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PLAY MATERIALS USED BY TODDLER AGE CHILDREN  
IN FREE PLAY ACTIVITIES

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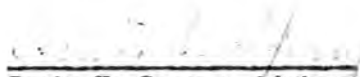
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Approved by

  
Irwin V. Sperry, Advisor

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N.L.M.

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## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

Through the years, play has gained consideration as being an important element in the growth and development of children. To help children gain all of the values possible from their play, teachers and parents are constantly striving to create the play environment which will best meet the needs of children or groups of children. In making the decision of what play materials to provide children, some basis or guide is needed. One such guide can be found through the scientific study of groups of children.

The play environment is made up of many factors, one of which is the play materials - the implements with which the children play. Through analyzing and studying these materials teachers can gain a better understanding of the play materials needed by children.

#### I. THE PROBLEM

Statement of the problem. The problem in this study consisted of making a descriptive analysis of the types of play materials used, the extent of their use, and the purposes for which they were used in free play activities by the twenty children in the toddler groups of the Woman's College Nursery School.

Importance of the study. To be effective, the guidance of children should be suited to their levels of development. Rose

Alschuler points out that:

It is by constant experimentation at his own level of performance that the young child gains the initiative and skill which enables him to use to best advantage his power and abilities as they gradually unfold.<sup>1</sup>

To determine children's "level of performance," the teacher or parent may use as a guide the performance of similar children at each of the levels of development; however, one must remember that the information on the "similar children" will be useful only to the degree that it is obtained from valid and reliable studies. Many unreliable theories have grown up as a result of too great a dependence upon superficial observations and unreliable methods of obtaining data; therefore, more precise methods of observation and the interpretation of data by the inductive method of generalization is needed to make scientific conclusions or theories concerning children.<sup>2</sup>

Children's play deserves scientific study since the play situation is one of the most important elements in the lives of children. Writers have pointed out that play is the natural setting for the all-round development of children<sup>3</sup> and that, ". . . for the child play is serious and is indeed essential for mental and physical health and

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<sup>1</sup>Rose H. Alschuler, Two To Six (New York: William Morrow & Company, 1947), p. 104.

<sup>2</sup>Fowler D. Brooks and Lawrence F. Shaffer, Child Psychology (New York: Houghton Mifflin Company, 1937), pp. 6-10.

<sup>3</sup>Josephine C. Foster and Marion L. Mattson, Nursery-School Education (New York: D. Appleton-Century Company, 1939), p. 94.



growth, and for personal and social development."<sup>4</sup> Play is children's life. Through play children learn about the world and about themselves.<sup>5</sup> Ruth Hartley summarizes the value of play when she says of the child and his play:

He learns what he can do to the world outside, where he is strong and where weak, and how a series of failures can lead to success. While he is playing he strengthens his muscles, improves his perception, learns new skills, lets off excess energy, tries out different solutions to his problems, practices the tasks of life, learns how to deal with other people, and eventually, comes to know the values and the symbols of his world. With all this to accomplish, the child must play hard - and he often needs help.<sup>6</sup>

Children often need help and guidance from their parents and teachers to obtain the greatest benefits from their play. In this guidance, teachers and parents must be concerned with the materials which help make up the play environment. These materials, if carefully selected, can make a real contribution toward the growth and development of children.

One writer states that play materials, such as toys, contribute toward the physical and mental development of children as well as promoting the development of independence, self-reliance, and initiative.<sup>7</sup> Anna Wolf could see real and essential opportunities for development

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<sup>4</sup>James Edward Rogers, The Child and Play (New York: The Century Company, 1932), p. 12.

<sup>5</sup>Ruth E. Hartley and Robert M. Goldenson, The Complete Book of Children's Play (New York: Thomas Y. Crowell Company, 1957), p. 1.

<sup>6</sup>Ibid., p. 1.

<sup>7</sup>Beatrix Tudor-Hart, Play and Toys in Nursery Years (New York: The Viking Press, 1939), p. 13.

through toys. She states that:

They may, indeed, make demands upon a child's ingenuity and imagination, develop skills, suggest principles, arouse curiosities, and open up vistas of thought and inquiry just as legitimately as a successful school program does any of these things.<sup>8</sup>

The following statements written by Tudor-Hart stress the importance of selecting suitable play materials for children. He writes that:

This material, because it is not provided by Nature nor procured instinctively, can be either good or bad, useful or harmful to a child's progress; that will depend on the adult's knowledge of a child's needs. If we know sufficiently what all children need in the way of play equipment at different ages, and for what purpose; if we also know the individual needs and differences of our particular child or children, we shall make fewer mistakes in the toys we provide them with.<sup>9</sup>

In summary the following points seem to indicate a need for scientific study of the play materials of young children: (1) to effectively guide the growth and development of young children, teachers and parents need to know the interests of children at the different levels of development and this information can be gained most thoroughly through scientific investigations of children's activities and (2) since one of the important elements which contributes toward the development of children is play and one means of guiding children's play is through the selection of play materials, investigations need to be made to determine the play materials most suitable for children at

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<sup>8</sup>Anna W. Wolf, Play and Playthings (Child Study Association of America, 1930), p. 1.

<sup>9</sup>Tudor-Hart, op. cit., p. 13.

each of the levels of development. These investigations will provide a basis for selecting suitable play materials for children.

Several studies have been made which indicate the types of play materials suited to children at different stages of development. Some of these studies did extend down to the two-year level, but the number of toddler age children included were limited and the toddlers were grouped with older preschool children.

The present study was limited to the twenty children eighteen to thirty-six months of age in the toddler groups of the Woman's College Nursery School. These children attended the nursery school at a time when no other children were present.

The purposes of the present study were to determine the types of materials used, the extent of time the materials were used, and the purposes for which the materials were used in free-play activities.

The most outstanding limitations of the study were that the number of children was limited, the number of observation periods was limited, and the observations were conducted during a limited period of six months.

It is hoped that the information obtained from the data will be of use to persons planning play materials for similar groups of toddler age children.

## II. DEFINITIONS OF TERMS USED

The following words and phrases are defined as they are used in this study.

Play materials are the materials used in the pursuit of play activities which aid or support such activities.

Free-play activities constitute the activities in unstructured play situations in which the children are free to choose the materials and are not greatly restricted as to the use of the materials except as it involves the health and safety of the children.

Toddler age children refers to children from eighteen to thirty-six months of age which are the minimum and maximum ages respectively of the children enrolled in the toddler groups of the Woman's College Nursery School.

Helper refers to the college student who assists the teacher with the supervision and guidance of the children in the nursery school.

The West playroom refers to one of the two playrooms at the nursery school. The Woman's College Nursery School has a playroom on the East side of the building and one on the West side; the toddler groups were conducted in the West playroom.

Play time constitutes the total amount of time that the children were occupied with play materials indoors or outdoors.

The attractiveness of materials was considered to be indicated by the frequency with which materials were chosen by the children.

The holding power of the materials was considered to be the mean amount of time the children remained with the materials without losing interest or being distracted or attracted by other materials or activities.

### III. ORGANIZATION OF THESIS

Chapter II is a survey of studies pertaining to children's play materials and to the study of children by the observation method of investigation. Chapter III gives the methods and procedures used in the development of the study. Chapter IV is an analysis of the data collected. Chapter V includes the summary, conclusions, and recommendations.

## CHAPTER II

### REVIEW OF THE LITERATURE

As the importance of children's play activities has gained recognition, investigators have turned their attention to studies aimed at determining the nature of play activities. Some of these studies have dealt with the play activities and some have dealt with the play materials used by the children. Most of these studies were conducted in nursery schools or kindergartens which provide ideal situations for studying groups of children engaged in free-play activities. Some of these studies are of particular interest to this study as a result of the methods employed and some as a result of the conclusions drawn from the studies.

Methods used in studying preschool children. Fowler Brooks listed five methods that may be used in scientific research of children - systematic biographies, case studies, direct observations, measurements, and experiments. Of these he recommended direct observation for the study of the spontaneous behavior of children.<sup>10</sup>

When observations of the child's responses to certain naturally occurring events are made according to a prearranged schedule, the technique may be termed direct or systematic observation. . . . Because of the freedom of this technique, it is the most useful one for investigating the spontaneous behavior of children.<sup>11</sup>

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<sup>10</sup>Fowler D. Brooks and Lawrence F. Shaffer, Child Psychology (New York: Houghton Mifflin Company, 1937), pp. 12-14.

<sup>11</sup>Ibid., pp. 13-14.

Since play is a spontaneous behavior - it is something the child does because he wants to do it - the direct observation method seems most appropriate for the study of children's play and is generally the method used in studying the play of young children. Helen Bott points out that although the element of individual judgment is not eliminated in observations, it is reduced to a minimum when the purpose is not to formulate a general impression, but to describe a given happening at a definite place and time.<sup>12</sup> Usually investigators use the observation method to make a description of happenings.

There are a variety of ways of conducting observations. They may vary as to the number of observations, the length of the observations, and the methods used to record the observations. The sample time of the observations may be as short as a half a minute or as long as an hour. Anderson points out that, "because of the rapidity of interplay and the consequent necessity for constant attention, observers did not observe continuously for more than an hour of consecutive observation periods."<sup>13</sup>

Martha Parce in "A Study of the Choice and Use of Play Materials" used sample records of five minutes each.<sup>14</sup> Forty-five minute periods

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<sup>12</sup>Helen Bott, Method in Social Studies of Young Children (Toronto: The University of Toronto Press, 1933), p. 9.

<sup>13</sup>Harold H. Anderson, "Domination and Social Integration in the Behavior of Kindergarten Children and Teacher," Genetic Psychology Monographs, XXI, No. 3 (August, 1939), p. 300.

<sup>14</sup>Martha Eleanor Parce, "A Study of the Choice and Use of Play Materials" (unpublished Master's thesis, Cornell University, 1948), p. 12.

were used by Moyer and Gilmer<sup>15</sup> and by Van Alstyne.<sup>16</sup> The observation periods of the present study were set at one hour, since this was the length of the play period for the children, and the longer periods would give a better indication of the extent of time the materials were used.

Just as there is no standard length for the observation periods, the methods used in recording the observations also vary. Rating scales,<sup>17</sup> record forms,<sup>18</sup> and running records<sup>19</sup> are some of the methods used to record observations. Usually the investigator develops a scale or form which will provide the particular information sought in the study. For the present study, an observation record form was developed on which was recorded the time, the materials used, and a description of the play activities.

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<sup>15</sup>Kenneth E. Moyer and B. Von Haller Gilmer, "Attention Spans of Children for Experimentally Designed Toys," The Journal of Genetic Psychology, LXXXVII (December, 1955), p. 191.

<sup>16</sup>Dorothy Van Alstyne, Play Behavior and Choice of Play Materials of Pre-School Children (Chicago, Illinois: The University of Chicago Press, 1932), p. 10.

<sup>17</sup>La Berta A. Hattwick and Mollie Krom Sanders, "Age Differences in Behavior at the Nursery School Level," Child Development, IX, No. 1 (March, 1938), p. 29.

<sup>18</sup>Marion Sill McDowell, "Frequency of Choice of Play Materials by Pre-School Children," Child Development, VIII, No. 4 (December, 1937), p. 306; Helen Bott, "Observation of Play Activities in a Nursery School," Genetic Psychology Monographs, IV, No. 1 (July, 1928), p. 45; and Van Alstyne, op. cit., p. 11.

<sup>19</sup>Elizabeth W. Amen and Nancy Rensin, "A Study of the Relationship Between Play Patterns and Anxiety in Young Children," Genetic Psychology Monographs, L (August, 1954), p. 7.



The observation situation may be controlled or uncontrolled depending upon the focus of the study. Helen Bott favors the uncontrolled situation.

From the outset we have assumed that if children's play is to be the subject of analysis, it should be studied in some fairly spontaneous setting such as obtained, for example, within the daily routine of a well-conducted nursery school rather than under conditions too meticulously "controlled."<sup>20</sup>

Of the literature reviewed the uncontrolled situation which is called "free-play" was used in all but two of the situations. These two situations were controlled as to the number of children and the materials available.<sup>21</sup> This study deals with the use of play materials in a free-play situation; therefore, an uncontrolled situation was used.

Helen Bott's study of the "Observation of Play Activities in a Nursery School" is of particular interest for its method. The purpose of the study was to formulate principles to be used in observing and analyzing play activities of young children. The study included a limited number of children at each of the age levels from two to four and a half years.<sup>22</sup>

Bott developed an observation record form to be used in observing children's play. This record form was divided into three main

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<sup>20</sup>Bott, "Observation of Play Activities in a Nursery School," op. cit., p. 44.

<sup>21</sup>Dura-Louise Cockrell, "A Study of the Play of Children of Preschool Age by an Unobserved Observer," Genetic Psychology Monographs, XVII, No. 6 (December, 1935), p. 384; and Moyer, op. cit., p. 190.

<sup>22</sup>Bott, "Observation of Play Activities in a Nursery School," op. cit., pp. 44-45.

divisions: occupation with materials, adults occupied with, and occupied with other children. The division of "occupation with materials" was divided into four sub-divisions: time, materials, description of activity, and total minutes spent with materials.<sup>23</sup>

The present study was concerned with the children's play materials; therefore, an observation record form was used which was similar to the portion of Bott's record form which deals with "occupation with materials"

Related studies. Van Alstyne's study of Play Behavior and Choice of Play Materials of Pre-School Children was of interest since it extended down to the two year level, was conducted in nursery school and kindergarten free-play situations, and was concerned with play materials. Each child was observed a total of ten hours and actual uses of materials by children of each age level was observed and recorded.<sup>24</sup>

The study gave the following indications:

1. There is noted a gradual change from year to year in the way materials are used by children.
2. At the two year level the materials of highest interest were clay, doll corner, painting, and assorted blocks; while at the three year level the doll corner and clay were of highest interest.
3. The data indicated that the attention span is longer for raw materials than for locomotor types. Also, the children

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<sup>23</sup>Ibid., p. 45.

