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The ecology of a child's day : a study of the effects of various care environments on the complexity of a preschooler's play.

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THE ECOLOGY OF A CHILD'S DAY:

A STUDY OF THE EFFECTS OF VARIOUS CARE ENVIRONMENTS

ON THE COMPLEXITY OF A PRESCHOOLER'S PLAY

A Dissertation Presented

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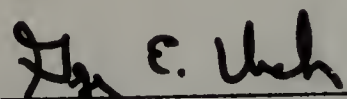
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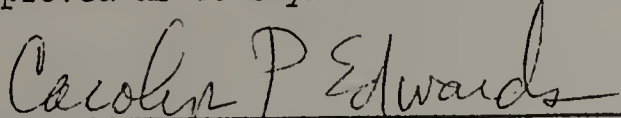Katherine Anne Winey

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For Marilyn and Fred

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ABSTRACT

The Ecology of a Child's Day:

A Study of the Effects of Various Care Environments
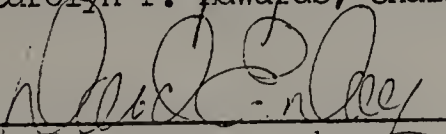
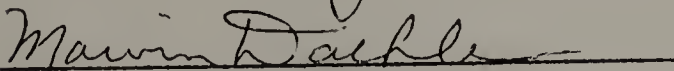on the Complexity of a Preschooler's Play

(May 1987)

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Observations were conducted at various care environments and preschools to determine whether environmental variables, such as setting and time of day, affect the complexity of a young child's play. Twenty-four preschoolers were observed for an hour during the morning and afternoon on three separate occasions. Three males and three females, from each of the following programs, participated in the study: 1) half-day morning preschool; 2) half-day afternoon preschool; 3) full-day day care; and 4) full-day family day care. Children attending half-day programs were observed at their homes as well as at school, whereas the other children were observed in only one setting during both mornings and afternoons.

Scores based on the number of instances of complex play divided by the number of instances of complex and simple play were used as a measure of complexity in the analyses. Findings indicate that setting does affect the complexity of a child's play. Those children attending a half-day afternoon preschool program were found to have significantly higher complexity scores than their peers in other settings. No significant differences existed between the other groups. In addition, no differences were found in the complexity scores of males and females.

In looking at the effect of the time of day, no significant differences were found between morning and afternoon complexity scores. The complexity levels of children changing settings, as compared to those attending a full-day program, were found not to differ significantly. In addition, the home play of children attending afternoon preschool was found to be significantly more complex than the home play of children attending morning preschool.

Disregarding the effect of time of day, the relationship between play complexity and activities was investigated. Across programs, children were found to spend most of their time involved in the following activities: table games, art, fantasy, and blocks. The activities associated with the greatest percentage of complex play were as follows: art, sand/water play, blocks, table games, and fantasy.

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CHAPTER I

INTRODUCTION

Statement of the Problem

With the increasing number of women entering the workforce, the need for and use of day care has grown tremendously. According to statistics compiled by the United States Department of Health, Education, and Welfare in 1978, approximately 11 million children spend some part of their day in supplementary child care. When the data are further broken down, 2.5 million of these children are infants and toddlers, 3.7 million are preschoolers, and 4.9 million are school aged children (Belsky, Steinberg, and Walker, 1982). Approximately 2.6 million of these children are cared for in their own home by relatives or babysitters while the most frequently used type of care is family day care (3.4 million) during which the child, and usually other children, are cared for in someone else's home (Belsky, Steinberg, and Walker, in Lamb, 1982).

Although it is the most extensively studied, center care is the least frequently selected setting (1.3 million) for child care. Strengths of quality center care include: a curriculum offering a variety of formal learning experiences, stable and predictable hours of operation, trained professionals and staff, and, possession of a license to operate. However, negative aspects of center care can arise from psychological distance between caregivers and parents, and

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conflict concerning child rearing and other values (Belsky, Steinberg, and Walker, 1982).

What are some of the major concerns of parents when deciding whether to keep a child home, enroll him/her in half-day preschool, or enroll him/her in a full-day preschool or family day care center? It appears that today's parents are most concerned about their child having the opportunity to be cognitively and socially stimulated in a safe, caring environment. Yet, little information is available on the topic of optimum environment for preschoolers. Therefore, the parent is often left with the following questions which are in need of answers.

First of all, in what setting will a child be most cognitively stimulated? Is it in the home, a half-day program, a full-day preschool, or a family day care? Secondly, is a full-day program too fatiguing for a young preschooler? Is a child able to participate at an optimum level if in one setting for an entire day or does a child's play seem more on task and complex if he/she changes settings? A final question is, under what conditions and in what activities are the most intellectually and socially stimulating opportunities available? Gaining better understanding of the answers to these questions has been the major goal of this current study.

Purpose of the Study

The purpose of this study has been to gain a better understanding of the types of environment that best promote complex play, since this type of play may lead to greater cognitive development of the young child. By expanding our knowledge about "the ecology of a child's day", we, as educators, will be able to provide the most effective learning materials and environments. In addition, we will also be able to provide valuable information concerning the influence of various materials and settings to concerned parents.

The measure selected as the appropriate indicator for evaluating the effects of various environments on a child's cognitive growth was complexity of a child's play. Play was selected as a measure of a child's cognitive functioning since it is easily observed and recorded. Extensive studies conducted over the past fifty years have concluded that play is not only an excellent natural indicator of a young child's cognitive level of functioning (Smilansky in Rubin, 1977) but is also an activity that promotes the child's cognitive development (Sylva, Roy, and Painter, 1980).

The work of Sylva, Roy, and Painter (1980) was a basis for the methods used in this dissertation and their definitions of complex and simple play were used in evaluating the children's play. One of the reasons for selecting their method is that their definitions are strictly behavioral and help to reduce observer error. In order to

be classified as complex, Sylva, Roy, and Painter (1980) argue that play must: 1) give empirical evidence of contingent sequences of behavior; or 2) show the transformation of an object or person into a representative of something or someone else. If a play behavior does not indicate these qualities, it is classified as simple play.

On the basis of their studies in English playgroups and nursery schools, Sylva and her colleagues have suggested that children receive the most benefits from materials or activities that are goal directed. Through these activities, children learn to formulate an objective, develop strategies and perseverance, and recognize when a goal has been successfully completed (Sylva, Roy, and Painter, 1980). Since extensive planning is involved, and specific sequences of behavior are necessary for the activity's successful completion, this type of play is considered to be complex. In contrast, play of little challenge, or ordinary or simple play, is often spontaneous and does not require much planning or elaboration. Therefore, the child's mind is not stimulated by participating in planning strategies, evaluating the success or failure of their plans, and providing alternative means for goal attainment (Sylva, Roy, and Painter, 1980). From their work, they conclude that it is important to emphasize activities with high levels of challenge that develop the mind, and decrease the opportunity for those activities that do not promote the growth of the child. Furthermore, they suggest that educators should evaluate children's play in the various play areas, and determine those activities of most and least value, so that improvements in curriculum can be made.

In order to fulfill the purpose of this study, four groups attending half-day morning preschool, half-day afternoon preschool, full-day preschool, and full-day family day care were observed twice a day on three separate occasions. The decision to observe for one hour in the morning and one hour in the afternoon was based on the following reasons. First of all, by observing at times when the caregiver felt the child's play was most busy and purposeful, a general overview of the child's play patterns at the optimal level of functioning could be established. Secondly, by observing the complexity of play in the morning and again in the afternoon, the effect of time of day on a child's cognitive functioning and play behaviors could be determined. These findings could have implications for when different activities might be introduced during the day. Finally, by observing at both times, the effects of changing caregiver settings, as opposed to staying in the same setting all day, could be evaluated.

In summary, the major concerns addressed in this study are as follows:

1. Does the time of day affect the complexity of the play of the child?

2. Are the play behaviors of children more complex for children attending full-day preschool, family day care, or half-day preschool programs?

3. How does a change of setting affect the child's functioning? Are children relatively high in complex play in one setting the same as those relatively high in the other setting?

4. In what activities (art, construction, books, manipulatives, fantasy, etc.) do the highest frequencies of complex play occur? In what activities do the highest frequencies of simple play?

5. Is the home play of the child attending morning or afternoon preschool more complex?

Significance of the Study

There are several reasons why the results of this study are of significance to both parents and educators. First of all, there is little information available concerning the "best" type of preschool or day care program for the young child. When referring to type of program, the question is often asked whether full-day or half-day, morning or afternoon, same-age or mixed-age is most beneficial to the overall development of the child. In that parents and educators are extremely concerned about these questions, any information aiding in the clarification of these issues is pertinent.

It is hoped that the results of this study can be used to help parents make decisions about the type of program in which to enroll their child. In that both parents work in a large number of families, it is often necessary for them to find alternate care settings for the child. Since the selection of a quality program is a major concern of parents, information aiding them in that selection is of great importance.

If the play of children attending full-day preschool is as complex as that of children attending half-day programs (during both morning and afternoon observations), parents may be relieved to know

that full-day programs are not too fatiguing or detrimental to a child's performance. If differences are found, parents may choose an alternate type of care for the earlier or latter part of the day.

With respect to the educator's point of view, information from this study may affect future programming in several ways. The first variable of interest is the operating hours of the preschool program. Currently, the majority of preschool programs. operate during the morning hours. If no differences are found in the complexity of play (this study's measure of cognitive difficulty) between the morning and afternoon groups, afternoon preschool programs may be further developed. The existence of both morning and afternoon programs would mean that a larger segment of the community could be serviced since more positions would be available and operating hours might better correlate with parental schedules.

A second variable of importance is the types of materials correlating most highly with complex and simple play. In contrast to simple play, which is often spontaneous and of little challenge, complex play involves planning, goal setting, concentration, and other cognitive skills (Sylva, Roy, and Painter, 1980). Since complex play may promote greater cognitive development, it is important to distinguish the materials that best promote it so that they can be provided and their use encouraged. By better understanding the effects of the aforementioned variables, we as educators and parents can adjust the learning environments so that the optimum benefits can be reaped by young children.

Review of the Literature

The study of children's play has grown extensively in the past fifty years. In that play is an excellent natural indicator of a young child's cognitive level of functioning (Smilansky in Rubin, 1977) it is important to understand the implications of the various theories and research findings so that the optimum settings and materials can be provided for the enhancement of the child's play.

One of the foremost authorities on the cognitive development of the child, Piaget believed that play and cognitive development are "inseparable and interdependent" (Werth, 1984). Play is viewed as assimilation, during which children incorporate events, objects, or situations into their present way of thinking (Rubin, Fein, and Vandenberg in Mussen, 1983). According to Piaget, the type of play in which the child can participate is dependent on the child's current level of cognitive functioning.

Piaget identified three development levels of play: 1) sensorimotor or practice play; 2) symbolic play; and 3) games with rules. Infants are commonly observed to be involved in sensorimotor play. After acquiring various sensorimotor skills, the child practices or repeats these movements (Werth, 1984). Symbolic play is associated with the pre-operational period as defined by Piaget. It is initially a solitary symbolic activity that develops into a social type of play. When pretense appears, at about twelve months, it is

initially self-referenced (Solitary). Between fifteen and twenty one months of age, the child becomes the "active agent" and often a doll becomes the object of a child's action (Fein, 1981). During the years between ages two and seven, children become increasingly capable of playing out extremely complex scenarios with dolls or other similar objects. The more advanced level of pretense (social) occurs around age three and is concurrent with the child's understanding that an object can be transformed into the representation of something else (Fein, 1981). The final Piagetian category, games with rules, is associated with the concrete operational period. When playing, the child is capable of organizing and participating in competitive social games in which the rules and consequences for certain actions are clearly defined (Werth, 1984).

Although not motivated by Piaget's theory, research conducted by Mildred Parten in 1932 greatly contributed to an understanding of children's play. Parten devised a scale of social participation in which play categories are clearly differentiated and defined. These categorizations are still used in much of today's research and will, therefore, be presented.

Parten's first category was defined as unoccupied behavior. During this time, the child is not focused on a person or activity for any length of time but is seen instead glancing or moving aimlessly around the room. A second category, entitled onlooker behavior, is observed when the chid spends most of his/her time watching others play. While the child is in close proximity to

the child or group he/she is observing, and may actually converse with them, there is no attempt made to enter into the actual play situation (Parten, 1932).

Solitary play was defined as that occurring when a child plays alone with toys different from those played with by surrounding children. In this situation, the child remains focused on his/her own activity without trying to imitate or incorporate the play of others.

During parallel play, the child plays with toys that are the same as those used by surrounding children. The child plays with the toys any way he/she wants and does not try to influence or become involved with the play of those nearby. Parallel play is best defined as play beside rather than with children (Parten, 1932).

