12.5 **Behavior Role Play.** A toy is made to perform 2 or more behaviours fitting one social role (or social role stereotype) such as mother, father, child, baby: e.g. mother washes dishes, feeds baby, and puts it to bed. Also a family stereotype in which 3 actors perform 1 unique action each.

13. Social Role Play

13.0 **Social Role Segment:** one toy is made to behave according to one social role such as mother and another is made to play a complementary role such as child or baby. Two actors interact in a stereotyped way with only one interaction or a single action for each actor being represented.

13.5 **Complex Social Role Sequence with two active agents:** two actors maintain complementary roles such as mother and child for a prolonged chain of interactions. A theme may be repeated with variations.

14. **Social Role Play with three active agents:** two complementary roles such as patient and nurse are simultaneously related to a social role such as doctor.

Level of Animation Scale

1. **Feature recognition.** Child raises doll or stuffed animal to eye level and looks into its eyes or fingers doll's hands or feet while inspecting them. Stares intently into doll's face.
2. **Appropriate posture.** Child stands a doll on its feet or deliberately places it in a sitting position.
3. **Represents "life" in the doll.** Child holds doll vertically with its feet above the floor and jiggles it up and down or holds laterally and wiggles it up and down.
4. **Treats doll as if it has human characteristics.** Child feeds doll, combs its hair, or puts it to bed, etc.
 - 4.5 **Implied animation.** Lays, places or sits child or baby doll on mother's legs.
5. **Simple animation with one doll as active agent.** Child makes doll walk, dance, cry, feed itself, comb its own hair, etc. Give appropriate credit if child uses symbol for "the doll does it" for Levels 5 and upward.
6. **Animation sequence involving only one doll,** which the child represents performing 2 or more different actions as an active agent.
7. **Animation with 1 active agent and 1 passive agent.** Child makes one doll act on another, e.g. mother kisses child doll or father kisses mother doll. Mother doll is made to hold baby doll. Only 1 doll is clearly animated. Doll's speech directed to another doll which is not animated.
8. **Animation with two active agents.** Child activates 2 dolls in the same play sequence. (Animation may be indicated by standing doll and making it sway.)
 - 8.0 **Dolls are animated or act in succession,** either both do the same thing or the second action is unrelated to the first, or there is an association of ideas with 1 doll animated at the beginning and the other at the end.
 - 8.1 **Joint or related activity of 2 actors,** e.g. mother and father doll hold hands and walk together. Baby and child doll walk together. Kissing in which both dolls are animated. One doll rides on the other's shoulders. Mother pours tea, Child drinks tea.

Animated dolls appear to converse without reciprocal roles.

- 8.2 True interaction/reciprocal roles, e.g. mother and child doll are made to stand facing each other and made to talk with different sounds being used for each. Talking or scolding may be represented by doll's head or body movements, not necessarily by sounds.
9. Animation with 3 active agents. Child activates 3 dolls in the same play sequence.
- 9.0 Joint activity of 3 actors, e.g. walking together and holding hands; child sits on father doll's lap and holds baby doll.
 - 9.1 Serial activity of 3 actors, e.g. tea party with 3 actors and 1 unique action each.
 - 9.2 Reciprocal roles, 3 actors in social interaction in which each playing a distinct role (very little speech may be used).

Imitation Scale

0. No imitation or no play behavior.
1. **Aborted imitation.** The child appears to start to imitate and then abruptly breaks off the action and does something else.
2. **Possible imitation of modelled action.** Response is ambiguous because of some combination of vagueness in the actions performed, lack of integration, and timing of the response.
3. **Misdirected imitation of action (no animation).** Imitation of actions directed to the wrong participant, e.g. child feeds mother doll with bottle, then washes its face, rather than feeding, washing baby doll, or feeding action is directed to the top of the doll's head.
4. **Imitation of action without animation.** Imitation of one modelled action, but the toy is passive and not an active agent as modelled (e.g. the subject feeds the toy rather than making the toy feed itself); or in Trial 3, the subject moves the cup with own hand or pours tea directly.
5. **Imitation of animation.** Literal imitation of 1 modelled action with toy as active agent, but no extension or variation to create an action sequence.
6. **Elicitation of animation sequence.** Imitation of 1 modelled action with the toy as an active agent with extension or variation of the actions to depict an animated sequence. Alternative animation sequence that is not a Behaviour Role or Reciprocal Social Roles sequence, e.g. mother doll walks and turns a somersault.
7. **Behavior Role imitation.** Imitation of at least 2 of 4 modelled actions with one toy portrayed as an active agent in a behaviour role with another toy as passive agent. (If only holding is imitated, credit is 5). (Note that credit for placing the baby on the mother's body and feeding and washing the baby directly is 4.5.) Credit 7.5 if child imitates 3-4 components: holding, rocking,

