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CHILDREN'S USE OF AN ABSTRACT PLAY SCULPTURE

by 6408.

MARILYN ROSE LENHERR

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Approved by:

Donald H. McCord
Major Professor

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CHAPTER I

INTRODUCTION

It is becoming more widely accepted that much goes on in the way of learning experiences of preschool children through their play. Similarly, there is increasing awareness of an imperative responsibility to provide adequate stimulation for play. N. V. Scarfe (1966) stated that play is the most complete of educational processes for it influences the intellect, the emotions, and the body of the child. "It can never be stressed too much that a child must find his way to maturity, at his own rate, with his individualized capacity and limitation" (page 74). It seems then we must provide adequately for play by offering materials, space, opportunities, and experiences, knowing the children's abilities and interests at different stages of growth. The author cited above suggested that conditions must be arranged so children naturally want to learn and want to play, or so that "nature" can effect an education. Artist John T. Aspinall (1968) indicated that it is space relationship and environments which produce influences, and these influences are the attitudes and philosophies that this life is concerned with. "If we are going to create a dynamic learning environment,

it will have to produce a challenge--something which will require involvement" (page 12). In a publication by the Iowa State Department of Public Instruction (1968), it was suggested that perhaps no other equivalent period of time in the child's development is more critical in the formation of mental processes and personality growth than the period between about age three and six. It is during this time that a foundation of attitudes toward learning and living is laid. All mental processes are a matter of interaction between the individual and his environment; these processes become structured and elaborated through experience. There is no way for this to happen in the absence of experience. We learn and develop more elaborate, complex mental systems in an environment that is rich and complex, offering a variety of kinds of stimulation.

To provide this variety of creative stimulation for preschool children was a challenge accepted by a team of Kansas State University art, architecture, and landscape students who designed and constructed an innovative playground for the Child Development Laboratory School. Under the direction of Mr. Charles Clement, nationally known muralist, the students enrolled in the 1970 Art in Situation Workshop were concerned with learning ways of creating art for everyday environment. The student team collaborated with Family and Child Development faculty about safety, needs, and interests of the preschool child. Measurements were taken of preschool children's standing and sitting height, head circumference,

reach of arms, and so on, to insure comfort and safety in the use of the finished product (McCord, 1971). Combining these aspects with aesthetic values was of prime importance to the designers.

One of the new additions to the playground was designed and constructed by architectural student Lance Evans. His large concrete free-form sculpture featured differences in level. It could be reached by climbing a hill, going through either of two large tunnels, or from ascending curved iron ladders from underground or outside the structure. The grayish-colored sculpture also featured red plexiglass rounded windows on two sides, ropes descending from a wood pillar implanted on the top, chimes located inside, and an abstract frieze design carved in the sides. The creator of the sculpture said he designed it to provide for more exciting play and subtle education of the child. He stressed that the world is not rectilinear or the same size and he wanted the children to experience free organic form (Evans, 1970). (Plates I and II)

This structure met some of the criteria for playground design described in Space for Play (1964). The editors suggested that the basis for play in the preschool age group is informality, so the design should be kept informal. The shape of the site therefore, was irrelevant. Stone or wood sculptures, often in abstract designs or shaped like animals well over life-size were mentioned as good alternatives for conventional and somewhat ugly mechanical equipment. The

PLATE I
ABSTRACT SCULPTURE
View 1





PLATE II
ABSTRACT SCULPTURE
View 2





authors felt that phantasy is more stimulated by "buslike" "boatlike" or "animal-like" concrete erections than by "the real thing." The child must be able to create a world of his own within the framework provided. Since small children characteristically engage in frequent climbing, crawling, and other motor activities, full advantage should be taken of any difference of level. Seclusion and scaling down to the child's size are vital.

The purpose of this descriptive study was to determine how children used this particular structure and if this design was functional for the preschool age group. Attention was focused on frequency of use, age, sex, areas used, levels of play, themes of play, and names assigned to the abstract piece of equipment.

