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ABSTRACT

This longitudinal study of changes in play behavior in preschool children reports decreases in less mature forms of play and increases in more mature forms of play over time. The study was designed to test the assumption that the play of young children develops in a progressive manner. Ten 3-year-olds and ten 4-year-olds were observed during free play each day for four 3-week periods over 3 months. The coding of behavior was based on Parten's categories of social play (unoccupied, solitary, onlooker, parallel, group) and Smilanksy's categories of cognitive play (functional, constructive, dramatic, games with rules). Two additional categories included reading (or being read to) and active conversation. Children showed a decrease in the amount of time spent in unoccupied, onlooker, solitary-functional, and all functional play, and an increase in the amounts of time spent in reading, games, parallel-dramatic, all group, and all dramatic play. Only the games with rules category showed a differential age-by-time interaction. Alternative explanations of the data are discussed. Data on age and sex differences are also reported. Two tables summarizing results are included. (BH)

Changes in the Play Behaviors of Preschoolers: A Short-Term Longitudinal Investigation

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Changes in the Play Behaviors of Preschoolers: A Short-Term Longitudinal Investigation

In a series of earlier studies, Rubin and his colleagues (e.g.s., Rubin, 1977; Rubin, Watson, & Jambor, 1978) have reported age differences in the quality of social and cognitive play behaviors of young children. For example, concerning the Parten (1932) categories of social play, it has been reported that preschoolers engage in significantly more unoccupied, onlooker, and solitary play and in less group (i.e., associative + cooperative) play than kindergarten children. Concerning the Smilansky (1968) categories, kindergarten children have been found to display significantly more dramatic and less functional play than preschoolers. Finally, using Rubin's (1977) play scale in which the cognitive play categories of Smilansky are nested within the social play categories of Parten, preschoolers have been found to engage in significantly more solitary-functional and parallel-functional and in less parallel-constructive, parallel-dramatic, and group-dramatic activity than kindergarten children.

Both Parten (1932) and Smilansky (1968) believed that their respective conceptions of play represented sequential, developmental hierarchies. The inference drawn from such speculation is that children of a given age or stage play socially or cognitively in some modal fashion. Over the course of time children are, thus, expected to exhibit more mature modes of play. For example, at one time period a child might be involved in a large amount of parallel play which, with experience, and as a result of social-cognitive growth, might diminish only to be replaced by group activities. The earlier Rubin reports using the nested play scale were based on cross-sectional data thereby negating the possibility of examining developmental changes in play behaviors over time. Moreover, there have been few studies which have employed either the Parten or

the Smilansky categories in a longitudinal fashion. Recently Smith (1978), in a study of 2-, 3-, and 4-year-olds found an increase in group play and a decrease in solitary play over a 9-month period, thereby providing some support for the sequential development of social play. Unfortunately, longitudinal data concerning the Smilansky categories are non-existent.

The purpose of the present study was to examine changes in children's observed play behaviors over four time periods within a given school year. The observational method employed was borrowed from Rubin (1977). This author has suggested that the simplistic use of the Parten scale does not allow the examination of the cognitive complexity of children's activities. For example, Rubin et al. (1978) discovered that age differences in the degree to which parallel play was exhibited were not apparent at first glance. However, when the complexity of this activity was analysed it was found that preschoolers engaged in more functional and less constructive and dramatic parallel activity than kindergarteners. Taken together with the Smith (1978) report that the incidence of parallel play did not change over time, these latter, Rubin et al. (1978) data suggest the use of the more detailed nested play scale in longitudinal observations of young children.

Method

Subjects

Ten 3-year-olds (6 females, 4 males) and 10 4-year-olds (6 females, 4 males) who attended a half-day university laboratory preschool program participated in the study. The M age of the younger group at the start of the study, was 41.4 mos., while that for the older group was 50.1 mos. The children were from predominantly middle-class homes and lived in a moderately large city in Southwestern Ontario.