<sup>24</sup>Van Alstyne, op. cit., pp. 10-11.

showed the greatest interest in raw materials.<sup>25</sup>

As a result of the study, Van Alstyne recommended that the "younger children be especially provided with locomotor and household materials and that all ages be supplied with raw materials."<sup>26</sup>

McDowell's study of "Frequency of Choice of Play Materials by Pre-School Children" was concerned with the following points: frequency of choice of materials, attention span, and use of materials.<sup>27</sup> The present study is also concerned with these factors as applied to toddler age children.

McDowell's study included twenty children, twenty-four to forty-eight months of age. Fifteen observation hours were made of each child.<sup>28</sup> The study indicated that for this age group, materials used in constructing other objects ranked first, those requiring manipulative skill of small muscles and those used in playing house jointly ranked second, materials requiring considerable physical activity ranked third, those used in creative design ranked fourth, picture book scanning ranked fifth, and materials requiring only a small amount of physical activity ranked last.<sup>29</sup>

The study also showed a difference in the use of materials by children of different ages.

A child of two is likely to play with dishes by crowding onto

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<sup>25</sup>Ibid., pp. 93-96.      <sup>26</sup>Ibid., p. 88.

<sup>27</sup>McDowell, op. cit., p. 306.

<sup>28</sup>Ibid., p. 306.      <sup>29</sup>Ibid., p. 309.

a table all of the dishes possible, with no apparent order or purpose. At three, he is likely to set the table in an orderly manner, playing at having a meal.<sup>30</sup>

The purposes of the present study are very similar to the purposes of Van Alstyne's and McDowell's studies; however, these studies extended down to the two year level whereas the present study extended down to the eighteen month level and dealt exclusively with toddler age children.

In Kenneth Moyer's study of "Attention Spans of Children for Experimentally Designed Toys," children from eighteen months through seven years were observed in a test situation to determine the attention spans of children for toys designed specifically for maximum "holding power" under relative non-distracting conditions. He found that under conditions of little or no distraction, the primary influences on the length of attention spans in children are age and toy functioning.<sup>31</sup>

From the study Moyer drew the conclusion that:

. . . the length of time children will concentrate in play with toys depends primarily on the use of the right toy for the right age. The closer a toy comes to satisfying the particular needs of the child, the higher will be the play value of the toy.<sup>32</sup>

This information would seem to indicate a need to study the play of children at different ages to determine the "right toys" for the "right age."

Although none of the above studies deal exclusively with toddler

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<sup>30</sup>Ibid., p. 310.

<sup>31</sup>Moyer, op. cit., pp. 189-190.

<sup>32</sup>Ibid., p. 201.

age children as does the present study, the indications drawn from the studies are of importance here. Moyer's study pointed out the need for choosing suitable toys for the different age levels. One means of determining the types of toys most suitable for the age levels is to study the play materials and their uses by groups of children at each of the age levels.

Van Alstyne's and McDowell's studies indicated a gradual change from year to year in the materials used and the manner used. If this is true, toddler age children would use different materials in different manners from the nursery school age children. To plan for the play of toddler age children, parents and teachers need some indications of the materials used and the purposes for which they are used by toddler age children.

## CHAPTER III

### SOURCE OF DATA AND PROCEDURES

The problem consisted of making a descriptive analysis of the types of play materials used, the extent of their use, and the purposes for which they were used in free play activities by the twenty children, eighteen to thirty-six months of age, in the toddler groups of the Woman's College Nursery School.

#### I. SOURCE OF DATA

Approach to problem. The observation method was selected as the method to be used for collecting the data and a record form was developed on which could be recorded the time, the materials, and the purposes for which the materials were used for each activity observed during one-hour observation periods. The record form was used to make two non-consecutive hour periods of observations on each of the twenty children in the toddler groups. After two one-hour observations were made on each of the children, the data obtained on the record form were analyzed.

Description of group. The group studied consisted of twenty children, eighteen to thirty-six months of age, who were enrolled in the two toddler groups at the Woman's College Nursery School from September 1958 to June 1959. Each of the groups consisted of ten children who attended the toddler groups from three to four o'clock

two afternoons each week. One group attended on Tuesday and Thursday, the other on Wednesday and Friday.

All of the children lived with their parents in Greensboro and were selected from applications filed at the Nursery School. All of the children were considered "normal," that is, none were known to be handicapped in any way.

The toddler groups are a service of the Woman's College Nursery School to serve as a laboratory for students who are studying child development; therefore, there was no special selection of the children except for age and an attempt to equalize the number of boys and girls.

The distribution of the children's ages, as shown in Table I, ranged from eighteen to thirty-five months. The age of each of the

TABLE I  
THE NUMBER AND PERCENTAGE  
OF CHILDREN OBSERVED AT EACH AGE LEVEL

Ages	No.	Per Cent
18 - 23	7	17.5
24 - 29	18	45.0
30 - 35	15	37.5
Total	40	100.0

children was calculated at the time the observations were made and was recorded to the nearest whole month. Since two non-consecutive observations were made on each of the children, the children were from one to four months older at the time of the second observation. In Table I

the ages of the children were included for each observation period making a total of forty ages for the twenty children. The largest percentage of the ages as represented in Table I was twenty-four to thirty months, the smallest percentage was eighteen to twenty-four months.

Of the ten children in one group, five were boys and five girls. The second group was comprised of six boys and four girls. This made a total of eleven boys and nine girls in the study.

In order to obtain a better concept of the type of group studied, a brief questionnaire was given each of the mothers to complete. The questionnaire asked about the number of children and the position of the toddler in the family, the child's playmates, and the occupation and education of the father and mother. (See Appendix F.)

The number of children in the families of the toddlers as represented in Table II ranged from one to four. The greatest number of the

TABLE II  
THE NUMBER AND ORDINAL POSITION OF CHILDREN IN THE FAMILIES

Position of Toddler	Number of Children in Family				Totals
	1	2	3	4	
1st	5	3	0	0	8
2nd		4	2	1	7
3rd			3	2	5
4th				0	0
Totals	5	7	5	3	20

families was found to have two children, but from one-child to four-children families were represented in the sample.



There was a distribution as to the ordinal position of the children in the families, as represented in Table II, but this was not as evenly distributed as was the size of the families. The largest number of children was of the one-child family and an almost equal number was of the two-child family. Only five of the children were the third child and none were the fourth, although there were three families which contained four children.

A more representative distribution is found in the position of the children in regard to the only, the youngest, the middle, or the oldest child in the families than in the ordinal positions. Figure 1 shows that in 35 per cent of the families the toddler was the youngest

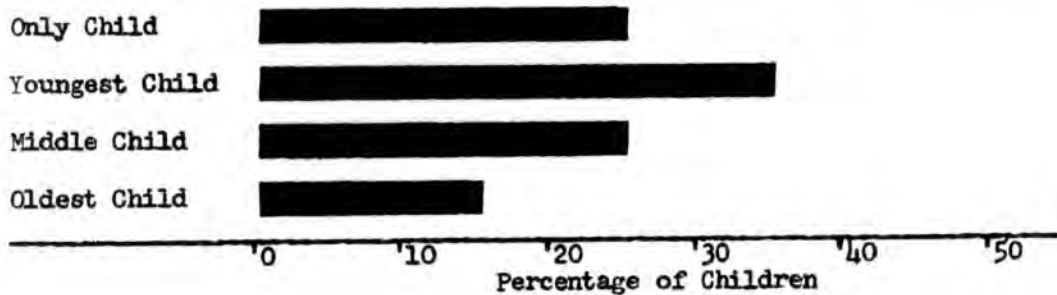


FIGURE 1

PERCENTAGE OF CHILDREN ACCORDING TO POSITION IN FAMILY

child among other children, while in 15 per cent of the families the toddler was the oldest among other children. The same per cent was the only child as was the middle child.

All of the children except two were from different families. These two were twins, a boy and a girl, in a family of four children. The twins were both observed at thirty months and again at thirty-three months of age.

The relative age and number of the children's playmates at home as indicated by the children's mothers are represented in Table III. There was little difference in the number of children who had many, enough, or few playmates, but there was a difference in the number of children who played with children younger, the same age, or older.

TABLE III

OPINIONS OF MOTHERS REGARDING THE RELATIVE AGE  
AND NUMBER OF THE CHILDREN'S PLAYMATES AT HOME\*

Relative Number	Relative Age			Totals
	Younger	Same Age	Older	
Many	0	1	7	8
Enough	1	3	4	8
Few	1	5	5	11
Totals	2	9	16	27**

\* This information was not obtained on two of the children.

\*\* The total is 27 rather than 18 since seven of the children had playmates the same age and older and two of the children had playmates younger and older.

The mothers indicated that none of the toddlers played with children exclusively younger. More of the children had older playmates than had playmates the same age or younger. This tendency to play with older children could have influenced the toddler group's play since more of the children would have been influenced by older children than by children the same age or younger. It is very likely, however, that in other groups of toddler age children the same factor would be found true. In families the toddler age children are more likely to be the youngest

or middle rather than the oldest children and, therefore, have older siblings and their siblings' friends as playmates; also, in most communities there would be more children older than thirty-six months than children younger from which the toddler age children could choose their playmates. These two factors would tend to make the choice of older playmates more likely for toddler age children.

The analysis of the parents' educational levels as shown in Table IV showed that all of the parents who answered the questionnaire

TABLE IV  
THE NUMBER OF YEARS THE CHILDREN'S PARENTS ATTENDED COLLEGE

No. Years of College	Father		Mother		Both Parents	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
1	1	5.3	3	15.8	4	10.5
2	1	5.3	3	15.8	4	10.5
3	0	0.0	1	5.3	1	2.7
4	11	57.8	6	31.5	17	44.7
5 or more	5	26.3	5	26.3	10	26.3
unknown	1	5.3	1	5.3	2	5.3
Totals	19*	100.0	19*	100.0	38*	100.0

\* One set of parents had two children in the toddler groups making the total number of parents 38 rather than 40.

had attended college at least one year. (Information was not obtained on one child's parents.) Eleven of the fathers and six of the mothers had attended college four years. Five of the fathers and five of the mothers had attended college five or more years. This made a total of 71 per cent of the parents who had completed at least four years of college.

The occupations of the parents were also revealing. Only three of the mothers indicated that they combined any occupation with their homemaking. Two of the mothers had part time occupations - one as a tutor, the other as a physician. One mother combined homemaking and teaching of art and dance to young children. Several of the mothers indicated that they had been formerly employed - one as a librarian, one as a secretary, one on a college faculty, one as a cafeteria manager, and three as teachers.

Most of the fathers' occupations as shown in Table V were of the

TABLE V  
OCCUPATIONAL STATUS OF THE FATHERS\*

Occupational Categories	No.	Per Cent
Professional and Managerial	14	73.7
Clerical and Sales	5	26.3
Service	0	0.0
Agricultural, Fishery, Forestry	0	0.0
Skilled and Semi-Skilled	0	0.0
Unskilled	0	0.0
Totals	19**	100.0

\* Dictionary of Occupational Titles, Part 1, Definitions of Titles, United States Unemployment Service (Washington, D. C.: Government Printing Office, 1939), p. XXIII.

\*\* One of the fathers had two children included in the group studied.

professional or managerial type. Of the professional occupations, two of the fathers were physicians, two lawyers, one was an architect, one a pharmacist, and one a college professor.

The educational and occupational levels of the parents indicated that the children in the toddler groups came from the medium to high socio-economic levels.

Description of the setting. The observations were conducted on the play activities in the West playroom and in the outdoor play area at the Woman's College Nursery School. The nursery school was a modern construction with almost two walls of windows in each of the playrooms for natural lighting. On one of the walls was a one-way vision glass behind which was an observation booth. The one-way vision glass appeared as a mirror from the playroom. Observations could be made from the booth without the children being aware of the presence of the observer.

There was one teacher in charge of the children assisted by one college student. Sometimes one or two additional college girls studying child development also assisted with the children. The college girls were referred to as the "helpers."

Before the toddlers arrived, the teacher and student assistant placed some table toys on the tables and set-up the easel. (The paint was not placed at the easel until a child was ready to paint.)

The outdoor play area consisted of two parts. There was a paved area next to the building on which the children rode their cars, tricycles, tractors, carts, wagons, and "kiddy kars." The children also pushed and pulled their toys on the pavement. Next to the building were two outdoor sinks where the children could get water. From the paved area the children could go up steps to the grassy lawn where the sand pile, swings,

and climbing equipment were located. Most of the outdoor materials were always available to the children. Outdoors there were several benches located about the yard on which the mothers and the observers could be seated.

The children were usually brought to the nursery school by their mothers who remained at the nursery school during the full hour. One day a week the mothers remained in the playroom with the children and observed. On the other day the mothers would go to the lobby of the nursery school for a discussion led by a member of the college staff.

## II. MATERIALS AVAILABLE

Indoor materials. The materials used by the children when indoors may be categorized into the sixteen groupings that follow:

1. The art materials available to the children included clay-dough, paint, and crayons. These materials were not available for immediate use but were offered to the children by the teacher or were requested by the children.

The clay-dough was a soft, pliable dough made of flour, salt, water, and coloring. It was usually placed on square boards on the tables in front of the children. The children were usually given small wooden rollers, spatulas, cookie cutters, and small amounts of flour to use with the clay-dough. On some occasions the children were given or obtained for themselves other play objects such as pans, dishes, nest of cups, pyramids, and peg boards to use with the clay.