CHAPTER II

PROCEDURE

The sample for this study included forty-seven children enrolled in the Kansas State University Child Development Laboratory. Three separate groups of children were observed from September to December, 1970. Group 1 met three mornings a week and included 16 children (8 boys, 8 girls) ranging in age from 37 to 58 months. Group 2 included 16 children (8 boys, 8 girls) ranging in age from 36 to 59 months, and met in the mornings twice a week. Group 3, an afternoon session, included 15 children (7 boys, 8 girls) ranging in age from 38 to 59 months. They met three times a week. All ages were determined from September 1, 1970. Age range for the 23 boys and 24 girls was from 36 to 59 months. Each child was assigned a number and wore a numbered felt tag during the time of observation.

Time sampling was the method of observation chosen for this study in an attempt to get the most adequate portrayal of children's use of the structure. Kerlinger (1965) stated that time samples have the important advantage of assuring the investigator of obtaining representative samples of behavior. This sampling has the disadvantage of not showing length or quality of the activity. Data were compiled

for a fifteen-minute-period on each day children were observed. Time sampling of these groups was variable in terms of number of days observed and time of day. All recording however, was completed at the time of day children first had the opportunity to use the structure. It was originally intended that observation be recorded at specific periodic times and the same time of day. This was altered due to weather conditions and changes in program activity. The number of days each group was observed follows: Group 1, 22 days; Group 2, 13 days; and Group 3, 20 days. Recording of children's use of the sculpture was taken the first minute of play, the sixth minute of play, and the eleventh minute of play. Intervening time was used to record other material pertinent to observation.

The areas of the structure children used were charted. For purposes of recording, five areas were delineated. Area 1 included the large inside area adjacent to the front of sculpture. The inside section opposite the front of the sculpture was defined as Area 2; this area included the hole descending to the tunnel. The top and outside of the structure comprised Area 3. The two large tunnels made up Area 4. The hill surrounding the structure was described as Area 5.

The assigned number of a child using an area was noted as well as the developmental level of play in which the child was engaged. If the play involved more than one child, record was made of additional children and specific groups.

Young children's play progresses through stages of social involvement. Five levels of play: onlooker, solitary, parallel, associative, and cooperative were utilized for this study. These levels were defined by Parten (1943). (See Appendix A) Determination of levels of play was recorded as accurately as possible as they met most or all of the defined criteria.

The themes of both associative and cooperative play were recorded as well as the names assigned to the abstract sculpture by the children. The observation sheet designed for this study was included. (See Appendix B)

CHAPTER III

RESULTS

Frequency of Use

In order to assess the frequency of children's use of this structure, data from the three groups were combined. Data were treated for each group so that discrepancies in the number of observations would be eliminated. Individual frequency of a child's "times on" per Unit of Observation or minute, was obtained by dividing each child's frequency of times on by total observational units for his group.

(See Appendix C)

A total sample of 47 children was observed using this structure 55, fifteen-minute periods or 55 Observational Days. During these Observational Days, individual frequency of children's "days on" totaled 300. The average number of children on the structure per Observational Day was 5.45.

During an Observational Day, record was made of the first, sixth, and eleventh minute of play. Each of the three time periods was termed an Observational Unit. There was a total of 165 Observational Units for the sample. Children were observed using the structure 496 Observational Units. The average number of children on the structure per Observational Unit was 3.01. All children were observed using the

structure at some time during the observation period.

Older children's use of the structure compared with that of younger children was analyzed. The median age for the sample was 48 months. Older children ranking above the median age had an average frequency of .208 times on per Unit of Observation. Younger children had a .173 average frequency of times on per Unit of Observation. Older children's use of the structure exceeded that of younger children.

Using the median age calculated for the sample, frequency of use was derived for older and younger boys; older and younger girls. The average frequency of older boys' times on per Unit of Observation was .250. Younger boys' average was .206. Older boys tended to have a higher frequency of times on than did younger boys. An average frequency of times on per Unit of Observation was calculated for older girls at .168; in comparison with the younger girls' average of .142. Older girls also tended to have a higher frequency of times on than younger girls.

To determine any differences in frequency of boys versus girls' use of the structure, frequency of times on per Unit of Observation was extracted from the sample for these groups. Average frequency of times on for boys was .229; average frequency of times on for girls was .155. The boys' frequency of use was greater than that of girls.