Procedure

The procedure was essentially identical with that followed by Rubin et al. (1978). Each child was observed during free play each day for four 3-week periods. Each 3-week period consisted of 15 one-minute time samples. The order of observation was randomized daily. During each minute, the observer recorded the number of seconds (to the nearest 5 sec.) in which the child engaged in particular play forms. The duration of each child's cognitive play within each social play category (e.g., solitary-constructive) was noted. All play definitions were taken directly from Parten (1932 -- i.e., unoccupied, solitary, onlooker, parallel, group); and Smilansky (1968 -- i.e., functional, constructive, dramatic, games with rules). Two additional categories included "reading" -- child looking at a book or being read to by a teacher, and "active conversation" -- verbal exchange, communication between two or more children or child and teacher. The latter category was drawn from Parten's original definition of "onlooker" behavior to more closely distinguish between social and non-social behaviors.

Following each time sample, the observer recorded exactly what it was the child was doing and with whom (e.g., subject at art table cutting out circles; sitting beside Teacher Cheryl and Adam). The first observational time period (late September-early/mid October) was followed immediately by the second period (late October). The third period started two weeks later (mid/late November) while the fourth period took place two weeks following Time 3 (i.e., mid/late December).

Interjudge reliability was calculated as in Rubin et al. (1978). Prior to formal data collection (mid-September) and during the staggered entry of the children into the school, two observers simultaneously gathered 40 one-minute time samples of play. The percentage of agreement (where an agreement was defined as identical behavior codings with durations not exceeding a 5-sec. difference between observers) was 82.5%.

Results

The mean numbers of seconds children engaged in all play forms are presented in table 1. An age (2) x sex (2) x social play (3 = solitary, parallel, group) x cognitive play (3 = functional, constructive, dramatic) x time (4) repeated measures ANOVA was computed. Onlooker, unoccupied, reading, active conversation, and games behaviors were not included in this analysis. These categories either occurred alone (onlooker, unoccupied, reading, active conversation) or across a limited range of social-cognitive play combinations (games). As a result, a series of separate age (2) x sex (2) x time (4) ANOVAs was calculated for these latter five behavioral categories.

Insert Table 1 Here

The ANOVA revealed a significant age x social play x cognitive play interaction, F (6,64) = 4.22, $p < .01$. Two of the relevant comparisons concerned the Parten categories of parallel and solitary play. With regard to the former, post-hoc LSD comparisons ($p < .05$) indicated that 3-year-olds engaged in significantly more parallel-functional play than did 4-year-olds. With regard to the latter, it is noteworthy that the amount of 3-year-old solitary-functional play equalled the amount of solitary-constructive play. Both of these behaviors significantly exceeded the amount of solitary-dramatic play. However, for 4-year-olds, the incidence of solitary-constructive play exceeded both solitary-functional and dramatic play. For this age group, the amount of solitary-functional behavior was greater than solitary-dramatic play. A third age effect (trend) was found for the category of active conversation, F (1,16) = 4.36, $p < .06$. Four-year-olds were more likely to engage in this form of behavior than 3-year-olds.

There was only one significant age x time interaction. A post-hoc LSD

analysis revealed that the amount of time 4-year-olds were observed playing games with rules was significantly greater at Time 4 than at Times 1, 2, and 3. The amount of time that 4-year-olds spent playing games at Time 4 exceeded the incidence of game play for all four 3-year-old time periods. There were no significant sex x time interactions.

A sex x cognitive play trend, F (2,32) = 3.17, $p < .06$ was found. Post-hoc comparisons revealed that for males, the incidence of functional and constructive play was greater than the occurrence of dramatic play. For females, however, the amount of constructive play exceeded the occurrence of both functional and dramatic play. The latter play form occurred significantly less often than functional activity. No other meaningful comparisons were significant.

The ANOVAs also yielded statistically significant effects for the following interactions (all at least $p < .05$): social play x cognitive play x time, F (12,192) = 1.78; cognitive play x time, F (6;32) = 4.11; and social play x time F (6,32) = 3.94. Post-hoc multiple comparisons (LSD tests) were performed on the significant interactions. The results indicated that the amount of parallel-functional play at Time 1 was greater than at Times 2, 3, and 4. The incidence of parallel-dramatic play at Time 4 exceeded the incidence of such activity at Times 1, 2, and 3. No other multiple comparisons of relevance to this study were significant.