feeding, washing and maintains animation throughout. Credit can be given for level 8 if child within the context of imitation shows reciprocal social roles. Credit alternative behaviour role as 7.5, and alternative doll-directed response without animation, e.g. putting to sleep as 4.

8. **Social Role imitation.** Demonstration of 2 toys in social interaction with animation of each doll and imitation of at least 1 action each. If 4-5 actions are imitated animation is maintained, the credit given is 8.5. Credit imitation of one segment with animation (e.g. child doll kicks cup, with or without saying "No" as 5). Credit alternative Reciprocal Social Role play as 8.5 and alternative Social Role Segment as 8.0. Credit alternative Behavior Role play as 7.5 and alternative Behaviour Role Fragment as 7.0.

APPENDIX C
SPONTANEOUS BEHAVIOUR ROLE PLAY AND SOCIAL ROLE PLAY SEQUENCES

This is a list of the play sequences portrayed spontaneously that were different from those modelled by the examiner. This includes play actions performed spontaneously and also those portrayed in direct imitation but which were different from the play sequences that were modelled. It is clinically useful to know what children aged 3 and 4 typically show as alternatives to the play demonstrated in the assessment. The different play behaviours are presented for Behaviour Role Play, Social Role Play and their respective transitional levels as well as Social Role Play with three active agents. For the Behaviour Role Play levels, the play sequences are listed by main actor. For Social Role Segment and the higher levels, the whole play sequence is reported. The number of children showing these alternative play behaviours are shown in parenthesis.

Behaviour Role Fragment:

- BABY:
- kisses Mother or Father (1 boy, 2 girls)
 - holds its bottle (1 boy, 2 girls)
 - cries (1 boy, 1 girl)
 - crawls (1 boy)
- CHILD:
- kisses Mother (3 girls)
 - holds Baby gently (1 girl)
 - cries (1 girl)
- FATHER:
- holds either Baby or Child (2 boys)
 - checks on Child (leans over Child) (2 girls)
 - kisses Child or Baby (1 boy, 1 girl)
 - tells Child to be quiet (1 girl)
 - watches a movie (1 girl)
 - goes to work (1 girl)
- MOTHER:
- kisses Father (3 boys)
 - gives a drink to or feeds Child (1 boy, 1 girl)
 - holds Child on her lap (2 girls)
 - walks upstairs and checks on Baby (1 girl)
 - kisses Child (1 girl)
 - tells Baby to go to bed (1 girl)
 - covers Baby with a blanket (1 girl)
 - walks with Child on her shoulders (1 girl)
 - washes Child (1 girl)
 - strokes Child's hair (1 girl)
 - makes dinner (1 girl)
 - holds Baby while standing (1 girl)

Behaviour Role Play:

- BABY:
- steps to, lies on and kisses Mother. (1 boy)
 - steps to Mother and sits on her lap. (1 girl)
- CHILD:
- kisses Father and the two hold hands, then Child kisses Father again and wraps her arms around his neck. (1 girl)
 - hugs Mother and the two hold hands. (1 girl)
- FATHER:
- kisses Child or Baby and hugs or holds (2 girls)
 - steps to and leans over Child. (1 boy)
 - scolds Child then sits and watches television. (1 girl)
 - leans toward Baby and touches it with his hand and holds it. (1 girl)
 - rubs Child's hair and scratches her back. (1 girl)