Levels of Play

Individual frequency of each level of play per Unit

of Observation was tallied for the sample. Individual percent of time spent at each level of play was determined by dividing the frequency of each play level by the number of Observational Units that child was on the structure. The average percent of time spent at the five levels of play per Unit of Observation for the total sample was as follows: onlooker, 13.5%; solitary, 24.6%; parallel, 26.2%; associative, 25.1%; and cooperative, 10.5%. Parallel, associative, and solitary play levels were most frequent; cooperative play was least frequent.

Older and younger children were compared in terms of average percent of time spent in levels of play per Unit of Observation. (Table 1) Older children had lower average frequency of onlooker play than younger children, and higher frequency in both associative and cooperative play levels as compared with younger children.

Average percent of times in levels of play per Unit of Observation for older boys as contrasted with younger boys differed greatest in the cooperative play level (older boys, 25.6%; younger boys, 3.5%), and in the parallel level (older boys, 13.8%; younger boys, 32.9%). (Table 2)

The largest variance of times spent in levels of play between older and younger girls was in onlooker and associative levels. Older girls' average percent of time spent in onlooker play was 4.4% contrasting with 28.5% for younger girls. Older girls spent 39.8% of their time in associative play while younger girls spent only 14.1% of their time in

Table 1. Comparison of Older and Younger Children in Average Percent of Time Spent in Levels of Play

Subject	Onlooker	Solitary	Parallel	Associative	Cooperative
Older Children	.073	.215	.211	.338	.168
Younger Children	.196	.312	.316	.162	.040

Table 2. Comparison of Older and Younger Boys in Average Percent of Time Spent in Levels of Play

Subject	Onlooker	Solitary	Parallel	Associative	Cooperative
Older Boys	.102	.235	.138	.278	.256
Younger Boys	.105	.349	.329	.182	.035

this higher level of play. (Table 3)

Boys as compared with girls in average percent of time in levels of play showed a higher frequency of solitary play for boys (29.2%) than for girls (23.4%). Boys also had higher frequencies of cooperative play (14.6%) than girls (6.2%). Girls had higher frequencies of onlooker, parallel, and associative play than did boys. (Table 4)

Areas of Play

Average percent of time spent in each of the five areas was calculated for the sample. The top, Area 3, was used more frequently than were other areas (37%). The hill, Area 5, ranked next in average percent of time used (22.4%). Inside Area 1 was used 14.6% of the time on, tunnel Area 4 was used 14.2%, and inside Area 2 was used 9.9% of the time when children were on the structure.

There were some variations in the average percent of times older compared with younger children used the five areas of the structure. Older children spent greater average percent of time in Area 1 (17%) compared with younger children (10.7%). Older children also spent more time in use of Area 4 (23.3%) than did younger children (12%). Younger children had a somewhat greater average percent of time spent in Area 3 (39%) and Area 5 (25.9%) than did older children who averaged 32.8% in Area 3 and 18.1% in Area 5. (Table 5)

The largest variation in average frequency of times spent in an area was found in Area 2 when older boys were

Table 3. Comparison of Older and Younger Girls in Average Percent of Time Spent in Levels of Play

Subject	Onlooker	Solitary	Parallel	Associative	Cooperative
Older Girls	.044	.194	.284	.398	.079
Younger Girls	.287	.274	.303	.141	.045

Table 4. Comparison of Boys and Girls in Average Percent of Time Spent in Levels of Play

Subject	Onlooker	Solitary	Parallel	Associative	Cooperative
Boys	.104	.292	.234	.230	.146
Girls	.166	.234	.294	.270	.062

Table 5. Comparison of Older and Younger Children in Average Percent of Times Spent in Each Area

Subject	Area 1	Area 2	Area 3	Area 4	Area 5
Older Children	.170	.116	.328	.233	.181
Younger Children	.107	.079	.390	.120	.259

compared with younger boys. Older boys used this area twice as frequently as did younger boys (16.5% for older; 8.4% for younger). No other areas had large variations. (Table 6)

Older girls contrasted with younger girls with respect to times spent in areas differed to a greater extent than did the two groups of boys. The largest difference was in Area 4, with older girls using this area 29.1% of their total time on and younger girls averaging 9.7% of the time on. Older girls also used Area 1 more frequently than younger girls. Younger girls more often used Areas 3 and 5. (Table 7)