A fifth category devised by Parten is that of associative play. Children involved in this type of play are aware that they share common interests, and are seen participating in similar if not identical activities. Conversations concerning the activity often occur among the children. However, there is no attempt to divide labor and children do not work toward a common goal. Each child plays as he/she wishes and does not yield his interests to those of the group (Parten, 1932).

The final category of play, entitled cooperative or organized supplementary play, is sometimes difficult to distinguish from associative play. During cooperative play, children are engaged in group activities that are organized and directed by one or two of the

members. The activities of the group focus on making some material product, attaining a goal, engaging in fantasy play, or playing a formal game. Since all of these activities require organization and group cooperation, one or two group leaders assign roles or duties to the different members so that the intended game or activity is successfully played (Parten, 1932).

Parten applied the forementioned categorizations during a study of 42 children, ranging in age form 2 to 4 years, 4 months. These children were observed over a period of seven months during free play (9:30-10:30 AM). One of the major findings suggested that a child's age is correlated with the type of behavior in which he/she most frequently engages.

Although only 12% of the sample was observed as being unoccupied for any length of time, all of these children were less than three years old. In terms of onlooker behavior, it was most prevalent between the ages of two and a half and three, but at all ages accounted for only a small percentage of the total number of behaviors. In comparing unoccupied and onlooker behaviors, Parten found that children ranking highly in one often ranked highly in the other (Parten, 1932).

The frequency of solitary play was found to vary greatly among all chidlren. Parallel play, viewed most frequently among two year olds, diminished as the child approached three and a half to four years of age. It was found that children who were involved frequently in gorup games and activities played in parallel groups

less often than any of the other children. Parten concluded that children involved, most frequently, in parallel activities are those who usually do not engage in the more social (associative or cooperative play) ones (Parten, 1932).

Associative and cooperative types of play were seen most frequently in the oldest children. Associative play was engaged in by 40% of the children in over 33% of the total number of observations. Of those participating, 75% were at least three years old. Finally, it was observed that 15% of the three and four year old children participated in cooperative play over 30% of the free play period (Parten, 1932).

On the average, 25% of the observations were comprised of unoccupied, onlooker, and solitary behaviors, while the more social types of play (parallel, associative, cooperative or organized supplementary) were seen 75% of the time. In addition, there was a larger inverse correlation between parallel and associative play (-.60). Solitary play correlated positively with parallel play (.36) but was inversely related to associative and cooperative behaviors (-.69) (Parten, 1932).

Although Parten's social play hierarchy is widely accepted as the norm by many researchers, several factors should be considered before totally accepting the findings as true. First of all, Parten's study was conducted fifty four years ago at a University laboratory school. Since this type of school is considered to be of high caliber, these findings may not be generalizable to all segments of the population.

Secondly, since the publication of this study, very few researchers have tried to replicate or extend Parten's original findings. Barnes (1971, in Rubin, Maioni, and Hornung, 1976) did attempt to replicate and found that the frequency of unoccupied, solitary, and onlooker behavior was significantly more than that reported by Parten. In addition, significantly less associative and cooperative behaviors were observed.

Rubin has criticized the Parten scale in several areas. Primarily, he feels that it is necessary to include cognitive categories when evaluating play. Without the additional measures, Rubin believes age differences may be overlooked. A second concern voiced by Rubin, as well as many other researchers, is that because of Parten's criteria, it is often difficult to distinguish between associative and cooperative play (Rubin, 1977). Therefore, the actual labeling and reporting of play as associative and cooperative may vary greatly among researchers. A final criticism of Parten's work concerns her identification of solitary play as the least mature form of play. Without carefully studying an entire 'play bout' as do Sylva, Roy, and Painter (1980) or understanding a child's thought process or motivation for playing by himself, it is difficult to claim that a child is less mature for electing to play alone. It is Rubin's belief that parallel play is the least mature in the play hierarchy since playing alongside a child indicates a desire to inteact with others, although inadequate social skills may prevent this from occurring (Rubin, 1977).

A second set of play categories originally developed by Jean Piaget and elaborated upon by Smilansky are also frequently used in the study of children's play. These categories are seen as developing in a fixed order beginning in infancy and continuing throughout childhood. The first category is labeled _functional play_ and is defined as simple repetitive muscle movements with or without objects. The attempt to construct or "create" something by manipulating objects is identified as _constructive play_. _Dramatic play_ is identified when a child incorporated fantasy into his/her play as a means of satisfying personal wishes or needs. A final category entitled _games with rules_ is observed when children accept and adjust to pre-arranged rules of various games (Rubin, 1977).

Using the play categories established by Smilansky, Johnson (as cited by Johnson and Ershler, 1982) observed the play behaviors of preschoolers enrolled in a discovery-based and a formal-education program. Children enrolled in the discovery-based program had a greater number of free play periods, whereas the children involved in the formal-education preschool spent more time in small, structured, teacher directed groups in which the content material was sequentially organized. Johnson found that the children involved in the discovery-based program displayed more functional play as compared to the more constructive free play found among the formal education play group (Johnson and Ershler, 1982). No differences were found in the social level of play or in the amount of dramatic play.

Johnson and Ershler continued their observations for two more semesters and found that over time, children enrolled in the discovery-based program shifted from more functional to more constructive play. In contrast, the formal education group exhibited more dramatic play and less constructive play over time (Johnson and Ershler, 1982). The authors suggest that children involved in the formal education program spent less time in constructive play during free play time because materials and activities related to constructive play were utilized during the teacher directed, small group sessions. It was also suggested that the encouragement of symbolic play during small group sessions may have encouraged the development of this behavior during free play. In constrast, Johnson and Ershler felt that the teachers in the discovery-based program did not encourage the development of dramatic play because they used free play as a time to teach using constructive play as a medium.

Incorporating both Smilansky and Parten's play categories, Rubin, Maioni, and Hornung (1976) investigated the forms of cognitive play behaviors that children engage in during solitary, parallel, and associative, and cooperative play. Forty middle- and lower-class preschoolers were observed during free play for one minute over a period of thrity consecutive school days.

In evaluating the effect of social class on play, it was found that lower class preschoolers display significantly more solitary-functional (p < .01) and parallel-functional (p < .05) play than their middle class peers. Parallel play was observed most

frequently in this group although solitary and associative play occurred more often than did cooperative play (p <. 05) (Rubin, Maioni, and Hornung, 1976).

In contrast, middle class preschoolers participated in significantly more associative-construcitve play than did the lower-class children (p < .02). In addition, these children were more likely to be involved in parallel and associative play than in cooperative or solitary play (p. < .05). In evaluating the amount of time spent in more advanced play, it was established that middle class preschoolers are involved 40% of the time in associative or cooperative play as compared to 27% of the time spent by the other children (Rubin et al, 1976).

Disregarding the effect of social class, the frequency of cooperative play was found to be lower than that of solitary, parallel, and associative play. Furthermore, parallel play occurred more frequently than either associative or solitary play, with solitary play being observed the least often (Rubin et al., 1976).

In a reanalysis of this data, Rubin studied the most frequently observed activities to evaluate their social and cognitive play values. The ten most frequently observed activities are as follows: 1) cutting, pasting, and art construction; 2) painting and crayoning; 3) playdough; 4) house play, store, doctor, and fire fighter; 5) vehicles; 6) sand water; 7) blocks; 8) science; 9) books; and 10) puzzles (Rubin, 1977).

A combination of the Parten and Smilansky play categorizations

was once again utilized in the analysis. However, the Parten categories of soklitary and parallel play were combined into a non-social category, and associative and cooperative play were combined into a category called group play. These changes were made so that the social or non-social value of the activities could be more easily determined (Rubin, 1977).

The fewest social interactions were found to occur during painting, crayoning, playdough, sand and water, and puzzle activities. In analyzing both the cognitive as well as the social components of these activities, it was found that 65% of play with playdough was non-social while 75% of it was functional; 80% of water and sand play was non-social and 90% was functional ; 82% of painting and crayoning was non-social while 78% was constructive, and; 81% of the puzzle activities were non-social with 84% of them constructive (Rubin, 1977). Therefore, it appears that water, sand, and playdough activities are the least valuable for cognitive and social purposes, whereas, painting and puzzle activities offer more mature cognitive stimulation to the child.

Social interactions most frequently occurred during house play and related themes (55%), during vehicle play (50%), and in reading and number activities (63%) (Rubin, 1977). House play and vehicle play were found to be the most advanced cognitiviely, as well as socially, with dramatic behaviors found in 75% of house play activities and in 32% of play with cars and trucks (Rubin, 1977).

A second study conducted by Rubin and Krassnor (1980) once again

utilized the social and cognitive play categories devised by Parten (1932) and Smilansky (in Rubin, 1977) to study the changes in preschoolers' play behaviors. Ten three-year olds and ten four-year olds attending a half-day university preschool program were observed during free play each day for four three-week periods. The number of seconds a child engaged in a particular type of play was recorded over a minute's time, for a total of fifteen one-minute samples every three week period. The first observation period began in late September with the final one commencing in early December (Rubin and Krassnor, 1980).

Several trends for age differences in social-cognitive play were discovered (F=4.22, p < .06). The quality of solitary play was less complex for three-year olds than for four-year olds, and three-year olds displayed more parallel-functional play than did their older classmates. Four-year olds displayed more solitary-constructive than solitary-functional play. This trend was not found in the three-year old group (Rubin and Krassnor, 1980).

Unoccupied and onlooker behavior decreased significantly from the first to the last observation period (F=6.71, p < .05) while the occurrence of games with rules increased significantly (F=12.56, p < .01) for the four-year old group. Individual changes were also assessed over time and it was revealed tht the majority of children showed a decrease in unoccupied, onlooker, solitary-functional, and all other functional play, while increases were evident in games, all-group activities, and all-dramatic play (Rugin and Krassnor, 1980).

In interpreting these results it is important to note that play changes may have resulted from an increase in familiarity with peers and materials rather than from developmental changes. In addition, the observed decrease in unoccupied and onlooker behaviors may have occurred as the result of the child's adjustment to a new preschool environment (McGrew, 1972; Rubin and Krassnor, 1980).

Through a review of the literature, it becomes apparent that the cognitive level of the young child's play may be affected by the environmental setting and the challenge of the materials provided. (See, for example, Rubin, 1977; Huston-Stein, Friedrick-Cofer, and Susman, 1977; Johnson and Ershler, 1982; and Sylva, Roy, and Painter, 1980). To advance the cognitive development of the child, teachers should provide a variety of materials that allow the child to practice a skill and see the results of his/her "work" (Gelbach, 1976 in Johnson and Ershler, 1982). Teachers should also intervene in a child's play whenever there is an opportunity to support the child's social or cognitive functioning on a higher level (Johnson and Ershler, 1982).

Different environments or types of programs can also affect the social or cognitive level of a child's play. Functional play appears to be more commonly found in less structured settings in which children's behaviors are seldom evaluated. In contrast, constructive play is most commonly observed in highly structured settings where teachers provide instruction, encouragement, and developmentally appropriate and cognitively stimulating materials (Huston-Stein,

Friedrick-Cofer, and Susman, 1977; Johnson and Ershler, 1982; Rubin,

1977). Program conditions that would discourage the occurrence of

constructive play include too many children, too little space,

minimal adult involvement and supervision, and materials that are too

cognitively advanced for the child's level of development. The

appearance of dramatic play is more frequent in less structured

programs where the teacher provides a variety of pretend-play props

(including structured and representational toys as well as

unstructured play materials). Teacher participation also increases

the possibility of dramatic play occurring (Johnson and Ershler,

1982).

The Work of Sylva, Roy, and Painter

Sylva, Roy, and Painter (1980) conducted an extensive

observational study of preschoolers' social interactions and play

behaviors. Preschoolers attending nineteen different nursery

schools, classes, and playgroups in Oxfordshire were studied between

1976 and 1978.

Sylva and her colleagues decided to use the target child method

as a means of data collection. In this method the child is followed

over time through various situations so that an individual profile

can be easily compiled. A time frame of thirty seconds observing and

thirty seconds recording data over a period of twenty minutes was

utilized. During the recording time the following were described:

1) child's task; 2) with whom he is doing it; 3) what he is saying and what is said to him; 4) what materials he uses; 5) what "programme" was occurring, i.e. free play or group story; and 6) whether there were signs of committment or challenge (Sylva, Roy, and Painter, 1980).

One activity that they extensively evaluated was play. Play was defined in terms of the child's involvement in a variety of tasks or classroom areas, ranging from art to storytime. A strict behavioural definition of cognitive complexity was adopted as a means of evaluating its simplicity or complexity. To be identified as complex, play had to show signs of being sequentially organized and elaborate or to contain symbolic transformation such as that found in pretend play (Sylva, Roy, and Painter, 1980). After studying a variety of play samples, it was decided that cognitive challenge could only be accurately defined in the following categories: 1) manipulation; 2) small scale construction; 3) structured materials; 4) art; 5) gross motor play; 6) large scale construction; 7) pretend; 8) scale version toys; 9) music; 10) informal games; 11) social play with spontaneous rules; and 12) non-playful interaction (Definitions of these categories are provided in Appendix A). However, since no all-encompassing definition applied to all of the categories, Sylva and her colleagues created guidelines in each one so that challenging and ordinary levels of play could be distinguished.