The paint used was liquid tempera paint. Small amounts of paint were placed in plastic cups which were in turn placed in the cup holders at the easel. Only one color was used by a child at one time. The paint cup with a paint brush was placed at the easel when a child was ready to paint and was removed after the child finished painting. The children wore plastic aprons to protect their clothes and stood in front of the easel to paint on large sheets of newsprint paper. Paper was clamped to each side of the easel so that two children could paint at the same time.

The crayons were large and were usually given to the child in a box containing eight crayons of assorted colors. The children sat at the tables and colored on 8x10 sheets of white paper or stood in front of the easel and colored on the large newsprint paper.

2. Balls were available only occasionally. At times there was a basketball available and at times smaller balls were used.
3. Large picture books with large pictures of animals were available on a few occasions.
4. Building materials included large and small blocks and boards. The large blocks were 12x12x4 and 24x12x4. The large blocks were hollow and the children could easily pick them up and carry them. These large hollow blocks were often used with long boards.

The small building materials included smaller solid blocks

of assorted sizes and shapes, small one-inch building blocks, and small building bricks of assorted colors made of plastic.

The blocks of assorted sizes and shapes were stored on open shelves beneath the one-way vision glass along with the small trucks, cars, and airplanes. The smaller blocks and plastic bricks were stored in wooden trays inside a cabinet and were available only when the teacher placed them on the tables or suggested their use, the children requested them, or the children went into the cabinets and got them.

5. The doll corner was a corner of the playroom which was partly set-off from the rest of the room by low shelves which extended out into the room. The following materials were always in the doll corner and available to the children: a miniature stove, refrigerator, ironing board with irons, cupboards, a doll bed, a doll's high chair, dolls, doll clothes, doll blankets, plastic play dishes, pots, pans, baby bottles, a long mirror on the wall, a tea table, chairs, a rocking chair, telephones, and dress-up clothes.
6. Included in the group of miniature replicas of animals and people were a set of large circus animals, a set of small rubber farm animals, rubber soldiers, cowboys, Indians, and wooden people mounted on small wooden blocks. These materials were stored in wooden trays or straw baskets inside of a cabinet and were available when the teacher placed them on the tables, when she suggested them to the children, or when the



children requested them.

7. The hammers and pegs were stored in the cabinets and were available sometimes. The wooden hammers were used to hammer pegs through the holes in the peg benches. The peg benches were usually placed on a table when in use.
8. The table toys included small toys which were placed on the tables and which the children used while sitting at the tables. Included in this group were pyramids which were pegs on which square or round blocks or small balls were placed, a clown-peg-top which could be made to spin around and which could be taken apart and put together, and a board in which were placed large pegs. There were simple puzzles made of wood as well as form boards of geometric shapes, animals, and people. Items to be taken apart and put together included nests of hexagon shaped cups, of eggs, and of barrels; a plastic merry-go-round which was placed on top of a plastic bucket; small eggs which had small chickens inside; a tool chest with wooden bolts, nuts, screws, screw driver, and wrench; wooden beads which could be strung on a string; and large pop-beads made of plastic. Items that had holes through which smaller items were placed included a "tasket basket," a wooden cash register, and a wooden shoe. Two items that had moving parts, but could not be taken apart, were a metal cash register with keys and a register with rollers on which were pictures of objects

with the names of the objects printed below each picture. Other materials included in this group were wooden clowns, cookie cutters, a funnel, tinker toys, dominos, and wooden microphones.

All of the table toys were stored in baskets or wooden trays inside the cabinets. Some of these materials were placed on the tables before the children arrived each day and others were obtained by the children when they were offered by the teacher, requested by the children, or procured by the children from the cabinet without assistance.

9. The large wheelless equipment included a rocking boat, a rocking horse, a swinging gate, a large steering wheel, a small piece of climbing equipment, and two experimental tables.

Two or four children could sit down in the rocking boat and rock back and forth or they could turn it over and use it as steps.

The steering wheel was a standard steering wheel from a real car which had been mounted in a wooden "engine" type construction which could be easily moved from place to place.

The experimental tables were constructions with three sides enclosed and three sides exposed. The tables could be turned over so each of the enclosed sides could serve as the table top. The two tables had smaller solid blocks to be used for stools. The tables were used in a research project being carried on at Woman's College.

The rocking horse and swinging gate were always available. The rocking boat and steering wheel were readily accessible when they were in the West playroom but occasionally they were not in the room. The climbing equipment and the experimental tables were available only occasionally since they were usually placed in the East playroom.

10. The musical instruments used by the children were drums with drum sticks, bells, and cymbals. A xylophone and triangles were available but were not used during the observations. The instruments were stored in a drawer within reach of the children.
11. The push and pull toys included toy lawn mowers with cage-like cylinders that turned as the child pushed with the wooden handle and a toy made of circular blocks strung together which was pulled by a string. These materials were stored in a cabinet that was above the reach of the children and were usually offered to the children by the teacher or helper.
12. The record player was a simple, one-speed machine which could be operated by the children. The record player with a rack containing records was located on a low cabinet within the reach of the children.
13. The stuffed animals , several small stuffed dogs and bears as well as a large stuffed tiger and teddy bear, were located on top of the low cabinet in the doll corner.

14. The transportation toys were divided into small and large transportation toys. The small transportation toys included several sizes of trucks, cars, and airplanes which could be pushed by the children. Some of these were rubber, some wood, some plastic, and some metal. These materials were located in the shelves under the one-way vision glass along with the medium sized blocks.

The large transportation toys included a baggage carrier, a doll carriage, a doll cart, a train engine, and two trucks. All of these materials were always available except the baggage carrier and doll cart which were sometimes available. The doll carriage was included under transportation toys rather than doll corner since it was usually used as a vehicle to push around rather than a vehicle in which to put dolls.

15. For the water there were two low sinks in the playroom each of which had faucets for hot and cold water. The children could turn the water on and off. Other materials were usually used with the water such as play dishes, sponges, pots, pans, coffee pots, hand mops, paper towels, paper cups, soap, dolls, baby bottles, forks, spoons, egg beaters, etc. The children wore plastic aprons to protect their clothing when playing with water.

16. The category of other materials included materials brought to the nursery school by the children or those which were

available only on special days.

Outdoor materials. The materials used by the children when outdoors were arranged into the following seven categories. These materials were almost always available to the children.

1. Balls were available occasionally. These were stored in the outdoor storage closet.
2. The climbing equipment included a jungle gym, a tower, climbing ropes, and a large wooden box with rungs up the sides and an opening for a "door."
3. The large wheelless equipment included chairs, boards, swings, large and small slides, rocking boat, and rocking chair. The large boards were not put into a separate category since they were propped on other objects by the teacher so that the children could walk up and down or across them. The small slide was usually attached to the tower but was portable and was used in other places at times.
4. Along with the sand in the sand pile there was a canvas basket full of toys to be used in the sand. These toys included cars, trucks, boats, trains, spoons, scoops, small shovels, metal and plastic buckets, funnels, sifters, muffin pans, and pots and pans. The sand pile was surrounded by a concrete wall, the top of which was level with the ground. The sand pile had a roof over the top supported by posts.
5. The transportation toys were divided into the small and large transportation toys. The small transportation toys

were located with the sand toys but were sometimes used away from the sand pile.

The large transportation toys included tricycles, tractors, "kiddy kars," a baggage cart, and a large car in which the child sat with his feet on the pavement.

6. For the water there were two low sinks outdoors with faucets for hot and cold water. Outdoors the water was usually used as paint and was used with buckets, brushes, cars, tricycles, and tractors.
7. The category of other materials included materials brought to the nursery school by the children or those which were available only on special days.

### III. PROCEDURES

Description of observations. A record form was developed on which could be recorded the time, the materials used, and a description of the play activities. The record form was tested and revised. (See Appendix E.) This record form was very similar to a portion of the record form developed by Helen Bott. On Bott's record form the division of "occupation with materials" was sub-divided into the same divisions used in this study.<sup>33</sup>

The observations were conducted indoors and outdoors from November through April. Thirty-one of the observations were made indoors, seven

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<sup>33</sup>Helen Bott, "Observation of Play Activities In a Nursery School," Genetic Psychology Monographs, IV, No. 1 (July, 1928), p. 45.

were made outdoors, and during two of the observations the children played indoors for about half of the time and then went outdoors to play.

Indoors the observations were conducted from the observation booth through the one-way vision glass except when the booth was being used by the parents. On these occasions the observer sat in the play-room. Outdoors the observer sat near the area where the child being observed was playing. The children frequently see college girls sitting on the benches with paper and pencil and, therefore, seldom notice the observers.

Indoors there was a large clock on the wall which was always in view of the observer and which was used for recording the time; outdoors the observer used a wrist watch to record the time to the nearest half minute at the beginning of each activity of the child being observed.

Description of the procedures. An observation form was developed, pre-tested, and revised. An alphabetical list was made of the children's names in the groups. Each child on the list was then observed for two non-consecutive one-hour periods. The observer recorded on the observation record form the data.

During the first semester one child dropped out and another child took her place. At the end of the first semester five children dropped out since they were more than thirty-six months of age. These five were replaced by five other children at the beginning of the second semester. The list of children was then revised to replace the six children who had dropped out with the six who had replaced them.

The observation periods began at three o'clock or when the child

arrived and the period ended when the child indicated that he was ready to go home, or when the mother indicated that it was time to go home. Since the children did not always arrive or leave on the hour, some of the observation periods were less than an hour and some were a little more than an hour. Since the study was dealing with the extent of time the materials were used and not with the performance of individuals, and since the first few minutes and the last few minutes were usually times of least concentration on the part of the children, it was believed by the observer that the fluctuation in length of observation periods was not significant enough to have any appreciable effect upon the results of the study.

Before the observation period, the observer recorded at the top of the record form the child's name, age, and sex along with the date, the observer's name, and the setting - the setting indicated whether the observation was conducted indoors or outdoors. During the observation period, the observer recorded the time to the nearest half minute when the child began each activity, recorded the materials the child used, and wrote a brief description of the child's play activity. After the observation period, the total time of the observation period and the total time spent in each activity were calculated and recorded on the record form.

After the forty observations were completed the data from the record form was analyzed. The different materials used during the observations were listed and grouped into the appropriate categories considering indoor and outdoor materials separately. For each of the



specific materials the total time used, the number of times used, the number of different observation periods in which used, the mean amount of time used, and the range of time used were determined.

Since all of the indoor materials were not equally available to the children, the materials were classified according to their availability: materials always available, materials sometimes available or available upon request, and materials seldom available. The materials always available were those which could be obtained by the children with no assistance from the teacher or other adult. The materials sometimes available or available upon request were those which were stored in cabinets out of the reach of the children and which the teacher usually had to assist the children in obtaining. The materials seldom available were materials which belonged to the individual children or which were present for a special reason and were available during very few of the observation periods.

The total observation time, the total time indoors and outdoors, and the time spent in play indoors and outdoors were calculated. From this data there was determined the per cent of time the children were occupied with play materials indoors and outdoors.

In order to compare the different types of materials used, the total time, the number of times, the mean time, and the per cent of the play time were calculated and recorded for each of the different types of indoor and outdoor materials.

An analysis of the "description of activities" was made to determine the uses the children made of the materials. The different uses

(types of play) were listed for each of the types of materials. In the description of the uses made of the types of materials examples are presented which are representative of the uses made of the materials.

The general uses or purposes for which the materials were used were described or determined by the types of play activities in which the materials were used. The types of play and the uses or purposes included under each type of play are given below:

Inactive play were activities in which there was no action. Included in this group were such activities as leaning on, holding, listening, looking, sitting, and standing.

In manipulative activities the materials were worked with the hands. Such activities as filling, pouring, turning, stirring, squeezing, taking apart, putting together, opening and closing, and taking out of and putting into containers were included in this group.

In explorative activities the children were investigating or trying to learn the nature of a material. Watching, feeling, examining, looking, biting, and tasting were some of the activities included in this group.

Mildly active play included such activities as carrying, hitting, throwing, dropping, closing doors and drawers, and rocking in the rocking chair.

In active activities the children were engaged in action such as jumping, climbing, walking, running, pushing, rocking, bouncing, riding, swinging, sliding, kicking, and some throwing.

Constructive play were activities involving building and putting

together parts - stacking and building with the blocks.

Creative play included activities such as painting, coloring, and making noises with the musical instruments.

Imitative activities were concerned with copying or reproducing more or less closely the appearance, sound, etc. of something. Activities included in this group were setting dolls in chairs, putting dolls in the bed, dressing or undressing dolls, stirring with a spoon, talking on the telephone, ironing, and sweeping.

Imaginative play included activities such as pretending to feed the dolls, pretending to eat or drink, pretending to paint, and flying an airplane.

Social activities involved giving or showing something to another child or to an adult.

## CHAPTER IV

### ANALYSIS OF THE DATA

The data gathered during the forty one-hour observation periods was analyzed to determine the types of play materials used, the extent of their use, and the purposes for which they were used in free play activities by the twenty children in the toddler groups at the Woman's College Nursery School.

Of the 2,286 minutes of observation time recorded during the forty observation periods, 1,824 minutes were recorded indoors and 462 minutes outdoors. Of the observation time, 79 per cent of the indoor time and 78 per cent of the outdoor time were spent with the play materials. The discussion of the observation time deals with the time in which the children were occupied with materials. The other 21 per cent of indoor and 22 per cent of outdoor time were spent in activities in which play materials were not used. These activities included watching other people, running or walking around the playroom or yard, talking, sitting, leaving the room, and drinking juice.