No variations higher than 7 percentage points were charted between the total group of boys as compared with the total group of girls in average frequency of times spent in an area. Only in Area 1 was the girls' frequency much higher than boys (17.3% girls; 10.5% boys). In all other areas, there was a difference of 5.5 percentage points or less. (Table 8)

Areas versus Levels of Play

An average frequency of levels of play was calculated for each of the five areas. It was determined that 18% of all play was at the parallel level in Area 3, the top of the structure. In all other areas, average frequency of play on this level was 2.6% or below. About nine percent of all play on the top was calculated to be associative play. The incidence of this level of play was fairly consistent in the

Table 6. Comparison of Older and Younger Boys in Average Percent of Times Spent in Each Area

Subject	Area 1	Area 2	Area 3	Area 4	Area 5
Older Boys	.121	.165	.365	.174	.174
Younger Boys	.088	.084	.383	.142	.212

Table 7. Comparison of Older and Younger Girls in Average Percent of Times Spent in Each Area

Subject	Area 1	Area 2	Area 3	Area 4	Area 5
Older Girls	.219	.066	.291	.291	.187
Younger Girls	.126	.074	.397	.097	.305

Table 8. Comparison of Boys and Girls in Average Percent of Times Spent in Each Area

Subject	Area 1	Area 2	Area 3	Area 4	Area 5
Boys	.105	.125	.374	.158	.193
Girls	.173	.070	.344	.194	.246

remaining areas, with the exception of Area 2 in which only 1.7% was at this level. About 6.6% of all play in both the top and hill areas was solitary. Inside Areas 1 and 2 had only 2.9% and 2.1% respectively of all play which could be classified as solitary. Five percent of all play was at the onlooker level on the hill and 4.5% on the top area. Onlooker play was least prevalent in Areas 2 and 4. About three percent of all play could be classified as cooperative in Areas 4 and 2. Only 1.5% of all play in Area 5, the hill section, was at this developmental level. (Table 9)

Themes

Associative and cooperative play themes were recorded. Frequencies reported are the number of times a particular theme was used by the total sample. In associative play, twenty-one play themes centered around "chase"--follow-the-leader, hide-and-seek, and tug-of-war games. Fourteen accounts of house play were tabulated. "Monster" games--gorilla, lion, tiger, dragon, accounted for seven associative play encounters. Police play was exhibited six times; forest play twice, and fire play once.

The most prevalent theme used at the Cooperative level was fire play counted eleven times. Five play encounters were classified as house or party themes. A rocket ship motif was enacted on four occasions. Hospital play was observed twice; police play twice, and ship play once at this play level.

Table 9. Average Percent of Levels of Play for Areas

	Areas	Average Percent
Cooperative Play	Area 4	.032
	Area 2	.030
	Area 1	.029
	Area 3	.027
	Area 5	.015
Associative Play	Area 3	.091
	Area 4	.061
	Area 5	.054
	Area 1	.053
	Area 2	.017
Parallel Play	Area 3	.180
	Area 4	.026
	Area 2	.026
	Area 1	.018
	Area 5	.012
Solitary Play	Area 3	.067
	Area 5	.065
	Area 4	.037
	Area 1	.029
	Area 2	.021
Onlooker Play	Area 5	.050
	Area 3	.045
	Area 1	.009
	Area 4	.003
	Area 2	.002

Names Assigned to Structure

The free-form abstract sculpture was given a variety of names by the preschoolers. Following is a listing compiled from data taken during the entire observation period: house, double-house, boat, ship, fire station, fire truck, forest, tree, hideout, cave, cage, mountain, hill, elephant, subway, police station, shoe, tank truck, sand castle, and rocket ship.

CHAPTER IV

DISCUSSION

In reviewing the data, some conclusions can be made concerning how the structure was utilized by preschoolers; other findings can not be conclusive due to limitations of this study.

In general, older children used the structure more frequently than younger children. This finding was consistent when older boys and girls were compared with their younger counterparts. It can not be assumed however, that the structure was not functional for younger children since variations in frequency of use were not large. Boys as a group tended to have more times on than the girls, but the difference was slight. Perhaps the design stimulated large muscle kinds of activity which more readily appealed to the boys. The nature of the themes of play and names assigned to the structure suggest this kind of active involvement.