With respect to the behavioral categories which had to be considered in and of themselves, time main effects (at least $p < .05$) were found for (a) unoccupied, F (3,48) = 6.71; (b) onlooker behavior, F (3,48) = 4.05; (c) reading, F (3,48) = 3.41; and games with rules, F (3,48) = 12.56. Post-hoc multiple comparisons (all $p < .05$) are summarized in Table 2.

Insert Table 2 Here

The incidence of unoccupied behavior was greater at Time 1 than at Times 3 and 4. Unoccupied behavior at Time 2 exceeded the incidence of this category at Time 4. As for onlooker activity, there was significantly less such behavior at Time 4 than at each of the preceding periods. The amount of time spent reading was significantly greater at Time 4 than at Time 1. Finally, the occurrence of games with rules at Time 4 significantly exceeded such behavior at the remaining three periods. No other multiple comparisons were significant.

The above data derive from group means and variances and, as a result, may mask the direction of change in behavior for individual children. In order to assess individual change the number of seconds each child spent in every behavioral category at Time 1 was subtracted from his/her score at Time 4. This procedure yielded a positive (+) or negative (-) change score. The significance of these positive and negative distributions was assessed through the computation of sign tests (Ferguson 1966). The results are presented in table 2.

Briefly, the sign tests revealed that more children showed a decrease in the amounts of time spent in unoccupied, onlooker, solitary-functional, and all functional play than would be expected by chance (all $p < .05$). On the other hand, more children showed an increase in the amounts of time spent in reading, games, parallel-dramatic, all group, and all dramatic play than would be expected by chance.

Discussion

The present study was designed to test the assumption that the play of young children develops in a progressive manner. Utilizing a scale developed by Rubin (1977) which nests the cognitive play categories of Smilansky (1968) within the social participation categories of Parten (1932), it was discovered that only games with rules showed a differential age x time interaction. Thus, by Time 4, the 4-year-olds were displaying more such behavior than at any of the other times both compared with their own earlier behavior and to the behaviors at all

time periods for the 3-year olds. Perhaps these results reflected the greater capacity of older preschoolers to comprehend both the rules and the necessary preconditions for engaging in nursery games (e.g., reciprocity).

In general, the longitudinal data were assessed in two ways. ANOVAs were computed to measure the amount of group change in children's play behaviors over time. Sign tests, on the other hand, measured individual change in play behavior. The ANOVAs indicated decreases in the less mature forms of play (onlooker, unoccupied, parallel-functional) and increases in the relatively more mature forms of behavior (parallel-dramatic, games, reading). Except for the parallel-functional category these findings were replicated by the individual sign test analyses. It appears that for this one category of play, change in relatively few individuals contributed to the significant group effect.

The sign tests also indicated that more children decreased in solitary-functional and total functional play, and increased in total group and dramatic play than would be expected by chance. Although the intra-individual magnitude of changes was small relative to interindividual variability, the movement of the majority of individual children was toward less functional, but more group and dramatic play.

The decline of onlooker and unoccupied behaviors from the first time period to the last may be partially explained by the preschooler's gradual adaptation to the nursery environment. For most of the children, entry into this particular school in September was a novel experience. Perhaps, then, the decline in the aforementioned behaviors served to mark a parallel decline in anxiety and discomfort in the preschool setting. That unoccupied and onlooker behaviors are markers of anxiety is fairly well documented in the literature (McGrew, 1972).

The significant decline in the amount of time in which individual children engaged in functional activity from the first period to the last may be taken to indicate the phasing out of exploration and the onset of actual play (Hutt 1966).

Much of the functional play could as easily have been coded as exploration (i.e., simple, repeated motor actions on the same object in a novel environment). The present longitudinal data may, thus, be taken as supportive of Hutt's position that over time, exploratory activity decreases giving way to construction and nonliteral behaviors (dramatic play).

The significant individual increases in group and dramatic play may also be signs of the growing familiarity of peers in the preschool over time. Moreover, since such activities have been thought to necessitate at least a lower form of perspective-taking skill (Rubin & Pepler in press), these findings may reflect social-cognitive conceptual growth as well.