Upon examining each activity, it was concluded that art, music (not led by adult) construction activities (large scale and small

scale) and structured materials were most challenging to the child (Sylva, Roy, and Painter, 1980). An evaluation of the cognitive challenge of all activities can be found in Table 1.1. One of the things common to the more challenging activities is that all of them allow the child to see whether a given sequence of behaviors has worked successfully. In this way, the child is able to set a goal and see it through with obvious results.

Activities considered to be of moderate challenge include pretend, arranging scale version toys, and manipulation. These activities are not necessarily oriented toward a particular goal. However, while not being the most cognitively complex, these activities offer other benefits. Since manipulative materials are often used as a "cover" for rest, the child may be able to relax his mind and body for later activities. Furthermore, the relaxed atmosphere accompanying these activities may allow the child to engage in a greater number of conversations or social interactions (Sylva, Roy, and Painter, 1980).

Finally, activities found to be the least challenging include non-playful interaction, informal games, gross motor play, and social play. Much if this play is comprised of repetitive movement, diaglogue, and physical exercise. Therefore, it would seem that too much of these activities would prevent the child from setting goals, mapping out strategies, and evaluating successes—all important abilities in furthering cognitive development.

Sylva and her colleagues also evaluated the quality of a child's

TABLE 1.1

Activities Associated with Challenging and/or Simple Play

	Activity	Percentage of half-minute observations that were challenging	Percentage of half minute observations that were ordinary	N
	Three R's	100 (by definition)	0	55
high yield	Music, not led by adult	73	26	26
	Small Scale construction	71	29	416
	Art, child choice	71	29	795
	Large scale construction	70	30	88
	Structured	69	31	432
mod. yield	Pretend	50	50	999
	Scale vertion toys	50	50	225
	Manipulation	47	53	1156
low yield	Non-playful interaction	32	68	668
	Informal games & rule bound games	28	71	85
	Gross motor play	22	78	941
lowest	Social, play, 'horsing around', giggling	2	98	123

Table from Sylva, Roy, and Painter, 1980, p. 62

play by measuring the duration of a child's concentration on an activity. It was concluded that children spend the most time in two types of activities, those with some type of drama involved (pretend, story time) and those with clearly set goals (Sylva, Roy, and Painter, 1980). Table 1.2 offers a complete listing of all activities and their average duration. In general, it would appear that art, small scale construction, and pretend best retain a child's attention, whereas, gross motor play, informal games, social play with spontaneous rules, and rough and tumble play are the shortest in duration (Sylva, Roy, and Painter, 1980). In comparing the tables on cognitively challenging activities and activity concentration levels, it appears that there is a direct positive correlation between an activity's cognitive challenge and the time a child spends in an activity.

The effect of social participation was also evaluated in the work of Sylva and her colleagues. The highest proportion of challenging play was found among children playing in pairs (33%) and playing parallel to each other (30%) while the lowest proportion was seen among children playing alone (21%). Interacting with an adult had little effect on a child's play with only 24% of the observations viewed as complex in nature (Sylva, Roy, and Painter, 1980).

The effect of social participation was also evaluated in the work of Sylva and her colleages. The highest proportion of challenging play was found among children playing in pairs (33%) and playing parallel to each other (30%) while the lowest proportion was seen

TABLE 1.2

Mean 'bout length' of Activities in Minutes

Activities whose duration is usually determined by an adult		Activities whose duration is usually determined by a child		
Adult-led group activities (such as singing or story)	6.4	Art	5.3	
		Small scale construction	5.1	excellent concentration
		Pretend	5.0	
Adult-directed art and manipulation skills	4.5	Manipulation	4.5	
		Structured materials	3.9	
		Three R's	3.9	good concentration
Group routine (like tidy-up)	4.4	Examination	3.8	
		Scale version toys	3.8	
		Large scale construction	3.5	
Waiting	3.1	Watching staff	3.1	
		Gross Motor Play	2.7	
		Informal games	2.6	
		Rough-&-Tumble	2.5	
		Individual physical needs	2.5	
		Social play with spontaneous rules	2.2	Mod. or Poor concentration
		Non-playful interaction	2.1	
		Watching events	2.0	
		Watching peers	1.9	
		Purposeful movement	1.9	
		Aimless standing around, wandering or gazing	1.5	
		Crusing	1.3	

Table from Sylva, Roy, and Painter, 1980, p. 67

among children playing alone (21%). Interacting with an adult had little effect on a child's play with only 24% of the observations viewed as complex in nature (Sylva, Roy, and Painter, 1980).

In summary, much of the current research on play utilizes Parten's scale of social participation in combination with the cognitively based play categories originally developed by Piaget and elaborated upon by Smilansky. It has been suggested through research based on these scales, that a child's age correlates with the type of behavior in which he/she most frequently engages. As children develop chronologically and cognitively, it is suggested that they participate in more associative and group play while engaging in less solitary play (Parten, 1932; Rubin, Maioni, and Hornung, 1976).

Some of the more recent literature suggests that preschoolers most frequently engage in the following activities: art, fantasy, sand/water play, blocks, books, and puzzles (Rubin, 1976). Furthermore, it has been found that the most cognitively challenging play is associated with the following activities: art, construction, structured materials, fantasy, and manipulatives (Rubin, 1976; Sylva, Roy, and Painter, 1980). In looking at the relationship between social participation and cognitive challenge, it was found that the highest proportion of challenging play occurred in children playing in pairs and playing parallel to each other, while the lowest proportion was found in children playing alone (Sylva, Roy, and Painter, 1980).

The literature suggests that a number of variables can affect the

complexity level of a child's play. Since complex play may lead to greater cognitive development of the young child, it is necessary to understand the many variables affecting its occurence. By examining the hypotheses of this study, it is hoped that a better understanding of some of the environmental variables affecting play complexity will occur, so that an optimum environment can be provided for young children.

HYPOTHESES

Hypothesis I

The complexity level of a child's play is not affected by the time of day. If a variety of stimulating materials or playmates are available, it is believed that children will play at a more complex level regardless of time of day.

Hypothesis II

Observations conducted in a variety of settings will show that more cognitively complex play occurs in the classroom and in family day care than in the home environment. In addition, it is expected that the most complex play will occur in classrooms, the least complex in the home, and the play of those in family day care will fall somewhere in between.

This hypothesis is based on the premise that a large variety of stimulating materials, and the opportunity to creatively play with others, increases the likelihood of more complex play. Since this

combination is presumed to be found more in the preschool, it is
proposed that this setting will produce the highest frequency of
complex play. Although family daycare settings do not offer as many
materials or as varied a curriculum, there are a number of children
with whom the child can interact and share ideas. Therefore, it is
proposed that a great deal of complex fantasy or group play will
occur in this setting. In that the home setting may be limited in
both toys and available same-age playmates, it is hypothesized that
less complexity will be evident in the children's play.

Hypothesis III

There will be no correlations in the evaluation of play
complexity between morning and afternoon observations for those
children who change caregiver settings. However, for children for
whom change in the setting occurs, the complexity of play will be
similar across observations. This hypothesis is based on the
assumption that the complexity of play is determined by factors of
the setting rather than factors within the child.

Hypothesis IV

Home play of children attending morning preschool is more complex
than home play of children attending afternoon preschool. This
hypothesis is based on the premise that children attending morning
sessions will probably incorporate some of the cognitively complex
activities or dramatic play learned at the preschool into their play

at home that afternoon. In contrast, the play of children attending afternoon preschool is more dependent on the child's own creativity and innovation and therefore may not be as complex.

CHAPTER II

METHODS

Subjects

Twenty four middle to upper middle class preschoolers
participated in this study. The children were from Amherst,
Massachusetts, a small New England town in which the major state
university is located. All of the children were from two parent
families and had attended preschool or daycare prior to this year.
At beginning of data collection, the children ranged in age from 36
to 51 months.

Three males and three females from each of the follownig programs
were selected to be observed: 1) half day morning preschool; 2) half
day afternoon preschool; 3) family day care; and 4) full day
preschool. Notices providing information about the study were
distributed to all of the parents in the aforementioned programs. If
the parents were willing to let their child be observed, a permission
slip was returned to the author. After separating the children by
sex and group, a random sample was drawn from the available
population.

The operating hours of the half day morning preschool were
9-11:30 AM, Monday, Wednesday, and Friday. The sample of children
selected from this program ranged in age from 36-42 months (x = 39
months) and were all Caucasian. The primary occupation of the

mothers was that of homemaker, while the fathers held positions in business, college teaching, and health care. Children attending this program spent their afternoons at home.

The University of Massachusetts' laboratory preschool served as the study's half day afternoon program. The operating hours of the program were 1:00-3:30 PM, Mondays, Wednesdays, and Fridays. Children included in this sample ranged in age from 42-51 months (x = 45 months), were Caucasian, and spent their mornings at home. The mothers were all homemakers, while the fathers held a variety of middle class occupations which were not necessarily related to the university.

Four separate family day care settings within the town of Amherst were studied. Mothers of children attending family day care were either students or part-time employees in the fields of business and social services. The fathers were engaged in a wide variety of middle class occupations ranging from store management to medicine. In each of the day care homes, the children had the opportunity to interact with at least one child of similar age as well as with children who were somewhat younger. All of the children involved in this study were Caucasian and spent at least two full days a week at family day care. Depending on the time of day, group size varied between three and five children at each of the settings. The age range for this sample was 37 months to 47 months (x = 41.5 months).

The final group observed attended a full day child care program associated with the University of Massachusetts. The operating hours

of this program were 8:30-5:00, Monday through Friday. This sample ranged in age from 40 to 44 months (x = 42 months), and was composed of 83% Caucasians and 17% Blacks. The parents of the children attending this program were a mixture of university students, staff, and faculty.

Data Collection

Each child was observed for one hour in the morning and one hour in the afternoon on three separate occasions. Observations generally occurred between 9:30 and 10:30 AM and following the child's afternoon nap, so that an overall picture of the child's most productive play time could be obtained. If the child spent only half the day in a program, he/she was observed in the school, as well as in the alternate care environment. The remaining children were observed in only one setting.

The Coding Instrument. A total of seven observers collected data using an adaptation of the Behavior Checklist of Child-Environment Interaction (Day, Perkins, and Weinthaler, 1982). See Appendix B. The checklist is designed to collect information on different behaviors commonly observed in children, while also addressing the context in which the behaviors occur. The categories of behavior addressed in the checklist are as follows: task involvement, cooperation, verbal behavior, nature of play, and consideration. Since the theory of human behavior on which this instrument is based

stresses the importance of the context of behavior, information on the following environmental variables is also gathered: the activity/area in which a behavior occurs, the role of the teacher, and the size of the group.

A child was observed for a thirty second interval and then the information was recorded during the next thirty seconds. In addition, at the end of each play segment (the time during which the child was engaged in an activity or conversation), a brief summary was written recording the main components of play. In other words, a brief description of the actual play encounter and materials was written.

Data Collectors. In addition to the author, six undergraduate students, in the Early Childhood Education and Psychology programs, at the University of Massachusetts/Amherst collected the data. All of these students had experience working with children and were familiar with techniques employed in child observations.

Training the Collectors. The collectors were trained by this researcher over a period of four weeks. Initially, the entire group met so that the Behavior Checklist of Child Environment Interaction, as well as other materials defining and illustrating samples of simple and complex play (as defined by Sylva, Roy, and Painter, 1980) could be discussed. (See Appendix B). The data collectors were asked to memorize the definitions associated with the checklist and to spend an hour using the checklist to observe and record the behaviors of random children at the University of Massachusetts'

laboratory preschool program.

After the students were familiar with the checklist and had observed by themselves, appointments were scheduled with the researcher so that we could observe the behaviors together and discuss any discrepancies found in the recording of data. At least three, hour-long sessions occurred between the researcher and each student, during which time observations were made, recorded, and discussed.

During the sessions, the students were also informed about their role as data collectors. They were told that they must remain as unobstrusive as possible so that the regular play patterns of the children would not be disrupted. The students were also told that they could not engage in play or conversation with the children. In order to become familiar with the preschoolers and various settings, the collectors were also asked to visit the schools prior to the actual observation period.

Reliability. In order to assess reliability, the researcher and each collector observed and recorded data on the same child. The number of behaviors recorded ranged from 132 to 222, depending on how highly correlated the unofficial scores of past observations were with those of the researcher. Discrepancies between the researcher and student were identified for each possible coding. These discrepancies were tallied and subtracted from the total number of codings recorded. This figure was then divided by the total number of codings recorded for a measure of reliability. Reliability scores ranged from .89 to .96 with a mean score of .925 (See Table 2.1).