The use of the five levels of play according to social involvement showed the children most frequently engaged in parallel, associative, and solitary play. Cooperative play was observed least often. These results corresponded to the developmental description of play characteristics for preschoolers in general. Very young preschoolers are often

self-absorbed, but are beginning to have brief periods of social reciprocity. There is a progression toward spending a great part of time watching other children, playing near them, and with similar materials. Next, imitation of activity becomes common, and play of the follow-the-leader type develops. Around four years of age, some children are ready for real cooperative play (Langford, 1960). The play levels of older children in contrast with younger children were also similar to these developmental characteristics. Older children had higher frequencies of both associative and cooperative play with least incidence of onlooking behavior. Few examples of cooperative play were recorded for younger children. Although they exhibited more onlooker play than older children, the highest frequency of play levels was in solitary and parallel classifications.

When age and sex factors were combined, results were similar with older boys and older girls having higher frequencies of associative and cooperative play than did younger boys and girls. Solitary and parallel play levels were used more frequently by younger girls and younger boys, although younger girls spent more time in onlooker play.

When sex was the factor examined in relationship to levels of play, there was a higher frequency of solitary and cooperative play for the boys as compared to the girls. The girls participated in more onlooker, parallel, and associative play than boys. These results could be validly

interpreted only if data were taken with respect to what each child was doing at play level recorded. It seems possible that boys accounted for more cooperative play because the structure was often used in themes such as fire, rocket, and police which could have been more frequently dramatized by this group. On the basis of general observation, much solitary play involved motor activities such as climbing, scaling, and crawling. It again seems plausible that the boys participated in these activities to a greater extent than girls. Although levels of play were recorded as accurately as they met the definitions, the accuracy could have been affected by limitations of the observer in classification of levels, particularly when play was ongoing in different parts of the sculpture and tunnel area which were difficult to observe.

The average frequency of time spent in each of the five areas showed the highest percent for the top Area 3. Both older and younger children were most often observed in this section. The hill Area 5 ranked next. Inside Area 1 and tunnel Area 4 were close in terms of the average percent of time spent in these sections. The percent of time spent in inside Area 2 was the least.

Older children in contrast with younger children spent greater average percent of time in inside Area 1, inside Area 2, and tunnel Area 4. Younger children frequented the top Area 3 and hill Area 5. In looking at average percent of levels of play for each area, highest incidence of all

play was cooperative in Areas 4, 2, and 1. Onlooker play was least prevalent in Areas 4 and 2. These factors seem to be consistent with the possibility that the areas used by older children were more conducive to the more advanced levels of play which is characteristic of older children.

Younger children used the top Area 3 and hill Area 5 more frequently than did older children. The highest average percent of all play involving categories of onlooker, solitary, and parallel was calculated for these areas. These sections seemed to appeal to younger children who generally have less advanced levels of play. There was a notably lower frequency of cooperative play on the top and hill sections.

When age and sex factors were analyzed in regard to times spent in area, older boys and older girls consistently used Areas 1, 2, or 4 to a greater extent than did younger boys and younger girls. Similarly, younger boys and younger girls used Areas 3 and 5 more frequently than did older children.

When the total group of boys and group of girls were compared in terms of time spent in each area, no large average variations were found. The levels of play in areas for these groups were similarly varied. Level of play seemed to be a factor more influenced by age than sex.

Although younger children used the top Area 3 more frequently than did older children, data showed the top area to be used frequently by both older and younger children.

A study of levels of play recorded for this section showed that 18% of all play at this location was parallel, 9.1% associative, 6.7% solitary, 4.5% onlooker, and 2.7% cooperative. The versatility of this area seemed obvious from the frequency of use and varied levels of play for total group.

A limitation of this study related to areas of play was due to difficulty in establishing the area in which a child should be classified during the observational minutes. Due to activity and movement of children, at times it was difficult to pinpoint an area. Children were consistently classified however, as to the area in which they spent the greatest amount of time during an observational unit. This might have been eliminated with additional observers or by concentration upon a few individuals.