The data concerning the extent of use of specific kinds of materials and general types of materials will be presented first, followed by the data concerning the purposes for which the materials were used. Materials used indoors and those used outdoors will be treated separately in each of the discussions.

## I. PLAY MATERIALS USED INDOORS AND THE EXTENT OF THEIR USE

Indoors there were ninety-six different kinds of materials recorded during the observation periods. Thirty-one one-hour observation periods and two thirty-minute observation periods were conducted indoors. There were 1,824 minutes of observation time during the indoor observation periods: of this time the children were occupied with play materials 1,444 minutes or 79 per cent of the time.

Specific kinds of materials. As indicated by the total time used, the children showed the greatest interest in the twelve materials presented in Figure 2. The graph shows that the most used materials were water, clay-dough, and paint. The graph also shows that water was used over twice as much as clay-dough or paint.

Most of the twelve materials were readily available to the children. The exceptions, the materials not always available, were the clay-dough, paint, and crayons. The use of the clay-dough and paint was usually suggested by the teacher; therefore, these materials were usually available. The crayons were the least often available of the twelve materials in the graph.

The attractiveness of the materials as indicated by the frequency or number of times chosen by the children is represented in Table VI. The most frequently used materials were the swinging gate, the record player, and water.

A comparison of Table VI and Figure 2 showed that the twelve materials presented in Figure 2 as the most used materials were, also,

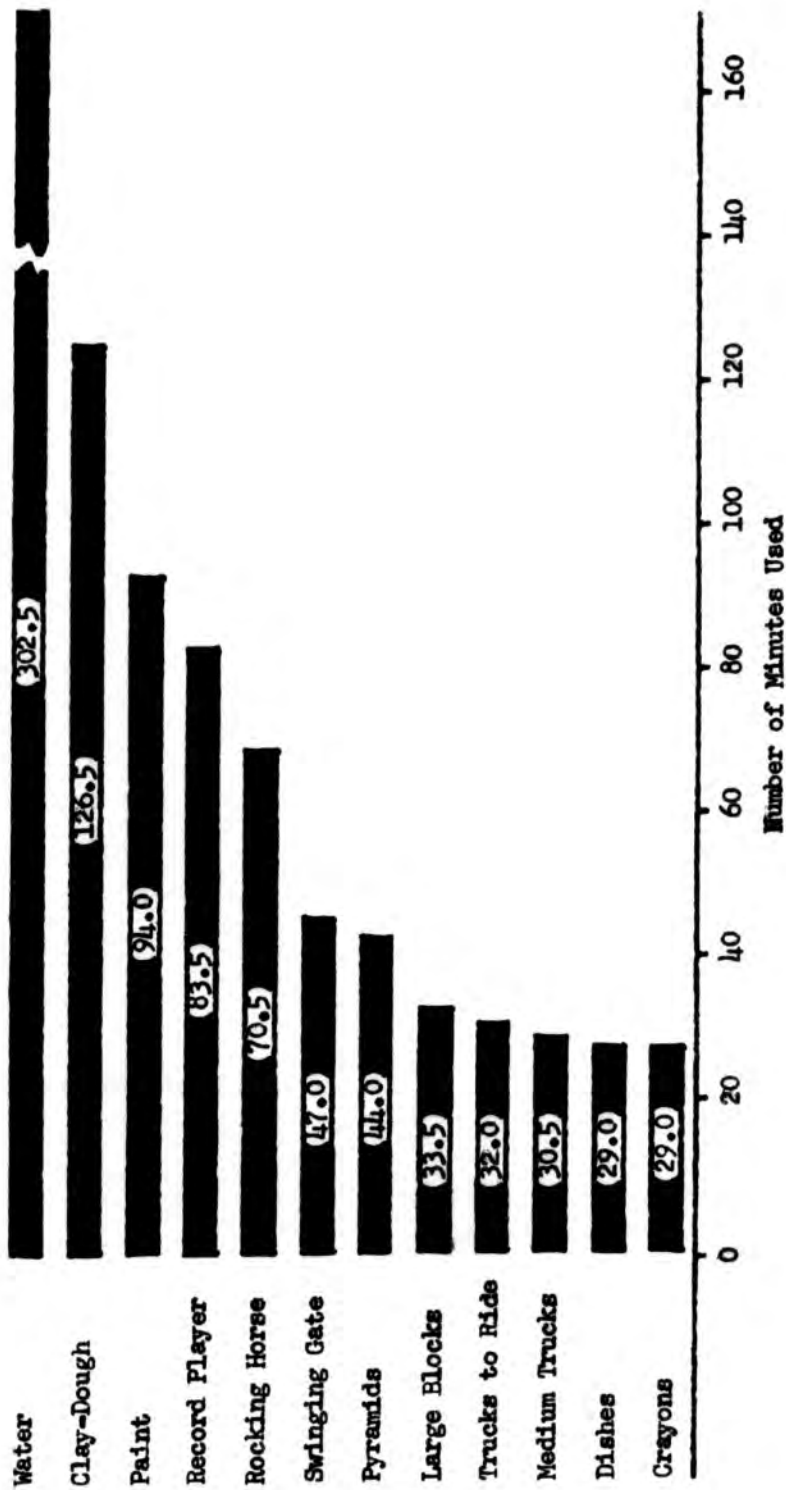


FIGURE 2  
THE MOST USED INDOOR MATERIALS

TABLE VI

MOST FREQUENTLY USED INDOOR MATERIALS  
AND THE EXTENT OF THEIR USE

Materials	No. Times	No. Periods	Total Time	Mean	Avail- ability*	
					A	S
Swinging Gate	50	20	47.0	0.9	A	
Record Player	45	17	83.5	1.9	A	
Water	44	23	302.5	6.9	A	
Pyramids	41	16	44.0	1.1	A	S
Rocking Horse	40	14	70.5	1.8	A	
Clay-Dough	33	18	126.5	3.8		S
Trucks - medium	33	15	30.5	0.9	A	
Paint	30	18	95.0	3.1		S
Trucks to ride	26	13	32.0	1.2	A	
Crayons	22	8	29.0	1.3		S
Dishes	22	15	29.0	1.3	A	
Blocks - large	21	9	33.5	1.5	A	
Stuffed Animals	20	11	24.0	1.2	A	
Doll Carriage	19	11	23.0	1.2	A	
Rocking Boat	17	10	15.5	0.9	A	
Doll Corner	14	9	20.0	1.4	A	
Cash Register - keys	13	6	28.0	2.2		S
Road Trucks - rubber	13	9	14.0	1.1	A	
Toy Lawn Mower	13	6	12.5	1.0		S
Dolls	12	8	16.0	1.3	A	
Iron and Ironing Board	11	10	10.0	0.9	A	
Nest of Cups	11	4	23.0	2.1		S
Telephones	11	7	11.5	1.1	A	
Trucks - small	10	7	8.5	0.9	A	
Airplane - large	10	6	13.0	1.3	A	

\* "A" indicates materials always available; "S" indicates materials sometimes available or available upon request.

the twelve most frequently used materials. However, the materials were ranked differently for frequency of use and for total time used. The swinging gate ranked sixth in total time used but ranked first in the number of times used; water ranked first in total time used but ranked third in the number of times used.

Since some of the play materials were used a number of times during an observation period, the number of observation periods in which used was recorded for each material and is included in Table VI for the most frequently used materials. Water was used during the largest number of observation periods; it was used during twenty-three of the thirty-two observation periods or nearly 70 per cent of the indoor periods.

The data showed that the nine most frequently used materials were among the ten materials used during the largest number of observation periods and that the twenty-five most frequently used materials except for the nest of cups were among the twenty-five materials chosen during the largest number of periods. This would seem to indicate that no individual observation period greatly influenced the attractiveness of the materials and that the materials listed in Table VI except for the nest of cups were attractive to the group as a whole.

Some of the materials in Table VI were not always available to the children. The pyramids, clay-dough, and paint were usually available but were not stored within reach of the children. The crayons, cash register (keys), toy lawn mower, and nest of cups were the least often available since these materials were least often suggested by the teacher or requested by the children.



Among the most frequently used materials, the materials with the greatest "holding power" as indicated by the mean amount of time the materials were used are represented in Figure 3. The materials with the greatest "holding power" were water, clay-dough, and paint.

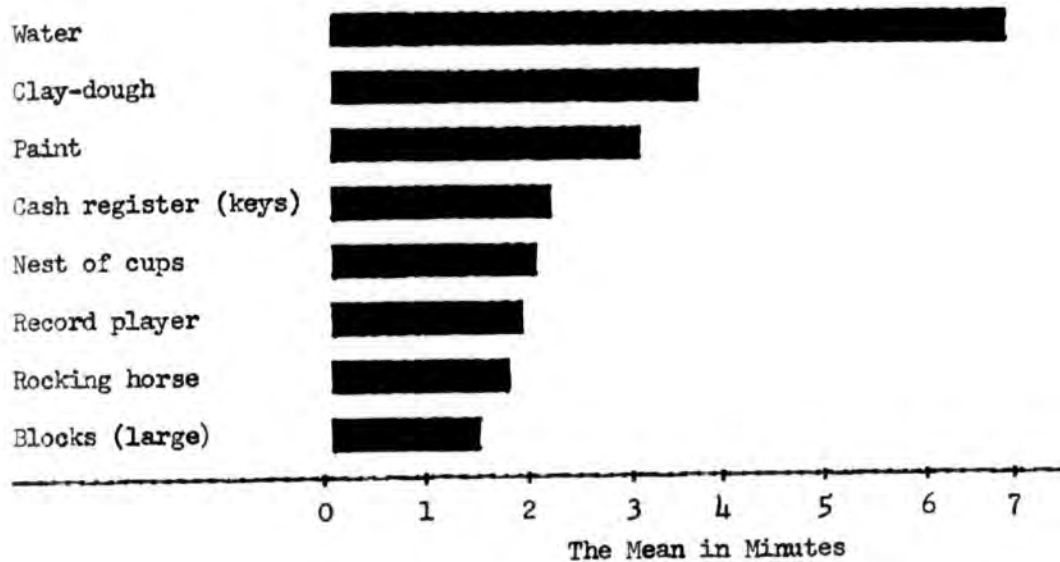


FIGURE 3

THE MEANS OF THE MATERIALS WITH  
THE GREATEST HOLDING POWER

Considering the amount of time, the number of times, the number of different observation periods, and the mean amount of time used, the children showed the greatest interest in water, clay-dough, paint, the record player, and the rocking horse.

Water seemed to be the most popular material. It was used the greatest length of time with a total of 302.5 minutes. Water ranked third in the number of times used but it was used during the largest

number of observation periods - in twenty-three of the thirty-two indoor observation periods - which indicates its attractiveness to the children. The mean amount of time water was used was 6.9 minutes, exceeded only by the small train which was used only once for 22 minutes. One reason for the attractiveness of water to the children could be that few homes have suitable space and facilities which make possible the encouragement of water play. The greater holding power of water is probably due mainly to the great versatility which is possible in the use of water.

Some of the children were very attracted to water. One child spent 13 minutes during the first observation period and 16.5 minutes during the second period with the water. Another child spent 41 minutes during the first observation and 30 minutes during the second observation period with the water. These children did not remain with the water continuously but returned to the sink to play with water several times during the observation periods.

Clay-dough and paint, which were the second and third most used materials, were made available when the teacher offered them to the children or when the children requested these materials. These might have been used a little more had they been immediately accessible to the children; however, it is doubtful that clay-dough or paint would have been as popular as water even if they had been always available since the holding power of water was almost twice that of clay-dough or paint.

The record player ranked fourth in total time used and second in number of times used even though there were several observation periods in which the record player was not in working order - the playing needle

was sometimes missing.

The pyramids ranked seventh in order of time used. There were several of these available in different shapes, sizes, and materials. There were two or three of these placed on the tables everyday before the children arrived and were, therefore, readily available to the children.

The large blocks were stacked near the outside door. Even though they were within reach of the children, the large blocks were seldom used unless suggested or encouraged by the teacher or helper. Sometimes the teacher constructed steps out of the blocks on which the children liked to climb up and down.

The twenty least used materials are presented in Table VII. The availability might have influenced the use of some of these materials.

Types of indoor materials. To gain an understanding of the types of indoor play materials, the materials were grouped into the eighteen general types or categories of play materials as indicated in Table VIII. For each of the types of materials the total time used, the per cent of the play time in which used, the number of times used, and the mean time used are presented in the Table. The materials included under each type of material were given in Chapter III.

Water was found to be the most used material whether considered as a specific material or whether considered as a type of material. It was used 20.9 per cent of the total play time. The popularity of water may have been due partly to its versatility of uses and combinations with other materials. Water was also used the greatest mean amount of time.

TABLE VII  
THE TWENTY LEAST USED INDOOR MATERIALS

Materials	Total Time	No. Times	Avail- ability*	
			A	S
Books	1.5	2		S
Clowns (wooden)	1.5	1		S
Merry-go-round	1.5	2		S
Register with pictures	1.5	2		S
Blocks (small)	1.5	2		S
Blocks (medium)	1.0	2	A	
Block shelves	1.0	1	A	
Climbing equipment	1.0	1		S
Doll clothes and blankets	1.0	1	A	
Milk bottle (wooden)	1.0	2	A	
Mirror	1.0	2	A	
Racer (rubber)	1.0	2	A	
Tool chest	1.0	1		S
Bells	0.5	1	A	
Bucket	0.5	1		S
Chairs	0.5	1	A	
Dominoes	0.5	1		S
Funnel	0.5	1		S
Microphone (wooden)	0.5	1	A	
Tinker toys	0.5	1		S

\* "A" indicates materials always available; "S" indicates materials sometimes available or available upon request.