TABLE 2.1

Inter-Rater Reliability

Observer	Possible Codings	Discrepancies	Reliability
1	200	8	.96
2	145	7	.95
3	145	12	.92
4	132	12	.90
5	222	22	.89
6	222	16	.93

x = .925 for all coders

CHAPTER III

RESULTS

Treatment of the Data

Three morning observations and three same-day afternoon
observations were conducted on each child. For each morning
observation and each afternoon observation, two complexity scores
were derived. Separate analyses were completed using two different
complexity scores.

The first complexity score were derived by dividing the number of
complex play incidents observed by the total number of complex and
simple play incidents. This score provided an estimate of the
proportion of complex play that occurred in all observed instances of
play. The second complexity score was developed by dividing the
number of complex play incidents by 60 (the number of possible
incidents of complex play per observation session). This score
provided an estimate of the proportion of complex play occurring
during the time of data collection. The mean score of the three
morning observations [(AM1+AM2+AM3)/3] and the mean score of the
three afternoon observations [PM1+PM2+PM3)/3] were the actual

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complexity scores used in both analyses. A repeated measures, multivariate analysis of variance was used in analyzing the data.

Mean Complexity Scores

Mean complexity scores calculated by dividing the number of complex play incidents by the total number of simple and complex play incidents, indicate that during the morning observations, children attending the afternoon preschool program engaged in more complex play than children attending other programs (x = 33.17) (See Table 3.1). Children attending all-day preschool programs engaged in the least amount of complex play (x = 14.33), although the mean complexity scores of children attending family daycare (x = 18.33) and morning preschool (x = 15.83) were somewhat similar.

During the afternoon observations, children attending the afternoon preschool program continued to engage in more complex play (x = 34.67) than children attending other programs. The mean complexity scores of children attending family daycare (x = 19.17) and morning preschool (x = 20.00) were quite similar, while the scores of children attending all-day preschool were somewhat lower (x = 15.50).

Mean complexity scores derived by averaging the morning and afternoon scores for each program were as follows: afternoon preschool (x = 33.92), family daycare (x = 18.75), morning preschool (x = 17.92), and all-day preschool (x = 14.92).

TABLE 3.1

<u>Mean Complexity Scores Across Groups</u>
<u>Using Formula Complex/ (Simple + Complex)</u>

<u>Group</u>	<u>Means (AM)</u>	<u>Standard Deviation</u>
AM Preschool	15.8333	6.61564
PM Preschool	33.1667	10.26483
All-Day Preschool	14.3333	11.53545
Family Daycare	18.3333	10.15218
For Entire Sample	20.4167	11.93430

<u>Group</u>	<u>Means (PM)</u>	<u>Standard Deviation</u>
AM Preschool	20.0000	6.89928
PM Preschool	34.6667	11.82652
All-Day Preschool	15.5000	9.52365
Family Daycare	19.1667	13.10598
For Entire Sample	22.3333	12.39799

<u>Group</u>	<u>Means (AM + PM /2)</u>
AM Preschool	17.917
PM Preschool	33.917
All-Day Preschool	14.917
Family Daycare	18.750

Mean complexity scores calculated by dividing the number of complex play incidents by the total number of observations indicate that during the morning observations, children attending the afternoon preschool program engaged in more complex play than children attending the other programs (x = 26.17). (See Table 3.2). Children attending all-day preschool programs engaged in the least amount of complex play (x = 11.83), although the mean complexity scores of children attending family daycare (x = 13.33) and morning preschool (x = 12.50) were somewhat similar.

During the afternoon observations, children attending the afternoon preschool program continued to engage in more complex play (x = 27.83) than children attending other programs. The mean complexity scores of children attending family daycare (x = 15.50) and morning preschool (x = 15.83) were quite similar, while those of children attending all-day preschool were somewhat less (x = 11.17).

Mean complexity scores derived by averaging the morning and afternoon scores for each program were as follows: afternoon preschool (x = 27.00), family daycare (x = 14.42), morning preschool (x = 14.17), and all-day preschool (x = 11.50).

Analysis of the Hypotheses

Hypothesis I. Effect of time of day on complexity of play

Observations conducted in both the morning and the afternoon were expected to show that the time of day has no significant effect on

TABLE 3.2

Mean Complexity Scores Across Groups
Using Formula Complex/ (Simple + Complex)

Group	Means (AM)	Standard Deviation
AM Preschool	12.5000	5.61249
PM Preschool	26.1667	5.63619
All-Day Preschool	11.8333	10.74089
Family Daycare	13.3333	7.44759
For Entire Sample	15.9583	9.35056

Group	Means (PM)	Standard Deviation
AM Preschool	15.8333	6.79461
PM Preschool	27.8333	9.21774
All-Day Preschool	11.1667	9.64192
Family Daycare	15.5000	10.55936
For Entire Sample	17.5833	10.63185

Group	Means (AM + PM /2)
AM Preschool	14.17
PM Preschool	27.007
All-Day Preschool	11.50
Family Daycare	14.42

the child's complexity of play. A repeated measures multivariate
analysis of variance indicated that there was no time effect present
in this study. Results obtained using the complexity scores derived
the first way were F=.4730, df=1, p=.502, while the results
associated with the second set of complexity scores were f=.5821,
df=1,16, p=.457.

Hypothesis II. Effect of setting on complexity of play

Observations conducted in a variety of settings were expected to
show that more cognitively complex play occurs in the classroom and
in family daycare than in the home environment. In addition, it was
expected that the most complex play would be observed in classrooms,
the least complex in the home, and the play of those attending family
daycare would fall somewhere in between.

A repeated measures multivariate analysis of variance was
performed, with sex and group as between subjects factors, and time
of day as the within subjects facor. No significant interaction
between sex and group was reported (f=.82328, p=.561). In addition,
there was no significant difference found in the scores of males and
females (f=.7914, p=.471). (See Table 3.3 for MANOVA results.

In addition, because not ime effect was found (See results of
Hypothesis I), morning and afternoon scores were averaged, and this
score was used in evaluating the effect of group on the complexity of
play. A significant difference was found between groups using the
average score (f=2.797, p=.028). (See Table 3.3 for MANOVA results).

TABLE 3.3

Multivariate Tests of Significance Using Formula:
Complex/ (Simple + Complex)

Source	df error	(s,m,n)	Wilks Criterion	Sig. of F
Sex	15.00	1,0,6.5	.90455	.47126
Group	30.00	2,0,8.5	.41118	.02781
Sex by				
Group	30.00	2,0,6.5	.73723	.56093

Confidence Intervals = Effect of Group
Afternoon preschool - Family daycare [0.551,29.783] sig.
Morning Preschool - Afternoon preschool [-30.616,-1.384] sig.
Afternoon preschool - All-day preschool [4.384, 33.616] sig.

TABLE 3.4

Multivariate Tests of Significance Using Formula:
Complex/Number of Observations

Source	df error	(s,m,n)	Wilks Criterion	Sig. of F
Sex	15.00	1,0,6.5	.89451	.43341
Group	30.00	2,0,8.5	.40012	.0236
Sex by				
Group	30.00	2,0,6,5	.64472	.32032

Confidence Intervals = Effect of Group   (critical value   = 3.05
Afternoon preschool - Family daycare [.438, 24.72] F   = 3.05
$\qquad$ $F_{3,20}$

Morning preschool - Afternoon preschool [.688, 24.97] F   = 3.2
$\qquad$ $F_{3,20}$

Afternoon preschool - All-day preschool [3.35, 27.64] F   = 3.4
$\qquad$ $F_{3,20}$

Upon the construction of confidence intervals, it was found that the afternoon preschool differed significantly from all of the others (See Table 3.3 for confidence intervals). The children attending the afternoon preschool progarm engaged in significantly more complex play than children attending other programs. Although the differences among other groups were non-significant, it appears that the children attending all-day preschool demonstrated the fewest instances of complex play, while children attending the other two progarms had similar complexity scores that were fairly close to those of children attending a full-day progarm.

Using the complexity score derived by dividing the number of incidents of complex play by the total number of observations, a second multivariate analysis of variance was completed. Once again, when analyzing the interaction between group and sex, no interaction was found (F=1.2271, p =.320). No significant difference was found in the scores of males and females (f=.8845, p=.433). (See Table 3.4 for MANOVA results and confidence intervals.

After averaging morning and afternoon scores, the effect of group was again analyzed. A significant difference was once again reported between groups (F=2.905, p=.024). The afternoon preschool group was found to differ significantly from all of the others. The children attending this program were engaged in signficantly more complex play than the other children who were observed. No significant differences were found in the complexity levels of children involved in the other three programs.

Hypothesis III. Effect changing caregiver setting

Observations were expected to show that the complexity of play of children changing caregiver settings would differ significantly from morning to afternoon. If no change in the setting occurred, the complexity scores were expected to be very similar in both observations.

Complexity scores form groups 1 and 2 (groups that changed setting) were combined, as were the scores from groups 3 and 4 (groups that did not change settings). The difference between morning and afternoon play was then compared and contrasted between the two groups. The complexity level of children changing settings was found not to differ significantly from that of children cared for in the same setting all-day long (F=.466, df=3,20, p=>.05).

The same procedures were utilized, and the same analysis was performed using the second set of complexity scores. Once again, no significant difference was found to exist between children changing settings, as compared to those attending all-day programs (F=.411, df=3,20, p>.05).

Further analyses were conducted to determine whether correlations existed between the morning and afternoon complexity scores of the children. Using the mean complexity scores calculated by dividing the number of complex play incidents by the number of simple and complex play incidents, it was determined that a significant correlation existed between morning and afternoon scores (r=.5200, p=.005). After separating the children into two groups (children who

change settings and children attending full-day programs), analyses
indicated that a significant positive correlation existed in the
scores of children changing setting (r=.5661, p=.028). A positive,
but not significant correlation existed in the scores of children
attending all-day progarms (r=.2836, p=.186).

Using the complexity score derived by dividing the number of
incidents of complex play by the total number of observations, it was
also shown that a signficant correlation existed between children's
morning and afternoon scores (r=.5832, p=.001). The morning and
afternoon scores of children changing setting correlated
significantly (r=.6325, p=.014) although no significant correlation
was found in the morning and afternoon scores of children attending
all-day programs (r=.3857, p=.108).

Hypothesis IV. Effect of time on home complexity scores

Observations were expected to show that the home play of children
attending morning preschool is more complex than home play of
children attending afternoon preschool. A t-test was used to compare
the complexity scores of both groups when at home. The complexity
scores of children attending afternoon preschool were found to be
significantly higher than those of children attending morning
preschool (t=2.61, df=10, p=.026) (Refer to Table 3.5a).

Further analyses, using the second set of complexity scores also
concluded that children attending morning preschool have fewer
instances of complex play at home than children attending afternoon

preschool (t=-2.87, df=10, p=.017) Refer to Table 3.5b.

TABLE 3.5a

A Comparison Between the Home Complexity Scores of Morning
and Afternoon Preschool Groups

Group	Mean	Standard Deviation	T Value	DF	Sig
AM Preschool	20.000	6.899	-2.67	10	.026
PM Preschool	33.167	10.265			

TABLE 3.5b

A Comparison Between The Home Complexity Scores of Morning
and Afternoon Preschool Groups

Group	Mean	Standard Deviation	T Value	DF	Sig
AM Preschool	20.000	6.795	-2.87	10	.017
PM Preschool	26.167	5.636			

Additional Findings

The relationship between activity/area and play was examined to
determine the types of activities best promoting cognitively complex
play. Initially, the average amount of time children spent in an
area was calculated. A list of freqencies suggest that children
attending the morning preschool program spent the most in art
(32.0%), table games (25.3%), blocks (11.5%), and fantasy (10.4%).
These children spent the least amount of time in gross motor (.3%),
clean-up (.3%), large group, teacher led activities (1.0%) and books
(1.0%). Refer to Table 3.6a for results. (Refer to Appendix B for
more elaborate definitions of activity/area).

Children attending the afternoon preschool program were found to
spend the most time in table games (23.1%), fantasy (17.3%), art
(15.5%), and blocks (14.6%). These children were found to spend the
least amount of time in large group teacher led activities (.4%),
garden work (.5%), gross motor (.9%), and books (1.8%). Refer to
Table 3.6b for results.

Activities/areas visited most frequently by children attending
the all-day preschool included: snack (21.4%), books (13.3%), table
games (13.2%, blocks (11.4%), and fantasy (10.4%). Activities/areas
visited least frequently by children attending the all-day preschool
included: gross motor (.7%), clean-up (1.0%), sand/water (1.2%), art
(3.3%), and large group, teacher led activities (4.9%). Refer to
Table 3.6c for results.

Children attending family daycare spent the most time in table games (23.4%), blocks (13.5%), television viewing (15.0%), and outdoors (11.1%). Children involved in this type of care spent the least amount of time in clean-up (.4%), large group-teacher led activities (1.3%), books (2.7%), snack (5.2%), and art 5.8%). Refer to Table 3.6d for results.