- MOTHER:
- walks while holding Baby then feeds Baby. (2 boys)
 - stands and leans or looks in direction of Child. (1 boy, 1 girl)
 - holds Baby, walks holding it, looks down at Baby and puts it down on the blanket. (1 girl)
 - cradles Baby in her arms, places it on one cloth then carries the bottle to Baby, feeds it and covers it with the other cloth. (1 girl)
 - holds, rocks, feeds Baby then puts it on the cloth and covers Baby with the other cloth. (1 girl)
 - leans over and kisses Baby then sits and holds the bottle and feeds Baby. (1 G)
 - stands and leans over Childs, kisses her and walks away. (1 girl)
 - talks to Child and takes the cups and puts them in the dishwasher. (1 girl)
 - puts her arm around Child, rocks her and kisses her. (1 girl)
 - hugs Child then sits and holds Child. (1 girl)
 - hugs Child and strokes her hair. (1 girl)
 - cooks and does her exercices. (1 girl)
 - gives Baby a bath and dries it. (1 girl)
 - sits with her legs crossed then washes the dishes and dries it. (1 girl)
 - stands and checks on Child, holds her, rocks her and puts her to bed then sits and watches TV. (1 girl)
 - wakes Child up by touching her twice on the chest and Child sits on Mother's lap and she rocks her. (1 girl)

FAMILY SCENE: These are play sequences in which many actors are involved; each doll, in turn, is made to perform one action. There is no clear interaction between the dolls.

1. Mother is sitting, Baby is placed on her lap, Child is placed next to Mother, and Father is placed sitting on Child's left (static family scene). (1 girl)
2. Father walks to Mother, puts his arm on her shoulder then Mother kisses him, then Father sits, Mother sits then Mother holds Child, Child's arm goes around Father then Mother kisses Child and Father kisses Child then stands. (1 girl)
3. Father kisses Baby and Mother kisses Child (1 boy)
4. Mother and Father stand looking at the children then Father kisses Baby and walks away and Mother kisses Child

then Baby and goes to Father then he picks up the teapot and pour into both cups and he picks up the cup. (1 girl)

5. Father takes 2 steps and holds Mother's hand and Child's hand and the three take 3 steps together. (1 girl)

Social Role Segment:

1. Mother walks to Child and says "Don't forget to wash your hair" and Child answers "Okay, goodbye." (1 girl)
2. Mother tells Baby to go to bed and Baby takes little steps in the direction of the blue cloth (bed). (1 girl)
3. Mother is brought over and stands facing Child then Child kisses Mother and Mother holds Child. (1 girl)
4. Child knocks on Mother's bedroom and Mother says "Come in." and holds Child and puts her on a sofa. (1 girl)

Social Role Play:

1. Mother speaks then Child speaks, the subject (S.) touches Mother's hand before saying "I get the water." then Child says "Gimme water." The S. then pours directly and Child kicks the cup and says "Don't gimme nothing." then S. holds Child's arm while drinking himself (symbol for Child is drinking). (1 boy)
2. Mother walks, holds the teapot and pours into the cups then she drinks from her cup and Child kicks her cup and says "No." then Mother stands to face Child and says "Why?." (1 boy)
3. The subject (S.) brings Mother and the teapot to Child and pours tea in both cups; Mother says "She has to drink her tea" and S. gives Mother a drink. Then S. pours tea into Child's cup as she tips Child forward and says in a little voice "No, I don't want any. No, no, no." Mother stands and says "I'm going to send you to bed" and taps Child on the head, then S. gives Child a drink from the cup making her mouth move as if she were drinking. (1 girl)
4. Conversation between Child and Mother with different voices. Mother: "You want to come to the store.", Child answers: "Yes."; then Mother says: "OK, be quiet." (1 girl)

5. Mother walks and gives Child a drink and says "If you don't drink your milk, you're not coming with me to the store. Now drink your milk." Child answers "No, I don't want it" , then Child kicks the cup and Mother says "If you don't stop, I am not taking you to my shop. Goodbye." and Child says in a little voice "I don't want to go with you." Mother doll comes back and says "If you don't stop I'm not taking you to the market. Now, Goodbye." and kisses Child on head. (1 girl)
6. Child comes to Father and says "What should I wear today?" Father is stood up and says "You can wear anything you want." Child answers "OK." and the subject says "and the Father goes to his work" as she walks him a few steps. (1 girl)
7. Mother pours tea from the teapot into both cups, Child kicks the cup, Mother picks up the cup and puts it down and says "Later when you want it you can have it." (1 girl)
8. Mother pours into both cups from the teapot, Child drinks from the cup, The subject says "She said yes", then Mother speaks to Child and hugs Child and says "You drink, that's good." (1 girl)
9. Child goes to Mother and says something, they kiss, Mother says "What do you want to drink?", Child answers "I don't know." (different voices are used for Mother and Child). Then Mother picks up the cup and teapot and pours from teapot to cups. (1 girl)
10. Mother goes to bed and Child calls "Mommy", Mother walks to her and says "What's happening?" and Child kisses Mother and Mother holds Child. (1 girl)
11. Mother pours into each cup, Child drinks and Mother drinks then Child is on Mother's lap then Mother and Child stand and Mother holds Child and Child kisses Mother. (1 girl)