TABLE VIII  
EXTENT OF USE OF TYPES OF INDOOR MATERIALS

Types of Materials	Total Time	% of Play Time	No. Times	Mean
Art Materials	252.0	17.5	87	2.9
Balls	6.5	0.5	7	0.9
Books	1.5	0.1	2	0.8
Building Materials - Small	7.5	0.5	8	0.9
Building Materials - Large	41.0	2.8	27	1.5
Doll Corner	123.0	8.5	104	1.2
Hammer and Pegs	6.0	0.4	5	1.2
Large Wheelless Equipment	145.5	10.1	119	1.2
Miniature Replicas	16.0	1.1	14	1.1
Musical Instruments	7.5	0.5	11	0.7
Push and Pull Toys	23.5	1.6	19	1.2
Record Player	83.5	5.8	45	1.9
Stuffed Animals	24.0	1.7	20	1.2
Table Toys	206.5	14.3	139	1.4
Transportation - Small	126.0	8.7	87	1.4
Transportation - Large	61.0	4.2	54	1.1
Water	302.5	20.9	44	6.9
Other	10.5	0.8	8	1.3
Totals	1444.0	100.0	800	1.8

Water, art materials, table toys, and large wheelless equipment were used for the greatest per cent of the play time - the time in which the children were occupied with play materials.

The types of materials that were used the greatest mean amount of time which is indicative of the holding power were: water, art materials, and the record player.

All of the individual materials were not readily available but

some of each type of material were always available. The water and large wheelless equipment were always available to the children. The record player was available but was not always in working order. Some art materials and table toys were always available, but the specific materials could not be obtained without the teacher's assistance.

## II. PLAY MATERIALS USED OUTDOORS AND THE EXTENT OF THEIR USE

Of the 462 minutes of observation time recorded during the outdoor observations, 361 minutes or 78 per cent of the time the children were occupied with materials. Seven one-hour observation periods and two thirty-minute observation periods were conducted outdoors.

Specific kinds of materials. During the outdoor observation periods twenty-six different kinds of materials were used. The materials used the greatest amount of time are presented in Figure 4. The graph shows that the most used materials were the sand pile, water, and the swing.

Table IX shows that the most frequently used materials were the sand pile, tricycles, and "kiddy kars." The sand pile and tricycles were also used during the largest number of periods; however, the "kiddy kars" which ranked third in the number of times used were used during only three observation periods. The "kiddy kars" might have been used more had they been available during all of the observation periods; on the other hand, the newness of the "kiddy kars" might have contributed toward their frequent use during the few observation periods in which they were available.

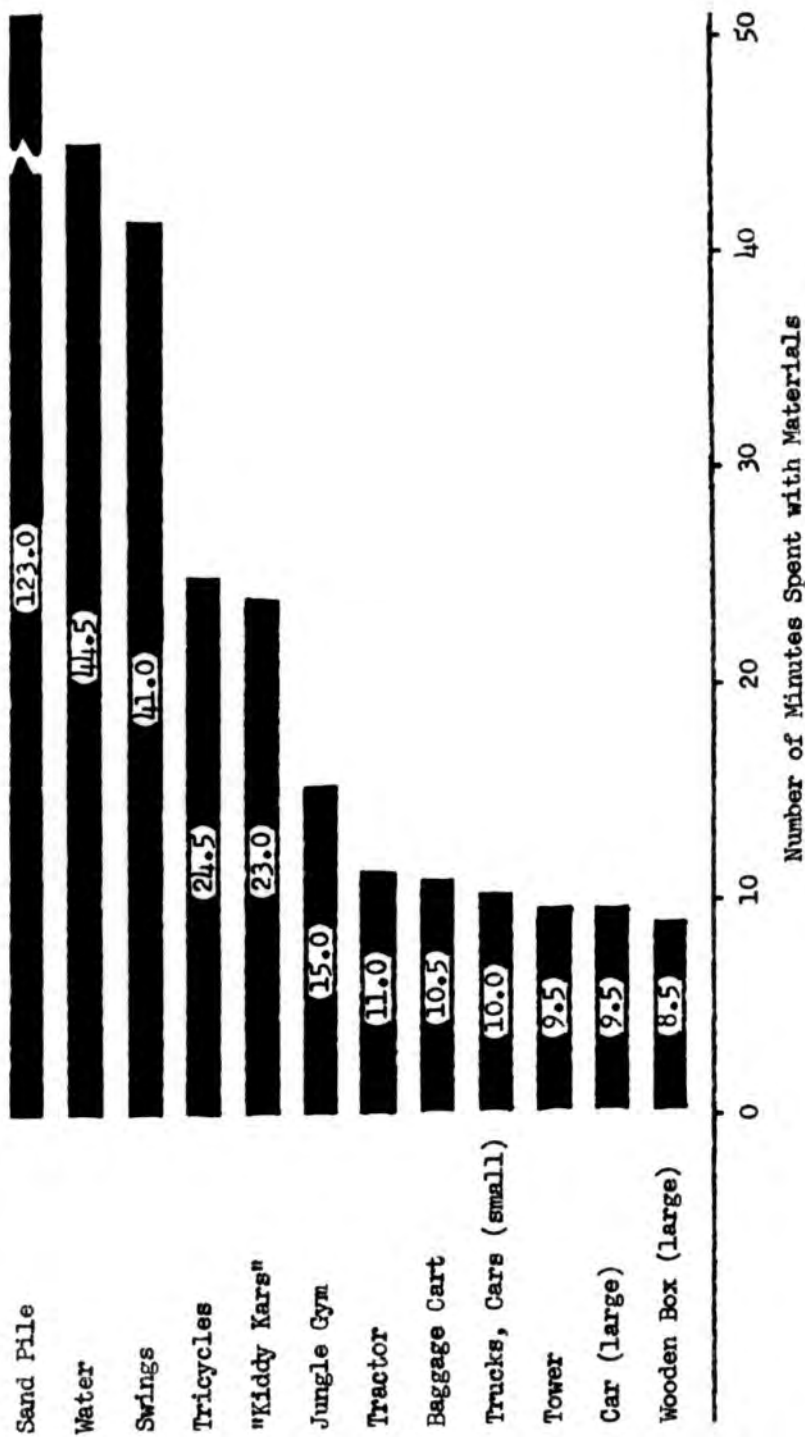


FIGURE 4

THE MOST USED OUTDOOR MATERIALS

Table IX shows that of the most frequently used materials, the materials with the greatest holding power were: water, swings, and the sand pile. The Table also shows that the sand pile and tricycles were used during the largest number of outdoor periods.

The sand pile, water, and tricycles seemed to be the most popular outdoor play materials. The sand pile was among the materials used the most, used the largest number of times, and used the greatest mean amount of time. Water ranked second as to total time used and first as to mean amount of time used. Tricycles were among the most used materials and among the materials used the largest number of times.

TABLE IX  
THE TWELVE MOST FREQUENTLY USED OUTDOOR MATERIALS

Materials	No. Times	No. Periods	Total Time	Mean
Sand Pile	42	9	123.0	3.0
Tricycles	21	7	24.5	1.2
"Kiddy Kar"	18	3	23.0	1.3
Baggage Cart	12	6	10.5	0.9
Tower	11	4	9.5	0.9
Jungle Gym	11	6	15.0	1.5
Swings	9	5	41.0	4.6
Water	8	6	44.5	5.6
Boards	8	2	7.0	0.9
Car - Large	7	5	9.5	1.4
Tractor	5	5	11.0	2.2
Wooden Box	4	2	8.5	2.1

The sand pile and tricycles were always available to the children. The swings were available but a teacher or helper had to assist



with the swings. The water was available but was discouraged until the weather became warm enough to permit its use. The "kiddy kars" were not obtained until April and were, therefore, not available during all of the observation periods.

Even though the use of water was discouraged sometimes, it was used more than any other material except sand. Its holding power was indicated by the mean of 5.6 minutes which was exceeded only by sand toys which were used once for 6.5 minutes.

The tractors were used eleven minutes although they were a little large for these children. Some of the children could not reach the pedals with their feet when they were seated on the tractors.

The small trucks and cars which were used twice for a total of ten minutes were located with the sand toys and were usually used in the sand pile. They were used outside the sand pile on these two occasions and were, therefore, listed separately from the sand toys.

The sand toys were usually used in the sand pile and were considered secondary materials with the sand being the primary material. The materials listed under the heading of "sand toys" were used outside of the sand pile.

All of the outdoor materials were always available except for the balls, wheel barrows, and large slide. The balls and wheel barrows were not always taken from the storage room and the use of the large slide was not usually permitted because it was considered too high.

The location could have influenced the use of some of the materials. The jungle gym, wooden box, tower, climbing ropes, and swings

were located farthest from the building. The mothers usually sat near the sand pile or on the wall surrounding the paved area and the children usually remained in the same area where the mothers were seated.

The outdoor materials used the least were: the wheel barrows, small slide, rocking chair, rocking boat, and balls. The availability might have influenced the use of these materials.

Types of outdoor materials. To determine the extent of time the types of outdoor materials were used, the twenty-six different kinds of materials were grouped into eight different categories of materials as represented in Table X.

The types of materials used for the greatest total time were the sand pile, large transportation toys, and large wheelless equipment. The sand pile was the most used material whether considered as an individual material or whether considered as a type of play material. The sand pile was used a total of 129.5 minutes or 35.9 per cent of the play time. The popularity of sand could be due partly to the versatility which is possible in its use.

The types of outdoor materials that were used most frequently were the large transportation toys, the sand pile, and the climbing equipment.

The types of outdoor materials that were used the greatest mean amount of time were water, small transportation toys, and sand pile. This is indicative of the holding power of water and sand both of which are very versatile materials. The small transportation toys ranked second but their use was limited to two occasions in one period.

The types of outdoor materials that were used the least amount of time were the small transportation toys, climbing equipment, and the balls. The actual use of the small transportation toys could not be determined since they were usually used as sand toys. The use of the climbing equipment was not encouraged every day since a teacher had to

TABLE X  
EXTENT OF USE OF TYPES OF OUTDOOR MATERIALS

Types of Materials	Total Time	% of Play Time	No. Times	Mean
Ball	1.5	0.4	1	0.8
Climbing Equipment	35.0	9.7	29	1.2
Large Wheelless Equipment	55.0	15.2	26	2.1
Sand Pile	129.5	35.9	43	3.0
Transportation - Small	10.0	2.8	2	5.0
Transportation - Large	79.5	22.0	64	1.2
Water	44.5	12.3	8	5.6
Others	6.0	1.7	6	1.0
Totals	361.0	100.0	179	2.0

be near the climbing equipment when it was in use to assist the children. The balls were not readily available since they were not always taken out of the storage closet.

The sand pile seemed to be the most popular outdoor material. It was used the largest amount of time, it was second in number of times used, and it had the third largest mean. The sand pile was used at least two minutes during each of the outdoor observation periods.

The large transportation toys were also a popular type of material. These materials were used 22 per cent of the outdoor time in which the children were occupied with materials and were chosen the greatest number of times which is indicative of their attractiveness to the children.

### III. THE PURPOSES FOR WHICH THE INDOOR PLAY MATERIALS WERE USED

The observation record form provided space for recording a description of the play activity. An analysis of this information provided data as to the purposes for which the materials were used. A list of the uses of each of the types of materials and the number of times the materials were used in each manner is presented in Appendix C.

Table XI shows the uses (types of play) of the different types of indoor materials. The table indicates the frequency each type of play was observed. The table gives the frequency of uses and does not indicate the amount of time spent in each activity.

Table XI indicates that the indoor play materials were used mostly in manipulative, mildly active, active, and explorative activities.

In the discussion of the uses of each of the types of materials, examples are given to illustrate the children's uses of the materials. The examples were taken from the observation record forms. In the examples, the record of the time is omitted but the materials used, the description of the activities, and the total time spent in each activity are given. Each type of material is discussed separately.

The art materials were used mostly in manipulative, creative, and

TABLE XI  
USES (TYPES OF PLAY) OF THE TYPES OF INDOOR MATERIALS

Materials	Types of Play*									
	Inactive	Manipulative	Explorative	Mildly Active	Active	Constructive	Creative	Imitative	Imaginative	Social
Art Materials .....	0	115	5	15	0	0	53	0	0	8
Balls .....	2	0	0	3	0	0	0	0	0	2
Books .....	1	0	0	1	0	0	0	0	0	1
Building - Small .....	1	4	0	5	0	0	0	0	0	2
Building - Large .....	7	0	0	0	34	4	0	0	0	2
Doll Corner .....	6	1	14	54	4	0	0	36	9	7
Hammer and Pegs .....	0	0	0	5	0	0	0	0	0	1
Miniature Replicas .....	0	6	4	4	0	0	0	0	1	1
Musical Instruments .....	0	0	0	3	0	0	8	0	0	0
Push and Pull Toys .....	0	0	0	1	26	0	0	1	0	0
Record Player .....	25	22	0	4	0	0	0	0	0	2
Stuffed Animals .....	4	0	1	18	0	0	0	0	0	3
Table Toys .....	1	150	10	57	0	0	0	0	1	6
Transportation - Small .	7	27	26	78	0	0	0	0	1	6
Transportation - Large .	9	10	3	14	44	0	0	0	0	0
Water .....	0	157	46	0	0	0	0	1	8	0
Wheelless Equipment .....	8	0	1	30	106	0	0	0	0	0
Totals .....	71	492	110	290	216	4	61	38	20	41

\* The numbers show the number of times each type of materials was recorded as being used in each type of play.

mildly active activities. The children explored the many possible manipulative uses of these materials by tasting, hitting, examining, putting into objects, etc. The pictures the children made with the paints and crayons were crude but would still be considered creative.