The average percentages of complex play occurring in an activity were then calculated for each group. Activities associated with the greatest percentage of complex play for children associated with the morning preschool program included: table games (15.7%), blocks (15.4%), and art (13.8%). Although only one child participated in the sand/water area, the percentage of complex play in that area was fairly high (20%). Activities associated with the lowest percentages of complex play included: books (0%), snack (0%), large group-teacher led activities (0%), and clean-up (0%). Refer to Table 3.7a for complete results.

Activities, including art (43.%), blocks (30.7%), fantasy (24.7%), table games (20.7%), and sand/water (20%) were found to evoke high percentages of complex play for children associated with the afternoon preschool program. Activities associated with the lowest percentage of complex play included gross motor (0%), large group-teacher led activities (0%), clean-up (0%), snack (2.8%), and books (7%). Refer to Table 3.7b.

Children attending all-day preschool demonstrated high percentages of complex play in art (49.8%), table games (34.4%),

blocks (24.2%), sand/water (40%), and the open area (21.2%). The lowest percentages of complex play occurred in clean-up (0%), fantasy (0%), gross motor (0%), large group-teacher led activities (1.5%), and outdoor activities (2.5%). Refer to Table 3.7c.

Activities associated with the greatest percentage of complex play for children attending family daycare included fantasy (43.5%), art (42.2%), table games (23.0%), blocks (30.25%), and sand/water (21.0%). The lowest percentages of complex play occurred in the following activities: snack (0%), books (0%), clean-up (0%), television viewing (.2%), and large group-teacher led activities (4.4%). Refer to Table 3.7d.

TABLE 3.6a

Frequencies of Activities Observed-Morning Preschool Group

Activity/Area*	# of 1 minute periods spent in each activity	Percent of total time
Open Area	117	6.0%
Clean-up	6	.3%
Fantasy	204	10.4%
Table Games	495	25.3%
Blocks	225	11.5%
Books	20	1.0%
Art	627	32.0%
Large Group-Teacher Led Activities	19	1.0%
Snack	21	1.1%
Outdoors, Swings, Bikes	66	3.4%
Garden Work	0	0.0%
Sand/Water Play	152	7.8%
Gross Motor/Climbing Apparatus	5	.3%
Watching Apparatus	0	0.0%

Total 1957

*Definitions of Activity/Area are found in Appendix B

TABLE 3.6B

Frequencies of Activities Observed - Afternoon Preschool Group

Activity/Area*	# of 1 minute periods spent in each activity	Percent of total time
Open Area	83	5.2%
Clean-up	33	2.1%
Fantasy	275	17.3%
Table Games	368	23.1%
Blocks	233	14.6%
Books	29	1.8%
Art	246	15.5%
Large group-teacher led activities	7	.4%
Snack	47	3.0%
Outdoors, Swings, Bikes	148	9.3%
Garden Work	8	.5%
Sand/Water Play	99	6.2%
Gross Motor/Climbing Apparatus	15	.9%
Watching Television	0	0.0%

Total 1591

TABLE 3.6C

Frequencies of Activities Observed—All-Day Preschool

Activity/Area*	# of 1 minute periods spent in each activity	Percent of total time
Open Area	149	9.2%
Clean-up	17	1.0%
Fantasy	168	10.4%
Table Games	214	13.2%
Blocks	185	11.4%
Books	215	13.3%
Art	54	3.3%
Large group-teacher led activities	79	4.9%
Snack	347	21.4%
Outdoors, Swings, Bikes	161	9.9%
Garden Work	0	0.0%
Sand/Water Play	19	1.2%
Gross Motor/Climbing Apparatus	12	.7%
Watching Television	0	0.0%
	Total 1620	
	Total 1591	

TABLE 3.6D

Frequencies of Activities Observed—Family Daycare

Activity/Area*	# of 1 minute periods spent in each activity	Percent of total time
Open Area	192	10.0%
Clean-up	8	.4%
Fantasy	174	9.1%
Table Games	448	23.4%
Blocks	258	13.5%
Books	52	2.7%
Art	110	5.8%
Large group-teacher led activities	25	1.3%
Snack	99	5.2%
Outdoors, Swings, Bikes	213	11.1%
Garden Work	0	0.0%
Sand/Water Play	46	2.4%
Gross Motor/Climbing Apparatus	0	0.0%
Watching Television	287	15.0%

Total 1912

TABLE 3.7A

Percentage of Complex Play Across Activities/Areas
Morning Preschool Group

Activity/Area	# of children involved in activity	Average # of visits	Average %* of Complex play in area
Open Activity	6	24.5	2.0%
Clean-up	3	2	0.0%
Fantasy	6	39.5	13.2%
Table Games	6	82.5	15.7%
Blocks	5	45	15.4%
Books	5	5.2	0.0%
Art	6	104.5	13.8%
Large group-teacher led activities	2	9.5	0.0%
Snack	5	5	0.0%
Outdoors	2	33	5.5%
Garden Work	0	0	0.0%
Sand/Water Play	1	5	20.0%
Climbing/Gross Motor Play	1	5	20.0%
Watching Television	0	0	0.0%

*Based on number of children who visited an activity/area

TABLE 3.7B

Percentage of Complex Play Across Activities/Areas
Afternoon Preschool Group

Activity/Area	# of children involved in activity	Average # of visits	Average %* of Complex play in area
Open Activity	6	104.5	13.8%
Clean-up	4	8.3	0.0%
Fantasy	5	55.0	27.4%
Table Games	6	61.3	20.7%
Blocks	5	46.6	30.7%
Books	4	7.8	7.0%
Art	4	61.5	43.0%
Large group-teacher led activities	1	7.0	0.0%
Snack	4	11.8	2.8%
Outdoors	6	24.7	9.0%
Garden Work	2	4.0	50.0%
Sand/Water Play	4	24.7	20.0%
Climbing/Gross Motor Play	3	7.0	0.0%
Watching Television	0	0	0.0%

*Based on number of children who visited an activity/area

TABLE 3.7C

Percentage of Complex Play Across Activities/Areas
All-Day Preschool Group

Activity/Area	# of children involved in activity	Average # of visits	Average %* of Complex play in area
Open Activity	6	24.8	21.2%
Clean-up	3	5.7	0.0%
Fantasy	5	33.6	0.0%
Table Games	5	42.8	37.4%
Blocks	6	30.8	24.2%
Books	6	35.8	18.3%
Art	4	13.5	49.8%
Large group-teacher led activities	5	18.4	1.5%
Snack	6	57.8	4.5%
Outdoors	4	40.3	2.5%
Garden Work	0	0.0	0.0%
Sand/Water Play	5	4.8	40.0%
Climbing/Gross Motor Play	2	6.0	0.0%
Watching Television	0	0	0.0%

*Based on number of children who visited an activity/area

TABLE 3.7D

Percentage of Complex Play Across Activities/Areas
Family Daycare Group

Activity/Area	# of children involved in activity	Average # of visits	Average %* of Complex play in area
Open Activity	6	44.2	5.5%
Clean-up	3	5.0	0.0%
Fantasy	4	43.5	43.5%
Table Games	6	74.7	23.0%
Blocks	4	64.5	30.3%
Books	4	13.0	0.0%
Art	3	46.7	42.2%
Large group-teacher led activities	3	13.3	4.4%
Snack	6	18.0	0.0%
Outdoors	4	53.3	7.3%
Garden Work	0	0.0	0.0%
Sand/Water Play	2	23.0	21.0%
Climbing/Gross Motor Play	0	0.0	0.0%
Watching Television	5	57.4	.2%

*Based on number of children who visited an activity/area

CHAPTER IV

Discussion and Implications of the Major Findings

Effect of Time on Complexity of Play

The results of this study suggest that the complexity level of a child's play does not differ significantly between morning and afternoon. If the results of this study are replicated using a larger, more socioeconomically diverse sample, the development of more afternoon preschool programs should be seriously considered. The operating hours for the majority of preschool programs, today, seem to be during the morning. These hours appear to be based on the assumption that children are most cognitively alert, and least fatigued during the morning hours. However, the results of this study suggest that as long as children are provided with a stimulating environment, cognitively complex play is as likely to occur in the afternoon as it would in the morning. The further development of afternoon programs would mean that a larger segment of the community could be serviced. In addition, the option of sending their child to a morning or afternoon preschool may be helpful to those parents who have to coordinate work schedules with program hours.

Effect of Setting on Complexity of Play

The results suggest that with the exception of the children attending the afternoon preschool program, children participating in the other programs displayed similar levels of complex play. This finding should assure parents that a child's cognitive development is not adversely affected as long as materials or activities allow the child to: use his/her imagination, combine several ideas or materials in play, learn a new skill or improve an established one, and/or develop a variety of strategies for attaining different goals (Sylva, Roy, and Painter, 1980).

However, since a significant difference was found in the complexity scores of children attending afternoon preschool programs as compared to those of children attending other programs, an evaluation of the program set-up was undertaken. When comparing preschool programs, one major difference was found to exist between the set-up of the afternoon program and the other programs. This difference was in the adult:child ratio.

In the afternoon program, the adult:child ratio was approximately 1:2. This low ratio is the result of the preschool being a teaching facility for early childhood education pre-practicum interns. Not only do the same interns work with the children everyday the program is in session, they do all of the program planning. In contrast, the ratio observed in the other programs was approximately 1:6. At times the adult:child ratio was somewhat smaller in the full-day program because work-study students assisted the teachers. However, these

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In the afternoon program, the adult:child ratio was approximately 1:2. This low ratio is the result of the preschool being a teaching facility for early childhood education pre-practicum interns. Not only do the same interns work with the children everyday the program is in session, they do all of the program planning. In contrst, the ratio observed in the other programs was approximately 1:6. At times the adult:child ratio was somewhat smaller in the full-day program because work-study students assisted the teachers. However, these

students were not involved in the program planning and were not in the classroom consistently throughout the day or the week.

It is hypothesized that adult:child ratio does affect the level of complexity of a child's play. The low adult:child ratio in the afternoon program might have allowed teachers to concentrate on a child's play more intensely. By having the time to follow the child's actions, the afternoon teachers could promote more cognitively complex play by intervening at times when a child seemed to be losing direction or interest. In comparison, it may have been difficult for teachers working with larger groups of children to be as actively involved with their play, since the teachers also had to deal with the set-up/clean-up of activity areas as well as behavioral problems of the entire classroom.

If in fact adult:child ratios do influence the cognitive level of a child's play, one implication of this finding would be that the number of permanent teachers on the staff should be increased proportionately to the number of children enrolled in the program.

The amount of time allotted for planning may have been another factor related to the differences found among groups. The teachers involved with the afternoon program met for an hour before and an hour after each session. Since these teachers were also student interns, they were required to regularly design and implement activities that would specifically challenge the child's current level of cognitive development.

The amount of time allotted for planning in the other programs

was unknown. However, it is possible that the time spent in planning new, challenging activities for the classroom may be related to the child's level of complex play. Since this relationship between planning time and level of complexity may be of significance, future research should address this issue.

A final factor that may have affected the results is that the children attending the afternoon preschool program were somewhat older than the children attending the other programs. However, due to the small sample size for each group, it was impossible to calculate accurate correlations between age and level of complexity. In future research, the age range of the children should be more similar across groups so that there is no possibility of a confounding variable affecting the results.

Effect of Changing Caregiver Setting

The results suggest that the complexity of a child's play is not affected by his/her attendance in a half-day or full-day program. Furthermore, it appears that complexity is stable across time and settings. Morning and afternoon scores were found to be positively correlated, although a stronger correlation existed in the scores of children changing caregiver settings. It is possible that a larger sample size would increase the strength of correlations for children attending all day as well as half day programs, although research is needed to investigate the reasons why the correlations may have differed.

Stable complexity scores suggest that the environment may not have a significant impact on the type or complexity level of play in which the child engages, if the child typically engages in a certain level of play. If the child's level of play complexity is high at home, it appears that it remains the same at school and vice versa. More observational research at both the home and school is needed in order to clarify the relationship between play in both settings. Specifically, the degree to which activities learned at school are implemented at home (and vice-versa) should be examined to determine the impact of setting on the child's development of play strategies.

Effect of Time on Home Complexity Scores

The results suggest that children attending morning preschool have fewer instances of complex play at home than children attending afternoon preschool. The acceptance of this statement as true is somewhat limited. First of all, the normal day-to-day routine of these children at home was unknown to the researcher. Since the child was observed in his home for only one hour on three separate occasions, it was impossible to fully comprehend the type of play and interactions that typically occurred. During the observations for this study, the child was sometimes viewed playing alone, playing with his/her mother, and playing with a younger or older sibling. Since it is important to understand the effect of other people and settings on the child before trying to understand him/her in a specific environment (Bronfenbrenner, 1979), more needed to be known

about the usual play patterns of the child before drawing conclusions based on brief observations of play. Although the child was observed for the same amount of time in the school, a greater amount of environmental stability (same peers, teachers, materials, activities present) make those results more reliable.