As for age differences (as opposed to age changes), the 3-year-olds displayed more parallel-functional play than did the 4-year-olds. Since Rubin et al. (1978) have earlier suggested this category to be the least mature form of play, the finding is not surprising. As in Rubin et al. (1978) the quality of solitary play appeared to become more "educational" with age. Thus, there was less solitary-functional than solitary-constructive play for 4-year-olds, but not for 3-year-olds... perhaps a further sign of movement through the cognitive play hierarchy with age. In addition, 4-year-olds were more likely to engage in active conversations than their younger colleagues. This may indicate growth in person orientation with age. While further significant age differences were not found, thereby somewhat contradicting the earlier Rubin et al. (1978) report, it is important to note that this study compared the play behaviors of 3- and 4-year-olds, while the earlier study observed 4- vs. 5-year-olds.

The major sex difference of note was the finding that females were more likely to display constructive than functional play whereas no such difference was found for males. This finding replicates those of Rubin et al. (1976; 1978) and may indicate a slightly more rapid movement by females through the cognitive play hierarchy.

Finally, a comparison with the recent longitudinal study of Smith (1978) is merited. While Smith found few changes in parallel play, it is noteworthy that we indicated a decline in parallel-functional and an increase in parallel-dramatic play over time. These qualitative differences in parallel play are masked when one relies solely on the Parten (1932) scale -- a finding earlier noted in the cross-sectional study of Rubin et al. (1978). Smith also found solitary play to decrease over time. However, Smith included onlooker activity in his category of solitary play. Thus, although a decline in solitary play was not found herein, onlooker behavior did decrease. Our solitary play data, thus, cannot be taken as contradictory to those of Smith.

In summary, given the long standing play hierarchies of Parten (1932) and Smilansky (1968) which have often been taken as normative, it is reassuring to discover that children do appear to move from less mature to more mature forms of play over time. The short-term longitudinal data reported herein also support the existing cross-sectional age data concerning play behaviors of young children (Rubin et al. 1978). Until this point in time, these latter data could only have been taken to indicate age differences rather than age changes in naturalistic play behaviors.

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TABLE 1

Means for Combined Social and Cognitive Play Categories at Each Time Period

Measure	1	2	3	4
Solitary:				
Functional	52.00	38.00	46.25	14.25
Constructive	47.25	71.50	62.25	53.75
Dramatic	0	0	5.50	14.50
Total	99.25	109.50	114.00	82.50
Parallel:				
Functional	159.00	109.50	99.25	75.50
Constructive	238.50	222.00	215.00	251.50
Dramatic	17.75	10.75	8.50	83.75
Total	415.25	342.25	322.75	410.75
Group:				
Functional	13.25	38.25	26.00	15.50
Constructive	24.50	33.50	19.50	44.25
Dramatic	3.25	15.00	6.75	20.00
Games	3.75	.75	2.25	42.15
Total	44.75	87.50	54.50	121.90
Unoccupied	56.25	35.75	21.50	6.50
Onlooker	194.50	197.75	202.55	129.75
Reading	13.50	51.00	76.00	63.00
Conversations	76.50	77.75	108.75	85.00

Table 2

Summary of Changes in Play Over Time

Categories of Play	Group Data[1]	Individual Data[2]
unoccupied	3=4 < 1 4 < 2	- > +
onlooker	4 < 1=2=3	- > +
reading	4 > 1	+ > -
games	4 > 1=2=3	+ > -
solitary functional	ns	- > +
constructive	ns	ns
dramatic	ns	ns
total	ns	ns
parallel functional	1 > 2=3=4	ns
constructive	ns	ns
dramatic	4 > 1=2=3	+ > -
total	ns	ns
group functional	ns	ns
constructive	ns	ns
dramatic	ns	ns
total	ns	+ > -
functional total	ns	- > +
constructive total	ns	ns
dramatic total	ns	+ > =

1 Post hoc tests (LSD) following significant ANOVAs ($p < .05$) for time periods 1, 2, 3 and 4.

2 Sign Tests on the directionality of individual change from time I to time 4. Significance at $\alpha = .05$, two tailed.