Since each of the art materials clay-dough, paint, and crayons were used in different manners they will be considered separately.

The uses of the clay-dough were mostly manipulative. The most frequent uses were mashing, cutting, and putting in and taking out of another object. The secondary materials most often provided by the teacher for use with the clay-dough were: rollers, wooden spatulas, flour, cookie cutters, pans, and dishes. Additional secondary materials used by the children included nests of cups, boards with holes for pegs, the clown-peg-top, blocks from the pyramids, and the milk bottle that comes apart in segments. Below are specific examples of the uses of the clay-dough.

clay-dough roller cookie cutter	Rolls. Punches finger into clay. Pats clay. Pushes cookie cutter into clay. Pats clay. Makes hand print in clay. Goes over to sink and tells helper she wants some flour. Pushes red plastic cookie cutter into clay. Helper puts flour on edge of clay board and in K's hand. K. puts flour on clay and rolls it. Tears off a piece of clay, mashes it and shows to mother. Rolls large piece of clay. Pushes cookie cutter into clay.	5.0
clay-dough pegs and board roller	Takes peg and pushes into clay. Rolls clay. Picks up little pieces of clay and puts into holes of peg board. Fills all of the holes.	2.5

The paint was used mostly for painting on large newsprint paper at the easel with large paint brushes. Other uses included wiping up,

stirring and tasting the paint as well as moving the paint cups and looking at another child's painting. Below is an example of the use of the paint.

<p>paint easel paint brush</p>	<p>Walks over to easel. Says she wants to paint. Mrs. F. puts an apron on her. Helper gets the paint. Makes short strokes. Holds brush between fingers and paints a little. Makes strokes back and forth across paper. Goes around to other side to look at R's painting. Goes back to her side and paints. Tries to take clamp off of paper. Mrs. F. removes paper for her. She begins to paint apron. Mrs. F. tells her to paint the paper. Holds up top sheet of paper and paints on next sheet. Looks at paint on hands. Tastes the paint. Wipes paint from hands onto paper; paints with brush.</p>	<p>9.5</p>
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The crayons were used mostly for making marks on paper but were also used for carrying, putting into and taking out of the box, opening and closing the box, and putting into the child's mouth. Usually the children sat at one of the four tables in the playroom and colored on a piece of 8 x 10 white paper but on a few occasions the children stood at the easel and colored on the large newsprint paper. Examples of the uses of the crayons are given below.

<p>box of crayons paper</p>	<p>Helper gives T. crayons and piece of paper. Puts paper on ledge near animals. Takes orange crayon out and marks on paper (circular motion). Chooses another color and marks on paper.</p>	<p>2.5</p>
<p>box of crayons paper</p>	<p>Continues to color. Makes dots. Puts end of brown crayon in mouth. Goes over to table to watch K. (Carries crayons with him.) Takes all of the crayons out of box and then puts them back.</p>	<p>3.0</p>

The uses of balls included throwing, holding, and dropping them on the floor. Secondary materials were not used with the balls. Below

are examples of the uses of the balls.

ball	Picks up and throws to Mother. Mother throws back to him.	0.5
ball	Holds ball. Bounces ball and then runs after it. Throws ball (slings it). B. wants the ball. J. runs from him. Helper suggest that J. throw it to B. She throws it and B. throws it back.	1.5

The small building materials were used mostly in mildly active and manipulative play with some social play. These materials included the small blocks, the medium sized blocks, and the small plastic bricks. The uses of these materials included carrying, putting several together, giving to an adult, holding, throwing, dropping, and removing from their container. Below are examples of the uses made of the small building materials.

small block	Walks around with a small block in mouth. Throws block on the floor.	1.0
plastic building bricks	Dumps two bricks out of container. Puts the two bricks together. Helper pours out some more bricks. Puts two more bricks together.	3.0

The large building materials included the large hollow blocks and large boards. These materials were used mostly in active play such as climbing up and down and walking on them. Specific examples of the uses of the large building materials are given below.

large blocks boards	Stands on blocks and jumps off. Falls and cries. Steps upon blocks. Jumps down. Steps upon blocks. Walks down board and back up. Goes down and back up. Jumps off of blocks. Steps up and jumps down again. Goes down board. Falls and cries.	3.0
large blocks	Walks over to blocks. Picks up a small one and gives it to helper. Helper puts it on	



top of other blocks. Picks up a small block and puts it on top of others. Helper helps her move blocks over a little. Picks up a block and gives to helper. Helps helper stack up blocks. (Blocks make steps.) Walks upon blocks. Picks up a small block and puts it beside another one. Goes over to stack of blocks. Pulls small blocks down (4). Gets between the two blocks which are on ends (to make "box" like C.). Gets up. Comes back and lays 2 blocks on end. Goes over to C. in block "box" and says, "Boo!".

8.0

Books were not usually available and were used only two times.

The two uses are given below.

book	Sits in chair at table. Looks at book. Mrs. F. and H. are looking at a book. She points to pictures and tells Mrs. F. what they are.	1.0
book	Picks up book. Holds. Lays it down .	0.5

The doll corner was used for many varied activities using many different play materials. Most of the activity in the doll corner was mildly active or imitative with some explorative, inactive, and imaginative play activities. Examples of the activities carried on in the doll corner are given below.

milk bottle doll	Pours from milk bottle into large spoon. (Pretends to.) Feeds to doll. Picks doll up and carries around. Loves it. Feeds the doll with the milk bottle. D. watches her and she watches him. Puts the doll to bed and covers with a doll blanket. Puts milk bottle beside doll. Gets another doll blanket and spreads it over the doll in the bed.	3.0
iron ironing board doll dress	Picks up iron and puts on cabinet. Gets a doll dress from drawer. Takes iron and dress over to ironing board. "Irons" it.	2.0
doll bed blanket	Goes to doll corner and takes cover off of doll bed. Lies down on bed. Gets up.	0.5

cabinet pans	Looks in cabinet. Gets out frying pan and puts on top of stove. Puts lid on small pan and then on large pan. Tries lid on several pans before finding the one it fits. Knocks pans off on floor (accidentally). K. talks to him and puts lids on pans.	5.0
cupboard dishes knife	Goes over to dish cupboard. Takes dishes out of cupboard. Puts saucers on table. Puts saucer in front of M. Gets cups and puts on saucers. M. and B. talk about "coffee." Pretend to drink from cup. Gets a plastic knife and "cuts" something in plate (nothing is there). Says he has to wash the dishes. Takes them to sink near kitchen.	4.0

The uses of the miniature replicas of animals and people were mostly manipulative play. This included picking up, standing up, and dumping out. Below are examples of the uses of these materials.

rubber animals	Picks up hand full of animals and carries them over to the ledge under the window. Sets the animals up.	1.5
wooden people "house"	Puts people in "house" one at a time. Picks up a hand full of people and puts in. Puts all of the people in "house" but one before going to get juice.	4.0

The uses of the hammers and pegs were mostly mildly active play which consisted of hitting the pegs with the hammers. The peg bench with pegs was usually placed on a table and the children stood beside the table in order to hit the pegs with the hammer.

The large wheelless equipment included the rocking boat, rocking horse, swinging gate, steering wheel, climbing equipment, and the experimental tables. These materials were used in different manners but were used mostly in active play. Each of these materials will be considered separately.

The climbing equipment and experimental tables were used mostly to climb on or sit on. The children, also, crawled inside or under the experimental tables.

The rocking boat was reversible. Turned one way, it was used to rock in or sit on. When turned over it became steps which the children walked up, crawled up, sat on, or jumped on. Specific examples of the uses made of the rocking boat are given below.

inverted rocking boat	Goes up the steps on one side and down the other side.	0.5
rocking boat	Gets in boat opposite B. They rock. B. leaves. T. rocks a little by himself.	1.0

Usually the children sat on the rocking horse and rocked back and forth, but occasionally a child would bounce up and down on it. The following are examples of the uses of the rocking horse.

rocking horse	Bounces up and down. Rocks back and forth. Watches M. as rocks. Bounces up and down.	3.0
rocking horse	Sits on horse and rocks back and forth. Sits back on horse and leans forward to hold on to the handle. Rocks back and forth without holding on to the handle.	7.0

Most of the time the children stood on the step of the swinging gate and pushed themselves around but sometimes they were pushed around by an adult. Additional uses the children made of the swinging gate included pushing and pulling it around. Examples of the use of the gate are as follows.

swinging gate	Helper moves it so it will not hit anyone. He stands on the step and goes around. The helper pushes it around. D. gets on with B. Helper pushes both around. Looks in the
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mirror as they go around. Gets off (both) and pushes the gate around as runs behind the gate. Gets on and the helper pushes them around. D. leaves and B. is pushed around by the helper.

7.0

swinging  
gate

Stands on the step. Pushes self around. Pushes with one foot and then puts both feet on the step and goes around.

0.5

The children usually stood or sat in front of the steering wheel and turned it. The following is an example of the use made of the wheel.

steering  
wheel

Kneels on window seat. Turns wheel around and back and forth. Pushes wheel around and watches it go around.

2.0

The table toys were used mostly in manipulative, mildly active, and explorative play. There were a variety of table toys available most of which could be taken apart and put back together again. These were the two most frequent uses made of the table toys. The following are examples of their use.

plastic  
pyramid

Takes apart. Puts circles back on peg in order that she picks them up. When gets all on, she dumps the circles off of the peg and puts them back on. When she can not get a circle over the peg, she picks up the peg and sticks it through the hole in the circle.

3.0

box of beads

Looks in the box. Pulls out a string of beads. Dumps beads out of box. Looks around as holds a bead in his hand. Box of beads is turned over. He turns it over and puts some beads into it. Looks around. Picks up beads and puts into box.

6.0

The push and pull toys were usually pushed or pulled, which would be considered active play. An example of the use of these materials is given below.

toy lawn  
mower

Mrs. F. gives it to him. He pushes it back and forth. Comes over to watch E. who is

fussing. Pushes back and forth. D. has one too. He pushes his mower against D's. Picks up and swings it up and down at D. (not mad). Pushes on floor as if mowing the grass. Walks along pushing the mower back and forth. 2.0

Uses of the record player consisted of listening, turning it on and off, and changing the records. The use was considered "listening" if the child stood near the record player. Actually, the children seemed more interested in watching the records go around and changing the records than in listening to the music or stories on the records. Below are examples of the uses of the record player.

record player Turns on record player and puts needle on the record. Listens. Turns off and changes the record. Puts another record on. Stands and listens to the record. Mrs. F. offers him juice. He does not want it. Continues to play records. After taking the record off he puts it in the rack provided for the records. Stands and watches Mrs. F. 3.5

record player Puts a record on and listens. Does not usually let the record finish playing before changing it. Helper helps put a record on. It plays for a second and he changes it. 2.5

The uses of the stuffed animals consisted mostly of holding, carrying, and dropping. Two examples are given below.

large teddy bear Runs to cart and gets the bear. Brings it back and holds while drinking juice. Carries bear when taking glass back. Puts bear on window seat. 2.0

small teddy bear C. brings a teddy bear and offers it to M. M. takes it as she sits on the large blocks. M. holds the bear. 3.0

The small transportation toys were pushed, pulled, examined, and carried. These materials were used mostly in explorative, mildly active, and manipulative play activities. The following are examples of the uses

of the small transportation toys.

plastic airplane	Carries airplane over and puts on cabinet near outside door. Examines the airplane. Turns the propellers.	1.0
toy cart blocks	Examines the cart. Helper puts cart on floor. Takes blocks out of cart and puts on the floor. Examines cart. Picks blocks up and puts into cart.	2.0
trailer truck rubber animals	Pushes truck back and forth. Takes cab from trailer part. Pushes cab along floor. Pushes back and forth. Connects trailer back to cab. Pushes truck back and forth. Opens back door of truck. Picks up a rubber chicken and puts into back of truck. Takes cab apart from trailer. Pushes cab along floor. Connects cab and trailer. Pushes along floor and back again. Takes animals out of back of truck. Takes cab apart and pushes along on floor.	6.0

The large transportation toys were used mostly for pushing and riding on which would be considered active play. Below are examples of the uses of these materials.

train engine to ride	Sits beside and rolls it watching the wheels. Turns handle and watches the wheels. Rolls it forward and then backwards while watching the wheels.	2.0
doll carriage doll	Puts doll into carriage and pushes the carriage to the other end of the room.	1.0
truck to ride	Gets on truck and pushes forward with his feet.	0.5

The musical instruments were used in mildly active and creative activities. These materials were usually used to make a noise. The drums were beaten with the drum sticks. The drum sticks were used to hit blocks, floor, cabinets, etc. The cymbals were picked up and struck together. The bells were shaken to make a noise.

The uses of water were many and varied and included explorative,

manipulative, imaginative, and imitative activities. The uses of water included washing objects, filling objects, drinking water from objects, pouring the water into and out of objects, turning on and off the water, and letting the water run over the hands and arms. Some of the secondary materials used with water were plastic dishes and tableware, pots, pans, sponges, brushes, soap, paper towels, baby bottles, dolls, cookie cutters, animals, paper cups, egg beaters, hand mops, small plastic eggs, trucks, and boats. The following are two examples of the uses of water .