Secondly, the level of play of those children attending afternoon preschool was seen to be more complex than that of children attending other programs. This could mean that the cognitive thought processes of the children attending the afternoon program were more advanced than those of the children attending other programs. At home, these children may also be incorporating ideas and materials used in the classroom into their play. Since the play at school was judged to be more complex, it seems logical that the same types of activities would produce play of similar complexity at home. A better understanding of the child's day-to-day routine, coupled with a more extensive observation period would provide results of greater validity.

Effect of Materials on Complexity of Play

According to Sylva, Roy, and Painter (1980), children spend the most time in two types of activities: those with some type of drama (pretend, storytime) and those with clearly defined goals. Sylva and her colleagues believe that there is a direct positive correlation between the time a child spends in an activity and the activity's cognitive challenge. Results from their 1980 study concluded that

children spend the most time in the following, highly complex activities: Art, small scale construction, structured materials, puzzles, sorting and matching materials), large scale construction, and fantasy. These activities were viewed as ones allowing the child to set a goal, work with materials, and see the results.

The results of this current study suggested that across programs, children spent the most time in table games (structured materials), blocks (construction) and fantasy. In looking at specific differences among groups, it was found that children attending half-day preschool programs spent a large portion of their play time engaged in art activities, whereas children attending the all day preschool and family daycare homes spent very little time in the art area. In addition, children attending family daycare homes spent a large part of their play time watching television and playing outdoors, while children associated with the all day preschool spent a great deal of time in the book and snack areas.

The activities yielding the highest percentage of complex play included the following: art, blocks (construction), table games (structured materials), and sand/water play. Fantasy was viewed as yielding high percentages of complex play in all programs except for the all day preschool, in which no complex play was observed. It is possible that there was not enough staff in the all day preschool program to facilitate and encourage cognitively complex fantasy play. Upon examining the overall findings concerning activities yielding high percentages of complex play, it would seem that the results of

Sylva and her colleagues were replicated through this study.

Less complex play was associated with gross motor play, large group teacher-led activities, snack, and clean-up. Little complex play occurred during television viewing, although children attending the different family daycare homes spent a large portion of the observation time engaged in this activity. Since this activity is not conducive to complex play, it would seem that the viewing of television programs should be limited or curtailed.

In terms of gross motor play and large group teacher-led activities, it seems somewhat logical that these would not yield high levels of cognitively challenging play. During these activities a lot of repetitive movement, physical exercise, and dialogue occurs. In addition, teachers often direct while children follow during the large group activities. Therefore, children are not really able to set goals, map out strategies, and evaluate success during these activities. While these activities are useful for physical and social development, it would seem that the time allotted for them should be somewhat limited so that children can engage in activities of greater cognitive and/or social value.

In looking at the results of this specific study, it was indicated that garden work yielded high levels of complex play for the few children who engaged in this activity. Although the sample size was too small for drawing definite conclusions, this finding does have potential implications. If in fact gardening does promote complex play, more preschools or daycares would develop an

indoor/outdoor gardening center. Not only does gardening allow for
sensual/tactile stimulation and the opportunity for sorting and
categorizing, it can also be viewed as an area where the child may
find some privacy or quiet when he/she needs to be away from the
other children (Prescott, 1981).

In summary, it would appear that preschools, daycare, and home
environments should provide children with a variety of open-ended
materials that they can use in a number of ways. Activities in which
a child can set a goal, map out strategies for goal attainment, and
see the end-product should be encouraged because they challenge and
further the cognitive level of the child. The following should be
plentiful in all home/school environments: materials with which to
draw, paint, sculpt, create; construction materials including blocks,
leggos, miniature cars and people; structured materials such as
puzzles, pegboards, items to sort or match; and materials to be used
in fantasy or pretend. The provision of these types of materials
will challenge the thought processes of young children and will
assist in the promotion of their optimum cognitive development.

Limitations of the Study

Certain limitations exist in this study. First, the afternoon
preschool is a training facility for the University of Massachusetts'
Early Childhood Education pre-practicum interns. The student interns
spend a great deal of time planning a variety of activities. In
addition, each activity area of the preschool is staffed with an

intern. In contrast to the other environments in which the
adult:child ratio is much higher, the afternoon program may allow for
more complex types of activities to be available.

Second, a larger sample of children may have increased the
reliability of the findings. Due to time constraints, only
twenty-four children were studied. Although 360 observations were
collected for each child, generalizations are somewhat limited by the
sample size. A larger, more economically diverse sample would be
preferable in future research.

Third, home observations were somewhat varied across the sample.
Parents were informed that the regular routine should be maintained
while the data collector was present. Therefore, some children were
observed playing alone, others with the mother for part of the time,
and others were observed interacting with younger and/or older
siblings. Although the majority of observations involved the child
playing alone, inconsistencies regarding solitary and interactive
play occurred across the three observation periods. Similar home
situations for all of the subjects would have been more appropriate
since interactions with either the mother or siblings may have
affected the complexity level of the child's play.

Fourth, the large number of data collectors (7) may have affected
the results. Although reliability ranged between 89-96%, data
collection using two or three observers would probably have been more
accurate. In addition, since such a wide variety of activities and
play bouts were viewed during the course of observation, some

examples of play may not have been observed when practicing data
collection prior to the reliability and actual coding. This
situation may have influenced the coding of some of the observers'
observations.

Fifth, four different family day cares were observed. The length
of time spent at each home varied across children. Therefore, some
of the three year olds were at this environment three days a week
while others were there for five days. In addition, the number and
ages of the children varied across settings. Since age has been
found to influence social interactions (Lougee, Gruenick, and Hartup,
1977), the complexity of play may also be influenced by the presence
of younger, older, and/or same-age playmates. In future research,
family day cares comprised of children that are matched in age and
time attending the program would be the most appropriate to study.

Directions for Future Research

While the results of this pilot study provide significant
information to both parents and educators, a great deal more
information can be obtained in subsequent research. The following
suggestions for future study will provide information that will
better clarify the effect of different environments on the play of
all young preschoolers.

1. Children attending full-day programs (family day care or
    day care centers) should also be observed in the context
    of their homes. The complexity of a child's play in an

alternate environment is reflective of the complexity of
play occuring in the home. The basis for this statement
is the work of Bronfenbrenner (1979). His theory,
focusing on the ecology of human development, states that
an individual cannot be studied in the context of one
setting. Bronfenbrenner believes that it is necessary to
understand the effect of other people and settings on the
child before studying him/her in a specific environment
(Bronfenbrenner, 1979). By understanding the types of
materials used by the child, and the number of
interactive play bouts with parents or siblings, the type
of play occurring in the alternate care setting can be
better understood. In addition, results comparing
children in half-day programs with children attending
full-day ones will be more reliable if both groups of
children are observed within the context of the home and
alternate environment.

2. If possible, children should be observed over the course
   of an entire day. During the present study, each child
   was observed for an hour, during the morning and after,
   at his/her "optimum play time." This hour was defined by
   the caregiver as the time in which the child was most
   highly engaged in free play activity. Although these
   observations allowed us to examine play complexity to
   some extent, a recording of the child's entire day

would provide additional information unattainable through hour-long recording periods.

By following these four different groups of children all day long, we would be able to better understand the "patterns" of children. For example, through this type of study, the time of day during which children are most and least cognitively on task could be evaluated. Data would also provide us with information as to whether there is a difference among groups concerning the length of time in which children are most or least cognitively alert. Data would also allow a better assessment of the amount of time children are fatigued or in need of naps. Do children attending half-day programs need as much rest as those attending full-day programs, or does the transition to the home setting rejuvenate them? Information concerning the most common time for children's fatigue or cognitive peaks would be helpful in programming, so that the most suitable materials (less or most challenging) could be provided at appropriate times of day.

3. The play of children attending family day care should be more closely studied. In that the majority of the family day cares service children ranging in age from infants to half-day kindergarteners, a wide variety of cognitive and social skill levels exist within the group. It has

already been suggested by Lougee, Gruenick, and Hartup
(1977) that young children are influenced by the
developmental stage of their playmates such that
"nonagemates" become more like "agemates" during periods
of interaction. Although this study focused on the
social interactions of children between the ages of 3.2
and 5.4 years, it suggests that interactions between
older and younger children may be influenced by each
other's level of social or cognitive understanding.
Since social interactions are often included in a child's
play, the results of Lougee's study are important in
subsequent research concerning play complexity. If
mixed-age grouping does positively affect the cognitive
level of a child's play, preschool and day care programs
may integrate play with older children into their
programming for at least a portion of the day.

4. The research conducted with middle-class and
upper-middle-class children should be repeated with
children from lower socio-economic families. The
complexity scores of children at home may be much lower
in families with less income for a variety of reasons.
First of all, lower income families are often not
well-educated. Therefore, they may not be aware of the
types of materials or activities that would promote the
cognitive growth of the child. Although money may not be

readily available for a variety of playthings, activities could be developed from raw materials that would still provide cognitive challenge. Therefore, one implication of determining if the home complexity scores of lower income children are lower than those of middle class children would be providing parents with educational materials to aid them in the development of a more stimulating environment for the child.

The quality of various day care and preschool programs available for lower income families should also be evaluated by using the complexity of children's play as a measure of cognitive stimulation. It is possible that the day care providers are not as well educated and do not have the funds necessary to provide the optimum learning environment. If complexity of play is found to be lower among these children than among middle income children, information on how to improve activity areas using both raw materials and actual playthings should be made available to providers so that learning can be enhanced. It does not appear that a large variety of materials is necessary, as long as the ones that are available are unstructured so that children can explore and use them in a variety of ways.

5. Several more comparisons between morning and afternoon preschool groups should be made. In that only one

morning and one afternoon preschool were utilized in this study, it is difficult to draw any definite conclusions from the data. A replication of the current findings is necessary before concluding that more complex play occurs in children attending afternoon, as opposed to morning, programs. A sample drawn from several different preschool settings should be utilized so that the results can be generalized to a larger portion of the population.

6. In the future, it would be valuable to determine the correlation between the measures of complexity derived by Sylva, Roy, and Painter (1980) and the play hierarchy developed by Parten (1932). According to Parten, solitary play is the least complex type of play, while cooperative play is recognized as the most advanced. Rubin (1977) and others have questioned the conclusion that solitary play is the least mature. It is Rubin's belief that parallel play is the least mature type of play since playing alongside a child may indicate a desire to interact with others, although inadequate social skills may prevent this from occurring (Rubin, 1977).

The research conducted by Sylva et al (1980), on which this dissertation was based, did find that children playing in pairs and playing parallel to each other engaged in the highest proportion of challenging play

(33% and 30%, respectively), while the lowest proportion of complex play was seen in children playing along (21%). However, since some discrepancies in the literature do exist, it is important to determine the social situations that are the most conducive to complex play, since the greatest cognitive growth of the child occurs during this time. If there is a significant difference in solitary versus parallel versus group play, activities promoting the greatest cognitive and social growth should be encouraged in the classroom.

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APPENDICES

APPENDIX A

CODING CATEGORIES AND DEFINITION
SYLVA, ROY AND PAINTER (1980)

APPENDIX A

Task Code Categories as defined by Sylva, Roy and Painter, 1980, pgs. 240-243.

Large Muscle Movement - Active movement of the child's body, requiring coordination of larger muscles, such as running, climbing; gross motor play.

Large Scale Construction - Arranging and building dens, trains, etc., with large crates, blocks, etc.

Small Scale Construction - Using small constructional materials such as lego, meccano, hammering, and nailing.

Art - "Free expression" creative activities such as painting, drawing, chalking, cutting, sticking.

Manipulation - The mastering or refining of manual skills requiring coordination of the hand/arm and the senses: e.g., handling sand, dough, clay, water, etc. Also sewing, gardening, arranging and sorting objects.

Structured Materials - The use of materials, with design constraints, e.g. jigsaw puzzles, peg-boards, templates, picture or shape matching materials, counting boards, sewing cards.

Pretend - The transformation of everyday objects, people, or events so that their 'meaning' takes precedence over 'reality'.

<u>Scale-Version Toys</u> - Arranging miniature objects, e.g. dolls' houses, farms and zoo sets, transport toys, toy forts. It does not include use of toys such as prams, dolls and dishes. If minature objects are used in pretend play, use previous category.

<u>Informal Games</u> - A play situation, with or without language, where the child is playing an informal game with another child. These are spontaneously and loosely organized; e.g. following one another around while chanting, hiding in a corner and giggling, or holding hands and jumping.

<u>Music</u> - Listening to sounds, rhythms or music, playing instruments, singing solos and dancing.

<u>Social Interaction, Non-Play</u> - Social interaction, with another child or with an adult, verbal or physical, but definitely not play, with another child or with an adult. E.G. chatting, borrowing, seeking or giving help or information to someone, aggressive behavior (not play fighting), teasing, being cuddled or comforted by an adult.