SOCIAL ROLE PLAY WITH THREE ACTIVE AGENTS:

1. Mother and Father hug and kiss and Mother talks and Father says "Baby." to Mother. Then Mother tells Father that Child did not behave and Father repeats in a loud voice then Child begins to cry and Father gets angry, Child cries then Father says "You see." to the Mother and Mother says "You're not my friend anymore." and Father goes. Mother goes to Child and speaks to her and Child says "I want Daddy." and Father comes back and Child says

"No, I want Mommy." Mother comes back, speaks to Child and Child speaks and Mother moves back and forth.

2. Father holds a cup and stands, he is animated and speaks to Mother in a loud voice and Mother speaks to Child who says "Maman, I want to go to sleep, it's dark out." and Mother says "Go to bed." then Mother holds Baby who cries and Mother takes Baby to bed.

APPENDIX D
SYMBOLS USED BY CHILDREN FOR REPRESENTING DOLL AS ACTIVE
AGENT

This is a description of the strategies used by some children in this sample (17) to represent that a doll is performing an action. Those strategies have been used by children of both sexes and ages.

Strategy 1:

The subject takes a toy or substitute object and touches the doll's body part that is supposed to do the action and then performs an action directly (observed in 6 children).

Examples:

- 1- Symbol for Mother pouring the tea. The subject touches Mother's hand with the teapot and then pours into both cups.
- 2- Symbol for Child feeding herself. The subject puts the stick in Child's hand and then applies the stick to Child's mouth directly.
- 3- Symbol for Mother feeding Baby. The subject feeds Baby directly and then applies the bottle to Mother's hand.

Strategy 2:

The subject touches the doll, usually its hand or arm, while or before performing an action directly (observed in 4 children).

Examples:

- 1- Symbol for Child feeding herself. The subject feeds the Child directly with one hand while holding Child's hand with his other hand.
- 2- Symbol for Child feeding herself. The subject holds the Child's left hand and releases it and then feeds the Child directly, making chewing motions.
- 3- Symbol for Child is drinking. The subject holds the Child's arm while pretending to drink himself.

Strategy 3:

The subject carries a doll under one arm and performs the actions with the other (observed in 3 children).

Examples:

- 1- Symbol for Mother pouring tea. The subject holds the Mother with his left arm and pours directly into each cup.
- 2- To represent Mother doing the actions in a long sequence, the subject carries the Mother under one arm and performs the action sequence with the other.

Strategy 4:

The subject designates the doll performing an action by first touching it briefly, usually on the head (observed in 3 children).

Examples:

- 1- Symbol for Mother pouring tea. The subject touches the Mother's hair and then pours directly into each cup.
- 2- Symbol for Mother speaking. The subject touches the Mother on the head and says "Why?".

Strategy 5:

The subject puts the Baby by the Mother's hand while feeding the Baby directly from the bottle (observed in 2 children).

APPENDIX E
SUBSTITUTE OBJECT USES FOR THE DIFFERENT TOYS AND ACCESSORIES

This a list of the different substitute object uses for the toys and accessories provided in the play assessment. The numbers in parenthesis indicate the number of children who used the objects in a specific way; the numbers in quotes represent the number of children whose use of a substitute object was accompanied by a verbal label.