<p>water rubber duck tea cup soap</p>	<p>Returns to sink. Helper turns water on for her. She holds her hand under the faucet so water "runs" over her hand. Fills cup and pours over the duck. Picks up soap and puts into the sink. Lets water "run" over her hands. Gets paper towel and dries hands. 4.0</p>
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<p>water dolls pitcher soap paint brush cup</p>	<p>Fills pitcher and pours part of water out and drinks from the pitcher. Puts doll in the sink. Stops to watch boy that got hurt. Picks up soap. Lets water "run" over his hand. Wets paint brush and "paints" the doll. Washes the doll with a sponge and then puts the doll under water. Lets water from the faucet "run" over the doll. Fills cup and pours water over doll. Repeats and puts cup on doll's head. Wets paint brush and puts in mouth. Puts stopper in sink. Lets water run over cup. Puts soap in sink. Lathers hands. Picks up doll from sink and mashes the head in. Wets sponge several times and then uses it to wash the doll. Stirs up water with paint brush. Pushes doll's head up against faucet making the water spray. Repeats several times before the Helper comes over. Lets water "run" over the doll's face. Fills cup with water and pours out. Repeats. K. takes cup out of F's hand. F. fusses and the Helper returns the cup to F. Turns hot water on more. Fills cup and tastes of the water. Fills the cup and pours over her hand. Fills cup and pours over the head of the doll. Repeats several times. 15.0</p>
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#### IV. THE PURPOSES FOR WHICH THE OUTDOOR PLAY MATERIALS WERE USED

An analysis of the section of the observation record form concerning the description of the play activities provided the data presented in Table XII as to the purposes for which the outdoor play materials were used (types of play). A list of the uses of each of the types of materials and the number of times the materials were used in each manner is in the Appendix.

Table XII indicates that the outdoor materials were used mostly in active, manipulative, and mildly active play activities. In the discussion of the uses of each of the types of materials, examples are given to illustrate the children's uses of the materials. The examples were taken from the observation record form. In the examples, the record of the time is omitted but the materials used, the description of the activities, and the total time spent in each activity are given.

The climbing equipment was used mostly in active play such as climbing up and down. The following example illustrates the use of the climbing equipment.

large box "house"	Runs to large box after Helper. Climbs up to top, over, and down the other side. K. and B. are also climbing on the box.	2.5
tower	Runs down to tower. Climbs up ladder connected to tower and back down.	0.5
jungle gym	Goes over to jungle gym. Climbs up to top and back down. Goes in "door." Climbs up and back down. K., M., and T. are also climbing.	2.0

The large wheelless equipment included the swings, boards, slides, chairs, and the rocking boat. These materials were used mostly in active



and mildly active play. The general uses of these materials included sitting on or in, walking on, and moving. Uses included swinging and pushing the swings, sliding down the slides, rocking in the rocking chair or rocking boat, and propping boards on large blocks. The secondary

TABLE XIII  
USES (TYPES OF PLAY) OF THE TYPES OF OUTDOOR MATERIALS

Materials	Types of Play*									
	Inactive	Manipulative	Explorative	Mildly Active	Active	Constructive	Creative	Imitative	Imaginative	Social
Ball .....	0	0	0	3	1	0	0	0	0	0
Climbing Equipment .....	8	0	0	0	37	0	0	0	0	0
Sand Pile .....	5	72	7	23	18	0	0	0	0	1
Transportation - Small .	0	1	0	5	0	0	0	0	0	0
Transportation - Large .	13	6	1	5	55	0	0	0	0	0
Water .....	0	0	0	9	0	0	0	0	18	0
Wheelless Equipment ....	5	0	0	11	19	0	0	0	0	0
Totals .....	31	79	8	56	130	0	0	0	18	1

\* The numbers show the number of times each type of materials was recorded as being used in each type of play.

materials used with these materials included a doll with the swing, the sand toy basket with the small slide, and the sawhorses and hollow blocks with the large boards. Below are specific examples of the uses of the large wheelless equipment.

swings	Goes up to swings. Helper pushes her in the swing. Shakes herself in swing making swing rock. Gets out of swing and pushes the swing. Gets in swing. Helper pushes her. Gets out of swing and pushes the swing back and forth. Draws the swing back and lets it go. Watches the swing.	3.5
boards large blocks	Mrs. F. propped one end of 2 boards on large blocks. Children walk up boards and down on the other side. B., T., and M., also go across the boards.	1.5

The activity in the sand pile was mostly manipulative and mildly active with some explorative and inactive activities. The sand in the sand pile was put in and taken out of objects such as pie pans, bowls, muffin pans, buckets, jello molds, boats, trucks, and trains as well as pouring from one object to another. The children also ran, walked, and jumped in the sand as well as pushed trucks, cars, boats, and trains over the sand. Other secondary materials used with the sand which are not mentioned above included a funnel, water, scoops, spoons, shovels, sticks, and sifters. The following are specific examples of the uses of the sand.

sand pile truck jello mold	Dips up sand with mold and puts into truck. Squats beside the truck. Fills the truck and then dumps it out. Fills truck again using the mold. Scraps the mold across the sand to pick up the sand. Dumps sand out of the truck. Pushes the truck across the sand pile. Fills the truck and dumps the sand out.	4.5
sand pile spoon bucket	Comes up to the sand pile. Walks across and falls down in the sand. Helper suggests he fill a bucket. Puts a little sand in the bucket and throws it. Gets up on side and jumps back down in the sand. Picks up a handful of sand and lets it fall through his fingers. Gets up on side and jumps back down in the sand. Picks up small bucket and carries it with him. Runs back and throws the bucket into the sand pile. Empties a bucket of sand.	2.0

The large transportation toys were usually ridden on or pushed and were, therefore, used mostly in active play. Below are examples to illustrate the uses of these materials.

wheel barrow	Picks up the handles and pushes around cement.	1.5
tricycle	Rides around pavement. Mother calls to him to put on "brakes." Backs up. J. wants the tricycle but the helper gets her another one. Rides around. Starts to ride in the door but Mrs. F. stops him. Stops to talk to Mrs. F. Rides around pavement. Runs into rocking boat. Backs across pavement. Rides to other end and stops. Gets off and climbs up on bench.	4.5

The small transportation toys which were in the basket of sand toys were used separately from the sand pile during one observation period. During that period two boys pushed the trucks and train cars up and down the small slide and across the grass in mildly active play.

Water was used mostly in imaginative play. During the outdoor activities water was usually put in a bucket and used as paint along with a paint brush. Other uses of the water included pouring on flowers, pavement, and cars as well as pouring in the sand pile. An example of the use of water by the children is given below.

water bucket paint brush large car	Goes and gets bucket. Helper puts a little water in it. B. carries the bucket over to the large car. "Paints" the car on sides, seat, and steering wheel. Pours water out. Goes to sink to get more water. B. returns to the car. Pushes the brush back and forth in front of him. "Paints" sides and seat of car. J. and F. help him "paint." L. and F. leave and B. continues to "paint" - very intent. Says his water is dirty so goes to get clean water. Returns to car and continues to "paint." Picks up bucket and pours the water over the car. Runs to the sink to get some more water. "Paints" cabinets near sink.	15.0
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## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Among the people who are concerned with child development there has been a recognition that play contributes toward the physical, mental, social, and emotional development of the child and that through play the child learns about the world and himself. Parents and teachers who are concerned with providing the best possible guidance for children and who recognize the importance of play activities of children are continually looking for guides to aid them in providing play environments which will foster the children's fullest growth and development. One such guide is found in the scientific studies which indicate the characteristics of children's play at the different levels of development.

Studies have been made which indicate the characteristics of the play of children at different levels, but these studies do not usually extend down to the toddler age child. Very few, if any, studies have been conducted exclusively on toddler age children - those from eighteen to thirty-six months of age.

#### I. SUMMARY

The problem considered in this study consisted of making a descriptive analysis of the types of play materials used, the extent of their use, and the purposes for which they were used in free play activities by the twenty children eighteen to thirty-six months of age in the toddler groups of the Woman's College Nursery School.

A review of the literature showed that the observation method has usually been used in studies of children's play. The methods of conducting the observations, however, are varied. The observations differed according to length, number, methods of recording, degree of control, and the ages of the children observed. Most of the investigators used forty-five to sixty minute observation periods taken during free-play activities on preschool children in nursery school situations. Each of the investigators developed his own method of recording the observations to obtain the information which was pertinent to his study.

One study, by Helen Bott, was conducted for the purpose of developing methods of observing and analyzing children's play.<sup>34</sup> The observation form developed by Bott is very similar to the one used in this study.

Two studies which dealt with the play materials of preschool children in nursery school, free-play situations were conducted by Van Alstyne<sup>35</sup> and McDowell.<sup>36</sup> These indicated a gradual change from year to year in the materials used and the way materials are used by preschool children. These studies extended down to the two year level whereas the present study extended down to the eighteen-month level.

An investigation by Moyer conducted in a controlled situation

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<sup>34</sup>Helen Bott, "Observation of Play Activities In a Nursery School," Genetic Psychology Monographs, IV, No. 1 (July 1928), p. 44.

<sup>35</sup>Dorothy Van Alstyne, Play Behavior and Choice of Play Materials of Pre-School Children (Chicago, Illinois: The University of Chicago Press, 1932), pp. 10-11.

<sup>36</sup>Marion Sill McDonald, "Frequency of Choice of Play Materials by Pre-School Children," Child Development, VIII (1937), p. 306.

indicated the need for choosing suitable toys for children at the different age levels.<sup>37</sup>

For this study the observation method was used for one-hour periods during free-play activities of the children. An observation record form was developed on which could be recorded the time, the materials, and a description of the play activities.

The children selected were twenty children who attended the two toddler groups at the Woman's College Nursery School. The ages of the children ranged from eighteen months to thirty-six months and included nine girls and eleven boys. All of the children lived in Greensboro and were enrolled as a result of applications for admittance filed at the nursery school. None of the children were known to be handicapped in any way. Eighteen of the children were from different families, the other two were twins, a boy and a girl.

The children were usually brought to the nursery school by their mothers who remained during the full hour and part of the time were in the playroom observing the children.

An analysis of the number of children and the position of the toddler age children in the families and an analysis of the relative number and ages of the children's playmates indicated that there was a representative distribution as to the size of the families of the children, the position of the toddlers, and the number of playmates at home. It

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<sup>37</sup>Kenneth E. Moyer and B. Von Haller Gilmer, "Attention Spans of Children for Experimentally Designed Toys," The Journal of Genetic Psychology, LXXXVII (December, 1955), pp. 189 - 201.

was found that a larger number of the children played with older children than with children the same age or younger.

The educational and occupational status of the mothers and fathers of the children gave indications that the children in the toddler groups came from medium to high socio-economic levels.

The observations were conducted on the play activities in the West playroom and in the outdoor play area at the Woman's College Nursery School. Thirty-one of the observation periods were conducted indoors, seven outdoors, and two half indoors and half outdoors. The record form was used to record data during two non-consecutive one-hour observation periods on each of the twenty children in the toddler groups. Indoors the observations were usually conducted from an observation booth through a one-way vision glass; outdoors the observer sat on a bench near the area where the child being observed was playing.

The indoor play area consisted of one large rectangular room; the outdoor play area consisted of a paved area where the children rode the wheel toys and a grass covered area which contained the climbing equipment, swings, and sand pile.

Almost all of the outdoor materials were always available. Although most of the materials indoors were always available, some play materials were available when put out by the teacher, when suggested by the teacher, or when requested by the children. The indoor materials that were always available included most of the building materials, doll corner, large wheelless equipment, musical instruments, record player, stuffed animals, transportation toys, and water. The art materials, balls,

table toys, and the push and pull toys were sometimes available or available upon request.

After the forty observations were completed, the information recorded on the record forms was analyzed according to the amount of time and the general purposes (types of play) for specific and general categories of play materials used in free-play activities. The different materials used during the observations were listed and grouped into appropriate categories of play materials. Then the extent of time used was calculated for each specific material and for each type of materials. An analysis of the "description of activities" recorded on the record form was made to determine the uses the children made of the materials and the general types of play in which the materials were used.

The limited number of observation periods, the lack of equal opportunities for use of all of the materials, and the limited time during which the study was conducted were the outstanding limitations of the study. Due to the limitations the conclusions drawn from the study and the recommendations made should be used as general guides along with other sources of information. It is hoped that the conclusions and recommendations will be of use to persons planning play materials for groups of toddler age children.

## II. CONCLUSIONS

Although this study was conducted on a limited number of children, the following conclusions should give some indications as to the types of materials that are suitable for toddler age children. The following are



the conclusions concerning the use of play materials by the twenty toddler age children observed in the Woman's College Nursery School.

1. During a free-play situation where a variety of play materials were available, the children used play materials during almost 80 per cent of the indoor and outdoor observation time.
2. Indoors the toddler age children showed the greatest interest, as indicated by the total time used, in water (302.5 minutes), clay-dough (126.5 minutes), paint (94 minutes), the record player (83.5 minutes), and the rocking horse (70.5 minutes).
3. The specific indoor materials that tended to have the greatest holding power were water, clay-dough, and paint. This is indicated by the means 6.9, 3.8, and 3.1 minutes respectively for these materials.
4. The most attractive indoor materials as indicated by the number of times used were the swinging gate (50), the record player (45), water (44), pyramids (41), and the rocking horse (40).
5. The materials the children used during the largest number of indoor periods, which is an indication of the attractiveness of the materials, were water (23), the swinging gate (20), clay-dough (18), paint (18), the record player (17), and pyramids (16).
6. Of the total time the children were occupied with materials, they used water 20.9 per cent, art materials 17.5 per cent,

table toys 14.3 per cent, and large wheelless equipment 10.1 per cent of the time.