High Cognitive Challenge (Complex)	Ordinary Cognitive Challenge
Child's activity is: Novel, creative, imaginative, productive	Child's activity is: Familiar routine, stereotyped, repetitive, unproductive
Cognitively complex, involving comginations of several ideas, materials, actions, or elements	Cognitively unsophisticated, not involving the combination of elements
Carried out in a systematic, planned and purposeful manner	Performed in an unsystematic, random manner with no observable planning
Structured and goal-directed- working towards some aim, whether the result is a tangible end-product or an invisible goal	Not directed towards a new, challenging goal, 'aimless', and without structure
Conducted with care and mental effort; the child devotes a great deal of attention, is deeply engrossed	Conducted with ease, little mental effort, and not much care; the child is not deeply engrossed
Learning a new skill, trying to improve an established one, or trying novel combinations of already familiar skills	Repeating a familiar, well-established pattern without seeing to improve upon it nor to add any new component or combination

Characteristics of high and low cognitive challenge as defined by Sylva, Roy and Painter, 1980, p. 60.

APPENDIX B

THE BEHAVIOR CHECKLIST OF
CHILD-ENVIRONMENT INTERACTION

THE BEHAVIOR CHECKLIST
OF
CHILD-ENVIRONMENT INTERACTION

Second Edition

An observational record of children's behavior
in child care and early education settings.

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Permission has been granted by Dr. David E. Day for Katherine Winey
to make modifications as needed for this specific dissertation.

REVISED BEHAVIOR CHECKLIST

Behaviors Defined

There are five categories of child behavior in the Checklist: task involvement, cooperation, verbal behavior, nature of play, and consideration. The categories and the behaviors which define each category are defined in the following paragraphs. It is absolutely necessary that these behaviors are memorized before observations are begun.

1. Task Involvement Behavior. The child is engaged in an activity or task, or is not engaged.

  1.1 On-Task behavior: The child is engaged in a task or activity. On task behavior can be observed in a teacher directed or self selected activity. Some examples include: completing a puzzle, sorting objects, creating with clay, listening to a story read by a teacher, and listening to a group discussion.

  1.11 Observes: The child observes the activity of other children or of an adult without participating or interfering in any way. The child is interested in what is occuring but does not attempt to enter the activity in a direct way. (Observes should be coded simultaneously with On-Task Behavior).

1.2   Off-Task Behavior: The child is inattentive, uninvolved, or wandering. The child is not engaged in a task, fails to respond to a teacher's query, or fumbles around in distraction. An inattentive/uninvolved child may sit quietly at a table or in a circle with other children who are involved. The child need not be disruptive. A wandering child moves about the room without focus and remains in an area for a very short period of time.

1.21   Waits: The child waits while activities, materials etc., are being prepared or the activity started. The child waits, alone or with others, while a teacher prepares, organizes, distributes materials, or attends to other children. (Waits is an off-task behavior; off-task will be coded too. Waits occurs while an activity is supposed to be taking place. It is not an in-between or transition period).

1.3   Transition: The child is between activities. The child is not engaged in a curriculum task but, rather, is between events. Transition can only be known by the context: a teacher announces a new activity is to begin; a child completes a task and has not begun another.

2. Nature of Play - defined by Sylvia, Roy, and Painter, 1980.

    2.1 Complex - high cognitive challenge

        a) Activity is novel, creative, imaginative

        b) A combination of several ideas, materials, or
            actions is involved in the play.

        c) The activity is carried out in a systematic,
            planned, and purposeful manner.

        d) The activity is structured and goal directed.

        e) The child is deeply engrossed; the activity is
            conducted with a great deal of care and mental
            effort.

        f) The child learns a new skill, tries to improve an
            established one, or combines familiar skills.

    2.2 Simple Play - low cognitive challenge

        a) The activity is routine, familiar, repetitive, and
            unproductive.

        b) Elements are not combined. Play is cognitively
            unsophisticated.

        c) Play is unsystematic with no observable planning or
            purposefulness.

        d) Play is not directed towards a new challenging
            goals.

        e) Little mental effort and care are put into play.
            The child's attention may not be entirely on the
            task-he/she is not deeply engrossed.

f) The child repeats a familiar, well-established pattern without seeking to improve it. No new component is added or combination of materials made.

3. Cooperation. The child is engaged in independent, associative, or cooperative activity, or is being directed by the teacher.

    3.1   Works independently: The child is engaged in a task alone. The child is not involved with nor does he/she seek the assistance or direction of another child or adult. The child may be physically isolated (in a place without other children) or near others. There may be some conversation with others but the child continues to work or play alone.

    3.2   Associative activity: The child is engaged in an activity with another child, group of children, or adult where the responsibility for directing (coordinating) the activity has been invested in one person. Activity is maintained by the children's interest rather than by teacher direction or coercion by the other children. The child is free to leave the activity. One child or adult makes the decisions and, thus leads the group. The child being observed may be the leader or the follower - it is irrelevant.

3.3   Cooperative activity: The child is engaged in an activity
with another child, group of children, or adult where there
is shared responsibility for what occurs. Leadership is
shared among the participants. Participation appears to be
based on interest; children may leave or enter the activity
while it is taking place.

3.4   Teacher directed activity: A teacher is leading/directing
the activity in which the child is engaged. The size of
the group being directed is unimportant. The child is
obliged to follow the lead of the teacher. Examples
include circle time, storytime, and snack.

3.5   No evidence: There is no evidence of the presence or
absence of cooperation because the child is off-task.
(Entry would be made for both off-task and no evidence).

4. Verbal Behavior. The child is using language or is not.

4.1   Recitation talk: In a teacher directed activity, the child
responds to inquiries by the teacher. The response may
result from direct inquiry—a question or statement directed
to the child - or from indirect inquiry - a question or
statement directed to the group as a whole. It would
typically occur during circle time, story time or during
formal instruction.

4.2   Task talk: Speech between children or with an adult
       related to a task or activity which is not teacher
       directed. The child is engaged in conversation with
       another child, adult or both about a task or activity in
       which the child is engaged or when he/she is observing
       another child's engagement. There must be reciprocal
       speech. (If adult requires a response or leads the child,
       recitation talk would be coded).

4.3   Social speech: Speech between children or with an adult
       which is not related to a task or activity. The child is
       simply engaged in a verbal interchange about any matter
       other than a task at hand. Social speech can occur while a
       child is task involved; it could occur as a child completes
       an art activity at a table with other children. Also,
       children may be uninvolved in any task but engaged in
       social speech when, for example, they could be sitting on
       swings, not swinging, but talking about some earlier common
       experience.

4.4   Talks to self: The child talks to him/herself while
       engaged in an activity or task. The speech is not directed
       to anyone else, though it may be a series of questions and
       occur in presence of other people. Examples include role
       playing behavior, directing task resolution, and discussing
       an event.

4.5   Other Speech: Talk which does not fit any of the
       definitions provided here, i.e., a sentence fragment which
       appears to hang in space, a probe by a child with no
       response, a declarative statement made to an unknown
       subject.

4.6   No Speech: The child did not utter a word during the 30
       second segment.

5. Consideration: The child is considerate of other children and
    their activities.

5.1   Respects Space: The child respects the physical space
       and/or materials of other children. The child walks around
       another child who is seated on the floor looking at a book.
       The child does not disturb a construction project, game or
       other activity of children. A child who does not disrupt
       the activity of others working in close proximity - at a
       table or on the floor - would also be respecting physical
       space.

5.2   Takes Turn: The child takes turns in activities with other
       children. The child will allow other children to use
       materials he/she is using, to alternate using a piece of
       equipment, or wait in line with other children before using
       a material or engaging in an activity. Taking turns is
       learned behavior and may need to be mediated by adults.

Even in stances where adults are involved, the behavior should be coded. It should not, however, when the child has been threatened with the imposition of sanctions if he/she refuses to take a turn.

5.3   Helps Child: The child assists another child. Examples include offering to assist in picking up blocks, helping a child move a heavy object to a shelf, and helping a child in learning an activity's rules. This behavior occurs with or without adult encouragement.

5.4   Disturbs: The child disturbs the activity of others and/or behaves in a way disruptive of on going activities. Examples include a child intentionally rolling a ball into the block structure of another child; a child screaming while others are trying to listen to a story; a child taking other children's materials.

5.5   Threatens/Strikes: The child threatens or strikes another child. Examples include kicking a child, threatening to strike another child with a block, and intentionally driving a tricycle into a child.

5.6   No evidence: The child was not observed in any positive or negative consideration behavior during the 30 second observation segment.

6. Other

    6.1 Fantasy Play: Fantasy or dramatic play occurring in areas
         other than those designated for that type of play. One
         example would be creating a raceway out of blocks and
         pretending that you are the race car drivers at the Indy 500.

    6.2 Gross Motor Play: Playing utilizing equipment for the
         development of gross motor coordination. Examples would be
         climbing on structures, sliding down slides, bouncing on
         tire tubes.

    6.3 Leave Classroom: This behavior will be coded when the
         child leaves the classroom and the observation cannot be
         continued. Coding leaves classroom, signals the
         interruption of the observation prior to its completion.

Directions for Coding the Behavior

The observations will occur in a series of five, 30 second
segments, as was described in the Data Gathering section. The
directions for coding, which follows, are for each 30 second segment.

1. Coding on task, off task, and transition. The child's
    behavior must last for at least 16 seconds of every
    segment for it to be coded one of these three choices.
    That is, if a child is busy at a task during the first 20

seconds of a segment, he/she will be coded on task. If the child is not engaged when the observation begins but becomes engaged after 6 or 7 seconds, he/she will be coded on task. The same procedure would follow for off task and transition. In the unlikely event the child's time is equally divided between on and off task, code it off task. The intent is to record modal behavior, that which is most commonly seen.

A CHILD MUST BE CODED EITHER ON TASK, OFF TASK, OR TRANSITION FOR EVERY 30 SECOND SEGMENT.

2. Coding Cooperation, Verbal Behavior, and Consideration. No modal behavior criterion need be applied for any of these categories of behavior. If a behavior is observed, it should be recorded. If more than one behavior for any category is observed during a 30 second segment, both should be recorded. For example, a child may be observed working alone as an observation is begun. Before the segment is over, the child may join a cooperative activity. Both Independent Action and Cooperative Activity would be coded.

3. Coding Duration and Shift. Duration and Shift are coded
    as a means of gathering information about children's
    tenacity. The following directions should be carefully
    followed:

3.1 All indices of duration are computed on the basis of a
     series of five consecutive, 30 second observations.

3.2 When a child is observed on-task during the first 30 second
     segment of any series, entry is made on the data sheet for
     both on-task and continues. If the child remains at the
     same task during the next 30 second segment, entry would
     again be made for on-task and continues. This procedure
     would be repeated for the five observations when the child
     remains at the same task.

3.3 If the child remains task involved but moves to another
     task, entry would be made for on-task and shift, signifying
     involvement in a new task or activity. If the child stays
     involved at this task for the next and all remaining
     segments, entry would be made in on-task and continues.
     Note the return to the use of continues; the shift has been
     recorded, the intent now is to measure the duration of the
     new activity.

3.4 It is unlikely an involved child would switch activities more than once during the five observation sequence. In the event this should occur, the procedure just described should be followed. It is unnecessary to code the duration of off-task behavior. Duration can be calculated using the segment entry by computing the number of consecutive off-task entries for each series of five observations.

4. Experience has suggested that it would be useful to know more about children's on- and off-task behavior than simple proportions. To this end, two additional behaviors have been added to this category: observes and waits. Observes is defined under on task behavior, waits under off task behavior. When a child is engaged in observing on-task behavior, he/she will be coded both on-task and observes. When a child is off-task and waiting, he/she will be coded both off-task and waiting. Observers must remember that these are only explanatory behaviors which will occur some of the time. Record each when it characterizes the type of on- or off-task behavior, but do not become concerned if it is only rarely seen.

5. The Object of the Behavior. There are three letter options (A, B, and C) under eight behaviors (associative activity, cooperative activity, task talk, respects space,

helps child, disturbs, and threatens/strikes). With respect to this study, for the following behaviors (associative activity, cooperative activity, respects space, helps child, disturbs, and threatens/strikes) A= Male, B= Female, and C= Both. When coding task talk and social talk, A= Male, B= Female, and C= Adult.

Context Definitions and Coding Directions

The theory of human behavior on which this procedure for the naturalistic study of children's classroom activity is based, places great importance on the context of behavior. There is reason to believe that the way in which any person behaves is, in no small measure, a function of the setting; a response to one's perception of what is expected of all persons in that setting. Thus, it should not be surprising that effort would be made here to gather some information regarding the context of the children's observed behavior.

Three types of contextual data will be gathered; the designation of the activity or learning area, information about the teacher, and information regarding the size and composition of the group of children in which the observation is taking place. Each of these types of data will be defined.