In reviewing the themes of both associative and cooperative play, nine different ones were used a total of 76 times. Chase, follow-the-leader, and tug-of-war type games were most frequent with 21 accounts recorded. Other themes and frequency of times observed were: house and party, 19; fire, 12; police, 8; monster and variations, 7; rocket, 4; hospital, 2; forest, 2; and ship, 1. These patterns are consistent with records of play involving the three-to-five year age group. Hartley (1952) reported that within this age group, eight functions that dramatic play serves can be distinguished.

Through this activity the child is given an opportunity (1) to imitate adults; (2) to play out real life roles

in an intense way; (3) to reflect relationships and experiences; (4) to express pressing needs; (5) to release unacceptable impulses; (6) to reverse roles usually taken; (7) to mirror growth; and (8) to work out problems and experiment with solutions. (p. 27)

The themes recorded would seem to indicate that children were involved in dramatic play to serve some of the above described functions. In addition to functions served by dramatic play, Jersild (1960) pointed out that play is a medium whereby a youngster tries himself out actively "in the flesh." There is an element of risk and it is not unusual for children to make conditions more hazardous than necessary. There is also an element of repetition which gives the child a chance to consolidate his skills and go on to more complicated movement. Lowenfield (1967) emphasized that play also serves the child as relaxation and amusement, as enjoyment and rest. Although the specific nature of onlooker, solitary, and parallel play levels was not recorded, it can be suggested on the basis of observation that much activity was enacted as it reflected these functions. Solitary play, for example, was generally observed as a child climbed, scaled, and tested his motor abilities. Although it would be unwarranted to propose that all onlooker play served the child as a means of rest and relaxation, this aspect was noted in observational records.

A total of 20 different names was assigned to this abstract piece of equipment by the children. All but seven names assigned (mountain, hill, elephant, subway, shoe, tank truck, and sand castle) were directly related to thematic

content of children's play. For all themes there was an appropriate corresponding or related name assigned to sculpture with the exception of one instance. Hospital play was a theme, but children did not label the structure as such. The diversity and number of themes and names assigned would seem to indicate the abstract design was instrumental in providing a variety of kinds of stimulation. An important feature of this design was its flexibility; it could be many things to many children with individual differences in age, needs, and interests.

The sculpture featured several differences in level which augmented the possibility of a child's falling; in addition, the concrete used in construction was coarse. The lengthy rope descending from the pillar on the top was a questioned addition due to safety precautions. None of these potentially hazardous features however, resulted in injuries other than minor falls or scrapes. It should be noted though, that the children were adequately supervised at all times.

A necessary feature in play equipment for active pre-school children is durability. Most of the materials selected for this construction met this criterion, with the exception of the chimes inside which were dislodged during the early part of the observation period.

One aspect of this construction was a noticeable problem. Provisions for drainage might have been improved. Small pools of water, in particular, located inside the

structure remained until evaporation remedied the situation. Notes made during observation indicated that at least on seven occasions, this seemed to be an influential factor related to inhibition of play in these sections.

Use of the hill area was more prevalent in winter months than in earlier periods. Since most of the observations were recorded prior to this time, frequency of recorded use of this area was somewhat lower than it might have been if observation period had been extended. This hill area was steep enough to be suitable for sliding and sledding during winter months. Although the area was sodded after construction, mud was a somewhat undesirable feature after extensive use.

Other factors involving the use of this structure would be suggested as a basis for further study. It would be advantageous to know how other areas of the playground were utilized in relationship to this piece of equipment, particularly an analysis of children's use of standard equipment compared with an abstract design. Further analysis of play levels of individual children would be suggested in order to determine whether this structure encouraged new social relationships and social skills. Within the scope of this study however, it can be postulated that this structure was in fact, functional and stimulating for this group.

CHAPTER V

SUMMARY

Play for the preschool child is vital to his growth and development. Because play serves a composite of functions, influencing the intellect, the emotions, and body of a child, it has been called the most complete of educational processes. Providing an environment for play that offers a variety of kinds of stimulation is important. A Kansas State University architectural student was concerned with providing for exciting play and subtle education of the child as he designed and constructed an abstract free-form sculpture for preschool children.

The purpose of this study was to determine how children used this structure and if the design was functional for this age group. Attention was focused on frequency of use according to age and sex, areas used, levels of play, themes of play, and names assigned to the abstract design.