- Wooden stick:
- spoon (26)
 - applicator (for makeup or nail polish) (8)
 - hairbrush or comb (5)
 - drumstick (2)
 - popsicle stick ("2")
 - nail file
 - hair roller
 - razor
 - "straw"
 - saw
 - rolling pin
 - magic wand

- Plastic container:
- dish, pot, or bowl (18)
 - cup or glass (8)
 - hat (6)
 - toilet (3 + "1")
 - seat (3)
 - nail polish or makeup container (2)
 - drum (2)
 - shaker (2)
 - lid for teapot (2)
 - filter coffee pot or teapot part (2)
 - milk bottle
 - coffee can
 - "table"
 - paintpot

- Container lid:
- teapot lid (4)
 - dish or plate (1 + "1")
 - pie crust
 - part of a filter coffee pot

- Green cloth:
- blanket (29)
 - towel (4)
 - mat (3)
 - kerchief or scarf (2)
 - cowboy neckerchief
 - tea towel
 - veil
 - "baby pad"
 - diaper
 - placemat
 - wrapping paper
 - mask
- Blue cloth:
- blanket (32)
 - washcloth or facecloth (5)
 - jacket, cape or veil (2 + "1")
 - headscarf (2)
 - tea towel (2)
 - bed ("2")
 - "bedroom"
 - wrapping paper
 - table
 - table cloth
 - towel
 - "hat"
 - pillow
 - serape
 - cowboy neckerchief
 - ghost
- Baby bottle:
- squeeze bottle (e.g. shampoo or gel) (9)
 - spoon
 - wiping rag
 - ketchup bottle
 - shoe polish applicator
 - "gift"
- Teapot:
- hat (3)
 - dish or cooking pot (3)
 - chair (2)
 - milk pitcher (1 + "1")
 - kettle
 - glass
 - "watering can"
 - "toilet"

- Cup:
- hat (6)
 - lid for other toys (e.g. teapot or cup) (3)
 - toilet (2)
 - dish or bowl (2)
 - scoop
 - shoe
 - footbath

Imaginary objects
and substances:

- tea (8 + "5")
- unspecified liquid (7 + "1")
- coffee (1 + "6")
- tea + smacking or pouring noise (3 + "2")
- unspecified substance (4)
- milk (2 + "3")
- unspecified food (1 + "2")
- sugar (2)
- hair dye ("2")
- rag (2)
- water ("2")
- glue (1 + "1")
- gel or shampoo + noise
- lipstick
- makeup
- powder
- rocking chair
- sand
- "apple juice"
- "applesauce"
- "soda"
- "chocolate"
- "caramel pudding"
- "dishwasher"
- "kite"

Father doll: - baby

Tester: - kneec as "bed"

Other:

- container with lid on as "pie"
- container and lid as "lunchbox"
- subject's lap as "chair"
- locker shelf as table
- locker shelf as chair
- wall outlet as tap for water
- equipment on wall as source of milk

APPENDIX F
INTERCORRELATIONS OF THE DIFFERENT PLAY MEASURES

Table A

Intercorrelations for different play measures over the whole sessionBOYS

	Substitute Objects	Highest level of play	Highest level of animation
Number of different substitute object uses			
Highest level of play	.218		
Highest level of animation	.086	.656**	
Highest level of imitation	-.127	.027	-.059

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	Substitute Objects	Highest level of play	Highest level of animation
Number of different substitute object uses			
Highest level of play	-.244		
Highest level of animation	.019	.780**	
Highest level of imitation	-.402*	.653**	.524*

* p < .05.

** p < .01.

Table B

Intercorrelations for different play measures during the Free Play periodBOYS

	Substitute Objects	Highest level of play	Highest level of animation
Highest level of play - Free Play	.398*		
Highest level of animation - Free Play	.284	.914**	

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	Substitute Objects	Highest level of play	Highest level of animation
Highest level of play - Free Play	-.070		
Highest level of animation - Free Play	-.226	.861**	

* p < .05.

** p < .01.

Table C

Intercorrelations for different play measures during Trial 1BOYS

	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 1	-.010		
Highest level of imitation - Trial 1	.663**	-.012	

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	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 1	.430*		
Highest level of imitation - Trial 1	.805**	.245	

* p < .05.

** p < .01.

Table D

Intercorrelations for different play measures during Trial 2BOYS

	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 2	-.044		
Highest level of imitation - Trial 2	.855**	-.138	

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	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 2	.282		
Highest level of imitation - Trial 2	.785**	.277	

* p < .05.

** p < .01.

Table E

Intercorrelations for different play measures during Trial 3BOYS

	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 3	.320		
Highest level of imitation - Trial 3	.977**	.338	

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	Best play elicited	Highest level of animation	Highest level of imitation
Highest level of animation - Trial 3	.480*		
Highest level of imitation - Trial 3	.890**	.392	

* p < .05.

** p < .01.