1. <u>Activity Area</u>. Before the observations are begun, the
    teacher in charge of the classroom shall identify and
    define all of the activities and learning areas which
    comprise the classroom curriculum structure. Each
    activity and area will be identified and given one of the
    following ID numbers.

    There are two activities which appear in every
    classroom, activity which occurs across or between areas
    and clean-up. Activity which does not occur within a
    designated or defined area or is not a part of a regularly
    scheduled event shall be called <u>Open Activity</u>. Open
    activity occurs when two children are engaged in fantasy
    play in which they move along the corridors and pathways
    of the classroom but never enter any of the learning
    areas. Open activity could also involve a child moving
    about on the periphery of areas (wandering behavior). ID
    number is always <u>1</u>.

    Clean-up Activity is that which occurs in every area
    when the teacher signals it should begin. The teacher
    will announce clean-up, will ring a bell or, in any of
    several other ways, signal to the children the end of
    which they are engaged in and the request that they should
    return materials to their place of storage, clean off
    tables, etc. During clean-up, ignore where it occurs and
    code only that it is then taking place. ID number is <u>2</u>.

Common Preschool Activities/Areas

ID	Activity/Area	Definition of Area
00	Transition Activity	
1	Open Activity	Activity which occurs outside of designated learning areas and not during regularly scheduled activities
2	Clean-up	Returning materials to their storage places, picking up, etc. Always at teacher's request
3	Fantasy Play Area	An area particularly designed to provoke and sustain role play, make-believe, and fantasy
4	Table Games Area	An area in which small games are stored, with

large and/or small
tables upon which the
games are played.
Games would include
puzzles, lotto, leggo
matching and sorting
activities, small
manips

5   Blocks

An area in which unit
blocks are stored and
used. Occasionally,
large construction
blocks may be found, ·
as would miniature
cars, people and other
materials useful in
construction activity

6   Book Area

An area, usually quite
small, in which chil-
dren's books are found
for use both by chil-
dren and adults with
children

| 7 | Art Area | An area where table arts and crafts occur. Tables and art materials are found here. |
| 8 | Large Group Area | Usually an open space large enough to acco-modate all of the children. A place where most whole group, teacher-led activities occur, i.e., circle time, |

be used for other activities when not used for snack.

| 10 | Outdoors Area | Area outside the classroom (and buil-ding) which is used by |

is considered to be child choice time. Examples include block play, puzzle completion, and table games.

Every Activity/Area identified must be designated either teacher or child choice. In cases where a clear distinction is not possible, use would be made for the most common form.

2. <u>Teacher or Adult Role</u>. For each observation, the role of the teacher will be designated as follows:

1. When the teacher is absent from the setting in which the child's behavior is observed.

2. When the teacher is present in the area but is only observing the activity of the child. The adult may comment on the activity but does not become engaged with the child.

3. When the teacher is participating in the activity with the child but is not directing, nor controlling, the events, rather he/she is engaged in the same activity as the child.

4. When the teacher is directing the activity of the child or group of children. The teacher is in charge of the events.

If there is more than one teacher/adult in the area, code the one who is playing the lead role, e.g., the one who is engaged with or closest to the child.

3. <u>Group Size and Composition</u>. This category is meant for recording the number of children with the child under observation. This category is for numbers of children only. The presence or absence of the adult is not a factor in determining group size. Group size will be designated as follows:

<u>1</u>. When the child is alone.

<u>2</u>. When the child is with one other child.

<u>3</u>. When the child is with two to four additional children (group size, including the child, is three to five children).

<u>4</u>. When there are more than five children in the group but <u>less</u> than the whole class; when the whole class is not expected to be included.

<u>5</u>. When it is a whole class activity; when all of the children are expected to be included.

APPENDIX C

SAMPLES OF COMPLEX VERSUS SIMPLE PLAY

MANIPULATION

Challenging-   TC fills a bottle then pours its content into a cup.
He puts a plastic saucer in trough- it floats. TC
pours water onto the saucer from the cup and watches
it sink. He fills the cup again, sets the saucer to
float, pours water onto it, this time through a
funnel, slowly and carefully, watching intently. He
puts the cup in water so that it floats. Again he
pours water through the funnel to sink the cup. He
looks around for other objects-fetches things from
other tables and tries them in the water, separating
those that float from those that sink.

Simple-   TC is at the water trough with other kids. All
dabble their hands in the water. TC takes a bottle,
holds it under water to fill it, pours it out, fills
it and pours it out again. C splashes him, TC
splashes back, they all splash. TC fills the bottle
and pours it out again, fills a cup and pours that
out too.

SMALL SCALE CONSTRUCTION

Challenging-   TC takes two blocks of wood, large and small. He
holds the small block over the large, selects a nail
from the tin, and hammers it through, joining the two
blocks. He pivots the small block around. He takes
another nail: 'I'm going to hammer it so it can't
move.' He hammers the nail in but it doesn't go in
far enough to pierce the block underneath. He takes
the nail out and selects a longer one. He hammers it
carefully, and looks as if to see that it's gone
right through. He tests to see that the two blocks
are now anchored and don't turn. He takes a bottle
top and hammers it on top, embedded in the wood.

Simple-   TC, and others, are at the woodwork table with wood
blocks, hammer, nails, and so on. TC takes a block
of wook, hammers a nail into it, banging hard and
laughing with the others. He takes another nail and
hammers it repeatedly. All the Cs hammer and make a
lot of noise. TC takes a nail out of the wood and
hammers it in again.

STRUCTURED MATERIALS

Challenging—   TC selects a jigsaw puzzle from the shelf, looks at it, takes it to a table and empties it out. He looks at the pieces, and fits them together carefully. He looks for the 'right' piece on the table each time. He tries to fit a piece in the wrong place, takes it out and tries another piece which won't fit either. He returns to the first piece and tries it in various places until it fits. He completes the puzzle, and goes to choose another from the shelf.

Simple—   TC is at the jigsaw table. He empties a jigsaw onto it, takes the pieces and rapidly fits them into place with ease. He empties another jigsaw onto the table, and chews a piece as he watches Cs at a neighboring table. He slaps pieces into the jigsaw, frequently looking up at the nearby Cs. He tries to put in a piece upside down, and presses down on it with his hand to force into place while watching the other Cs.

ART

Challenging—   TC takes paper and pen, and colors in 'blobs' with apparently random scribbles but carefully. He takes another collor and fills in a corner. He fills in another corner with a new color. He takes a stapler and puts staples down one side, then adds a strip of Sellotape. He folds paper in half and staples down the ends. Then he takes a pen and draws around staples.

Simple—   TC is at the table with paper, felt pens, stapler, and Sellotape. TC takes some paper and a pen, and scribbles hard, filling in a large colored 'blob'. He folds the paper in half, takes another sheet, and does the same again. He folds the paper in half and Sellotapes it down, folds it in half again and tapes it, then folds and tapes again.

GROSS MOTOR PLAY

Challenging—   TC walks along a raised plank, clambers from a tressle onto a climbing frame. He climbs to the top, turns a somersault over the top bar, hangs by his hands from the top bar, trying to get his feet onto a lower bar. To do this, he has to adjust his position several times before he succeeds. TC wriggles in and out of the bars, sometimes head first, sometimes feet

first, using several methods of getting up and down
the climbing bars.

GROSS MOTOR PLAY

Simple—   TC is at a climbing apparatus - tressles with planks
             laid across, a climbing frame, a slide with a ladder,
             and so on. TC climbs up the tressle, walks along the
             raised plank, climbs up the ladder, down the slide,
             and back to walk along the plank again. He repeats
             this several time.

LARGE SCALE CONSTRUCTION

Challenging— TC and C discuss building a train. Together they
             arrange a row of large boxes, add a crate on top at
             the 'front' and a short plank across the crate. TC
             and C discuss the fact that a train needs wheels. TC
             runs off and returns with a tire, leans it against
             the side of the 'train' like a wheel. Then TC and C,
             together, arrange more tires in the same way.

Simple—   TC is with one other C at the large boxes, crates,
             planks, and so forth. TC piles boxes one on top of
             the other, and C knocks them down. Both laugh, and
             TC rebuilds the pile.

PRETEND

Challenging— TC and C have constructed a train with large boxes,
             etc., as in the above example. C climbs onto the
             front announcing he's the driver. TC climbs on
             behind and says 'I bought a ticket. Let's go to the
             seaside-'I've got my spade and we can make a
             sandcastle and go in the sea.' C calls out 'All
             aboard. We're going to the sea.' TC pretends to
             sound the whistle, pulling an imaginary rope, 'Toot,
             toot!' C drives the train, assisted by TC. Another
             C bangs into the train with a large cart. TC shouts,
             'The train's crashed-get an ambulance!'

Simple—   TC is with two other Cs in the playground. One says,
             'I'm the Bionic Man' and pretends to hit another with
             a 'karate chop'. All play-fight pretending to hit
             each other and shoot with 'space guns' while shouting
             the names of the character each is playing-Batman,
             Incredible Hulk, etc. Their role doesn't develop

beyond announcing the role and pretend fighting of a
stereotyped nature.

SCALE-VERSION TOYS

Challenging-   TC sets up a 'petrol pump' outside a 'garage', He
runs a car up to the pump, pretends to fill it with
petrol, and parks it under the garage. He takes
another car out, runs it around the floor; takes a
lorry out, runs it and crashes it into the car. He
takes a pick-up truck out of the garage, runs it to
the car, hooks it to the 'crashed' car and makes it
tow the car to the garage. He sets the car up on a
ramp and puts a toy man underneath it. He then
returns to the first car.

Simple-   TC is playing with toy vehicles and a garage set. He
takes a car out of the garage, and runs it up and
down the floor, making 'car sounds'-brrrm, brrrm. He
pushes the car along the floor, retrieves it, and
pushes it again. He takes another car from the
garage, and pushes it along the floor. He takes one
in each hand and runs them along, banging them into
each other.

MUSIC

Challenging-   TC plunks on the piano, making discords, changing the
chord each time. He changes to hitting one note at a
time, slowly. Then he sings each note he plays. He
speeds up the playing and singing, as if it were a
proper song. Although it sounds quite discordant, TC
is clearly playing and singing a tune for himself and
devoting care and attention to it.

Simple-   TC goes to the 'music corner', which contains a
piano, tambourine, triangle, xylophone, etc. TC
hammers his first on the piano, laughs, and puts his
hands over his ears. He takes the xylophone hammer,
bangs it hard up all the xylophone keys, then up all
piano keys, laughing. He leans with his hands spread
out on the piano. Then he plunks down keys at
random, laughing.

INFORMAL GAMES

Challenging-   TC, with others, arrange an utterly incongruous
outfit of dressing-up clothes on a hanger-a

cowboy hat with a ballet dress and wedding veil.
Instead of just laughing at it, TC takes the hangar
of clothes and holds it up against his body, marching
around the room to emphasize the absurdity of the
outfit and make others see the joke.

Simple—   Cs are milling around by the dressing-up corner. Cs
poke at each other and giggle, TC among them. They
try on hats from the dressing-up clothes, laughing at
each other. They throw hats to each other to catch,
and continue giggling and nudging.

SOCIAL PLAY WITH SPONTANEOUS RULES

Challenging—   TC and C are at the puzzle table with picture lotto
materials. TC invents a game with them, devising his
own rules and explaining them to C. They lay out the
cards on the table. TC explains that he will cover
his eyes while C takes a card and hides it. TC tries
to guess which picture is missing. Then C has a turn
at guessing.

Simple—   TC and C are in the washroom. C hops on the square
tiles of the floor, avoiding the edges. TC follows,
holding onto C. Both hold hands and step around the
tiles avoiding the 'cracks' and laughing when the
other steps on a crack.

APPENDIX D

PERMISSION SLIP

September 9, 1986

Dear Parents:

I am a doctoral student at the University of Massachusetts. During the fall semester my assistants and I will be collecting data for my dissertation which focuses on children's play patterns and social interactions. It is hoped that a better understanding of play and children's behaviors will result from this study.

What am I asking you? On three separate occasions, this semester, I, or one of my assistants, will observe your child for an hour in the morning and an hour in the afternoon. If your child is involved in an all day program, both observations will occur at the center. However, if your child attends a half day program, we would like to observe for one hour in the center or school and another hour in the home or alternate care environment. The observations will be as unobstrusive as possible, with no interactions occurring between your child and the observer. Home observations will also occur at your convenience.

All information gathered in this study will be completely confidential. It will be protected by the researcher and will not be published in any form that might identify a child. You are free to withdraw from the study at any time.

Please return the permission slip to your child's teacher, as soon as possible. If you have any questions about the research, you can call me at 549-5187. Thank you for your cooperation.

Sincerely yours,

Katherine A. Winey

Katherine A. Winey

_____ I give my son/daughter _____ permission to be observed.

_____ I do not give my son/daughter _____ permission to be observed.

Parent Signature_____