Forty-seven preschool children enrolled in the Kansas State University Child Development Laboratory were observed in their use of the structure over a period of four months. Time sampling was the method used for observation. Children were observed in their use of the structure fifteen minutes per observational day. Play during the first, sixth, and

eleventh minute was recorded. Five areas of the sculpture were delineated: inside Area 1, inside Area 2, top and outside Area 3, tunnel Area 4, and hill Area 5. The number of children using an area was noted, as well as specific play groups. Five levels of play as described by Parten (Appendix A), were utilized for the study: onlooker, solitary, parallel, associative, and cooperative. Play of all children was classified as it met criteria for these levels.

There was a tendency for older children to use this structure more frequently than younger children. This finding was consistent when comparing older with younger boys and older with younger girls. The difference in frequency however, was not large. Boys as a group tended to use the structure more often than girls.

Children were involved in solitary, parallel, and associative play levels more often than in onlooker and cooperative levels. Some differences in levels of play were noted when age and level of play were compared. Older children accounted for higher frequency in associative and cooperative play, with least incidence of onlooker behavior. Solitary and parallel play levels were most characteristic of younger children. Similar findings were found when older boys were compared with younger boys; older girls with younger girls. Boys as a group most frequently engaged in solitary and cooperative play. Girls participated in onlooker, parallel, and associative play more often than did boys.

The top outside Area 3 was the most popular section of the sculpture with all children. In ranking areas based on frequency of times used, the hill Area 5 was second; inside Area 1, third; tunnel Area 4, fourth; and inside Area 2, last.

Older children in contrast with younger children spent greater average percent of total time "on" in inside Areas 1, 2, and tunnel Area 4. In these areas, cooperative play was the level occurring most often. Younger children were most often recorded in use of Areas 3 and 5 when compared with older group. These younger children most frequently engaged in onlooker, solitary, and parallel play.

When both age and sex factors were analyzed in regard to times spent in an area, older boys and older girls consistently used Areas 1, 2, or 4 more often than did younger boys and younger girls. Similarly, younger boys and younger girls used Areas 3 and 5 more frequently than did older children.

In comparing boys with girls in terms of time spent in areas and levels of play, there was no outstanding difference. Level of play seemed to be a factor more influenced by age than sex. The structure seemed to meet the play needs of these preschool children; differences in use of areas by younger and older children indicated some areas were more conducive to play needs of older children; others were more adequate for younger children.

Themes of associative and cooperative play were

tabulated; they seemed to parallel some functions that are served by dramatic play. Themes used suggested the children were taking the opportunities to play out real life roles, to reflect relationships, to express needs, and to work out problems. The structure also provided the opportunity for active physical involvement as well as for relaxation and rest. The observer noted these were prominent activities when onlooker and solitary play was classified.

There seemed to be a relationship between themes of play and names assigned to the structure. For all themes classified, there was an appropriate corresponding or related name assigned in all but one instance. There were however, additional names assigned to the structure which were not enacted in thematic play. The diversity and number of themes and names would seem to be indicative of the stimulation provided by this piece of equipment. It could be many things to many children with varied and changing needs; the design proved to offer this kind of flexibility. The construction was also adequate in terms of safety and durability.

On the basis of this study, it seems evident that the sculpture was in fact, functional and stimulating for this group of children.

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APPENDIX A

PARTEN'S LEVELS OF PLAY

ONLOOKER BEHAVIOR--The child spends most of his time watching the others play. He often talks to the other children, asks questions, or gives suggestions, but does not enter into the play himself. He stands or sits within speaking distance of the group so that he can see and hear all that is taking place.

SOLITARY PLAY--The child plays alone and independently and makes no effort to get close to or speak to other children. His interest is centered upon his own activity, and he pursues it without reference to what others are doing.

PARALLEL PLAY--The child plays independently but the activity he chooses naturally brings him among other children. He plays with toys which are like those the children around him are using, but he plays with them as he sees fit and does not try to influence the activity of the children near him. He plays beside rather than with other children.

ASSOCIATIVE PLAY--The child plays with other children. There is borrowing and lending of play material, following one another and mild attempts to control which children may or may not play in the group. All engage in similar if not identical activity; there is no division of labor and no organization of activity. Each child acts as he wishes, does not subordinate his interests to the group.

COOPERATIVE PLAY--The child plays in a group that is organized for the purpose of making some material product, of striving to attain some competitive goal, dramatizing situations of adult or group life, or for playing formal games. There is a marked sense of belonging or not belonging to the group. The control of the group is in the hands of one or two members who direct the activity of others. The goal as well as the method of attaining it necessitates a division of labor, the taking of different roles by the various group members, and the organization of activity so that the efforts of one child are supplemented by those of another.

APPENDIX B

OBSERVATION SHEET

Group 1 2 3
Date:

Level of Play (O S P A C)

Areas--Children in Area

1	2	3	4	5	Singles	Groups	Themes	Other
1								
6								
11								
Totals								

APPENDIX C

INDIVIDUAL FREQUENCY OF TIME "ON" PER UNIT OF
OBSERVATION FOR SAMPLE

Sex	Age-Months	Frequency	Sex	Age-Months	Frequency
M	59	.487	M	48	.303
F	59	.317	F	47	.300
M	58	.154	F	47	.364
M	58	.100	M	45	.359
M	58	.121	F	45	.179
F	57	.128	M	45	.103
F	57	.133	M	45	.136
M	57	.400	F	45	.106
M	56	.251	M	45	.274
F	55	.154	F	43	.050
M	54	.317	F	42	.103
F	54	.133	M	42	.077
F	54	.212	F	42	.050
F	54	.182	M	41	.250
M	53	.274	F	40	.050
F	51	.103	M	40	.200
F	51	.182	F	39	.106
M	50	.282	M	39	.182
M	50	.128	M	38	.083
F	50	.197	M	38	.274
F	49	.205	F	37	.077
M	49	.318	F	37	.154
F	48	.067	F	37	.167
			M	36	.333

CHILDREN'S USE OF AN ABSTRACT PLAY SCULPTURE

by

MARILYN ROSE LENHERR

B.S.E., Kansas State Teachers College, 1969

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Department of Family and Child Development

KANSAS STATE UNIVERSITY
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The purpose of this study was to determine how a group of preschool children used a large free-form playground structure, and if the design was functional for this age group. Forty-seven children enrolled in the Kansas State University Child Development Laboratory were observed in their use of the structure a total of 55 days. Time sampling was the method of observation. Children were observed during a fifteen minute period each observational day; record was made of play occurring in the first, sixth, and eleventh minutes. Five areas of the structure were delineated for purposes of observation. Five organizational, or social levels of play as defined by Parten (1943) were studied: onlooker, parallel, solitary, associative, and cooperative. Attention was focused on frequency of use according to age and sex, social levels of play, themes of play, and names assigned to the abstract design.

Older children tended to use the structure more frequently than did younger children. This finding was consistent in comparing older with younger boys; older with younger girls. Boys used the structure more frequently than did girls.

Children more often engaged in solitary, parallel, and associative play levels than in onlooker and cooperative play. Older children accounted for higher frequencies of associative and cooperative play than younger children. This was true when older boys were compared with younger boys; older girls with younger girls. Solitary and parallel play levels were

were most characteristic for younger children.

Most frequently used area was the top of the structure. Older children used three areas of the sculpture more frequently than younger children. Older boys and older girls, in contrast to younger boys and younger girls, used these same areas more frequently. The highest frequency of cooperative play occurred in these areas. Younger children used the remaining two areas more frequently than did older children. Younger boys and younger girls, in contrast to older boys and girls, were recorded as having highest frequencies of play in these same areas. Highest percent of all play that was onlooker, solitary, and parallel was calculated for these sections. The structure seemed to meet the play needs of these preschool children; differences in use of areas by younger and older children indicated some were more conducive to play needs of older children; others were more adequate for younger children.

Nine different themes were used a total of 76 times. These themes paralleled the functions served by dramatic play for preschoolers. Twenty different names were assigned to the design; all but seven were directly related to thematic content of play. Results indicated the design was flexible; it could be many things to children with individual differences in age, needs, and interests.

The structure was also judged to be adequate in terms of durability and safety factors. In the final evaluation, this abstract sculpture seemed to be functional and stimulating for this group of children.