7. Indoors the children remained with water, art materials, and the record player the mean amounts of time of 6.9, 2.9, and 1.9 minutes respectively. This is indicative of the holding power of these types of materials.
8. During the outdoor play time, the children used the sand pile 123 minutes, the water 44.5 minutes, the swings 41 minutes, the tricycles 24.5 minutes, and the "kiddy kars" 23 minutes. These were the materials most used during the outdoor periods.
9. The outdoor play materials with the greatest holding power as indicated by the mean amount of time used were water (5.6 minutes), swings (4.6 minutes), and the sand pile (3.0 minutes).
10. The outdoor materials chosen most frequently by the children were the sand pile (42), tricycles (21), and the "kiddy kars" (18). This is indicative of the attractiveness of these materials.
11. Another indication of attractiveness besides frequency of use was the number of observation periods in which the materials were used. The materials the children used during the largest number of outdoor periods were the sand pile (9), tricycles (7), water (6), jungle gym (6), and baggage cart (6). The sand pile was used at least two minutes during each of the outdoor periods.

12. Of the total outdoor time in which the children were occupied with materials, they used the sand pile 35.9 per cent, the large transportation toys 22.0 per cent, the large wheelless equipment 15.2 per cent, and water 12.3 per cent of the time.
13. The children remained with water, sand pile, and large wheelless equipment for the mean amounts of time of 5.6, 3.0, and 2.1 minutes respectively. These materials had the greatest holding power of the outdoor materials available.
14. The children used the indoor play materials mostly in manipulative, mildly active, and active play activities.
15. The indoor materials the children used mostly in manipulative activities were: art materials such as clay and crayons, miniature replicas of animals and people, table toys, record player, and water. The record player was also used a great deal in inactive activities such as listening. The water was also used a great deal in explorative activities.
16. The children used the following indoor materials mostly in mildly active play: small building materials, hammers and pegs, balls, small transportation toys, stuffed animals, and the doll corner. In addition the doll corner was used a great deal in imitative play activities.
17. The children used the musical instruments and the paints, which were listed under art materials, mostly in creative activities.
18. The children used the outdoor play materials mostly in active,

mildly active, and inactive play activities.

19. The outdoor materials such as the climbing equipment, large wheelless equipment, and large transportation toys the children used mostly in active play activities.
20. The children's activities in the sand pile were mostly manipulative and mildly active activities.
21. Outdoors the children used water mostly in imaginative play activities.

### III. RECOMMENDATIONS

Play materials. The conclusions drawn from the study seem to indicate the following recommendations. These are given as guides and suggestions to be given consideration by persons planning play materials for groups of toddler age children.

1. Since materials tend to be used a large per cent of free-play time and since most materials do not seem to have great holding power for toddler age children in a free-play situation, provide a wide variety of materials. These materials should give opportunities for different types of play - especially manipulative, mildly active, active, and inactive play.
2. Provide suitable space and equipment for water play indoors and outdoors. Along with the water, such secondary materials as dishes, pots, pans, spoons, tea pots, pitchers, buckets, and paint brushes should be provided. Water tended to be a much used and frequently used material in this study as well

as having a great holding power. Water is a very versatile material and encourages manipulative, explorative, and imaginative play activities.

3. Provide opportunities for the use of art materials such as clay-dough and paint. These are popular materials and seem to have greater holding power than most materials. Art materials provide opportunities for manipulative and creative play activities.
4. Indoors provide table toys such as pyramids which give an opportunity for a great deal of manipulative play. Although these materials do not have great holding power, they tend to be attractive materials to toddler age children.
5. Provide large wheelless equipment such as a rocking horse and swinging gate indoors and swings outdoors. These materials tend to be attractive materials and provide opportunities for mildly active and active play activities.
6. A record player seems to be an attractive material to toddler age children. Consideration should be given to the provision of a simple, sturdy record player which could be operated by the children. A record player seems to encourage inactive and manipulative activities such as listening, changing records, and turning the machine on and off.
7. Provide suitable space and equipment for sand play, especially outdoors. Secondary materials should be provided to be used with the sand such as buckets, shovels, bowls, trucks, cars,

etc. The sand pile tends to be a much used and frequently used material as well as having greater holding power than most outdoor materials. Sand is a very versatile material and encourages manipulative play.

8. Outdoors provide such materials as tricycles, "kiddy kars," and baggage carts. Such large transportation toys seem to be attractive materials and they encourage active play activities.

Further study. Much information is needed to provide toddler age children with suitable play environments. The more teachers and parents know about the nature of children's play the better they will be able to provide the materials and guidance needed by the children.

The following are some areas which need further investigation, which will add to the understanding and knowledge concerning the play of toddler age children, and which will aid persons planning the play environment for toddler age children:

1. The amount of time toddler age children spend in each type of play activity.
2. The relationship between home and school play of toddler age children.
3. The amounts and kinds of interaction among toddler age children.
4. The influence of individual differences on the use of play materials by toddler age children.

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APPENDIX

## APPENDIX A

## THE EXTENT OF USE OF THE INDOOR PLAY MATERIALS

Materials	Total Time	No. Times	No. Diff. Periods	Mean	Range	Availability*	
						A	S
<b>Art Materials</b>							
clay-dough	126.5	33	18	3.8	0.5 - 16.0		S
crayons	29.0	22	8	1.3	0.5 - 5.0		S
paint	94.0	30	18	3.1	0.5 - 9.5		S
paint brush	2.5	2	2	1.3	1.0 - 1.5		S
<b>Balls</b>							
balls	6.5	7	4	0.9	0.5 - 2.5		S
<b>Books</b>							
books	1.5	2	2	0.8	0.5 - 1.0		S
<b>Building Materials - Small</b>							
blocks - medium	1.0	2	2	0.5	0.5 - 0.5	A	
block shelves	1.0	1	1	1.0	1.0 - 1.0	A	
blocks - small	1.5	2	2	0.8	0.5 - 1.0		S
bricks - plastic	4.0	3	3	1.3	0.5 - 3.0		S
<b>Building Materials - Large</b>							
blocks - large	33.5	21	9	1.5	0.5 - 8.0	A	
boards	7.5	6	3	1.3	0.5 - 3.0		S
<b>Doll Corner</b>							
baby bottle	7.0	5	2	1.4	0.5 - 4.0	A	
broom	5.0	6	3	0.9	0.5 - 2.0	A	
chairs	0.5	1	1	0.5	0.5 - 0.5	A	
clothes & blankets	1.0	1	1	1.0	1.0 - 1.0	A	
dishes	29.0	22	15	1.3	0.5 - 4.0	A	
doll bed	2.0	3	2	0.7	0.5 - 1.0	A	
doll corner	20.0	14	9	1.4	0.5 - 4.5	A	
dolls	16.0	12	8	1.3	0.5 - 3.0	A	
high chair (doll)	7.0	5	5	1.4	0.5 - 3.5	A	
iron & ironing board	10.0	11	10	0.9	0.5 - 3.0	A	
mirror	1.0	2	1	0.5	0.5 - 0.5	A	
pots & pans	10.0	6	6	1.7	0.5 - 5.0	A	
rocking chair	3.0	5	4	0.6	0.5 - 1.0	A	
telephone	11.5	11	7	1.1	0.5 - 3.5	A	
<b>Miniature Replicas</b>							
animals - large	3.5	3	1	1.2	0.5 - 2.0		S
animals - small	8.0	9	6	0.9	0.5 - 1.5		S
people	4.5	2	2	2.3	0.5 - 4.0		S

\* "A" indicates materials always available; "S" indicates materials sometimes available or available upon request.

## APPENDIX A (continued)

Materials	Total Time	No. Times	No. Diff. Periods	Mean	Range	Avail- ability	
						A	S
<b>Hammer and Pegs</b>							
hammer and pegs	6.0	5	4	1.2	0.5 - 2.0		S
<b>Large Wheelless Equipment</b>							
climbing equipment	1.0	1	1	1.0	1.0 - 1.0		S
experimental tables	3.5	4	4	0.9	0.5 - 1.0		S
rocking boat	15.5	17	10	0.9	0.5 - 2.0	A	
rocking horse	70.5	40	14	1.8	0.5 - 7.0	A	
steering wheel	8.0	7	6	1.1	0.5 - 2.0	A	
swinging gate	47.0	50	20	0.9	0.5 - 7.0	A	
<b>Musical Instruments</b>							
bells	0.5	1	1	0.5	0.5 - 0.5	A	
cymbals	3.5	5	5	0.7	0.5 - 1.0	A	
drums and drum sticks	3.5	5	2	0.7	0.5 - 1.0	A	
<b>Push and Pull Toys</b>							
pull toys	11.0	6	2	1.8	0.5 - 5.0		S
toy lawn mower	12.5	13	6	1.0	0.5 - 2.0		S
<b>Record Player and Records</b>							
record player and records	83.5	45	17	1.9	0.5 - 11.0	A	
<b>Stuffed Animals</b>							
stuffed animals	24.0	20	11	1.2	0.5 - 3.5	A	
<b>Table Toys</b>							
beads (to string)	5.0	3	1	1.7	1.0 - 3.0		S
cash register (holes)	14.0	5	4	2.8	1.5 - 6.5		S
cash register (keys)	28.0	13	6	2.2	0.5 - 7.5		S
clown-peg-top	8.0	4	3	2.0	1.0 - 3.0		S
clowns (wooden)	1.5	1	1	1.5	1.5 - 1.5		S
coffee pot (segmented)	3.5	2	2	1.8	1.0 - 2.5		S
cookie cutter	3.0	3	2	1.0	0.5 - 2.0		S
dominos	0.5	1	1	0.5	0.5 - 0.5		S
eggs (with chickens)	12.0	8	6	1.5	0.5 - 2.5	A	
form boards	9.5	4	3	2.4	0.5 - 5.0		S
funnel	0.5	1	1	0.5	0.5 - 0.5		S
merry-go-round	1.5	2	1	0.8	0.5 - 1.0		S
microphone (wooden)	0.5	1	1	0.5	0.5 - 0.5	A	
milk bottle (segmented)	10.0	9	7	1.1	0.5 - 4.0		S
milk bottles in holder	8.0	6	4	1.3	0.5 - 3.0		S
milk bottle (wooden)	1.0	2	2	0.5	0.5 - 0.5	A	
nest of barrels	2.0	2	2	1.0	0.5 - 1.5		S
nest of cups	23.0	11	4	2.1	0.5 - 9.0		S
nest of eggs	4.0	1	1	4.0	4.0 - 4.0		S
pegs in board	4.5	5	3	0.9	0.5 - 1.0		S

## APPENDIX A (continued)

Materials	Total Time	No. Times	No. Diff. Periods	Mean	Range	Avail- ability	
						A	S
<b>Table Toys (continued)</b>							
pop-beads (large)	12.0	4	2	3.0	0.5 - 9.0		S
puzzles	2.5	2	2	1.3	0.5 - 2.0		S
pyramids	44.0	41	16	1.1	0.5 - 6.0		S
register with pictures	1.5	2	1	0.8	0.5 - 1.0		S
"Tasket basket"	2.5	2	2	1.3	0.5 - 2.0		S
tinker toys	0.5	1	1	0.5	0.5 - 0.5		S
tool chest	1.0	1	1	1.0	1.0 - 1.0		S
wooden shoe	2.5	2	2	1.3	0.5 - 2.0		S
<b>Transportation Toys -Small</b>							
airplane - large	13.0	10	6	1.3	0.5 - 3.5		A
airplane - small	3.0	3	2	1.0	1.0 - 1.0		A
army trucks	2.5	4	4	0.6	0.5 - 1.0		A
cars	5.5	3	2	1.8	0.5 - 3.0		A
racers	1.0	2	2	0.5	0.5 - 0.5		A
road trucks (rubber)	14.0	13	9	1.1	0.5 - 3.0		A
toy cart	3.5	3	1	1.2	0.5 - 2.0		S
trailer trucks	15.5	14	7	1.1	0.5 - 6.0		A
train (large wooden)	13.0	4	4	3.3	0.5 - 9.0		A
train (small wooden)	22.0	1	1	22.0	22.0 - 22.0		A
truck (dump)	5.0	7	6	0.7	0.5 - 1.0		A
trucks - small	8.5	10	7	0.9	0.5 - 1.5		A
trucks - medium	7.5	8	7	1.0	0.5 - 2.0		A
wheel toys (used together)	12.0	5	3	2.4	0.5 - 6.0		A
<b>Transportation Toys - Large</b>							
baggage carrier	2.5	5	2	0.5	0.5 - 0.5		S
doll carriage	23.0	19	11	1.2	0.5 - 5.5		A
doll cart	3.5	4	2	0.9	0.5 - 1.5		S
trucks to ride	32.0	26	13	1.2	0.5 - 3.0		A
<b>Water and Sink</b>							
water and sink	302.5	44	23	6.9	0.5 - 18.0		A
<b>Other</b>							
others	9.5	7					
<b>Totals</b>	<b>1443.0</b>	<b>799</b>	<b>32</b>	<b>1.8</b>			

## APPENDIX B

## THE EXTENT OF USE OF THE OUTDOOR PLAY MATERIALS

Materials	Total Time	No. Times	No. Diff. Periods	Mean	Range	Avail- ability*	
						A	S
Balls							
balls	1.5	1	1	1.5	1.5 - 1.5		S
Climbing Equipment							
climbing ropes	2.0	3	3	0.7	0.5 - 1.0	A	
jungle gym	15.0	11	6	1.5	0.5 - 3.0	A	
tower	9.5	11	4	0.9	0.5 - 2.0	A	
wooden box ("house")	8.5	4	2	2.1	1.0 - 3.5	A	
Large Wheelless Equipment							
chairs	2.0	3	2	0.7	0.5 - 1.0	A	
boards	7.0	8	2	0.9	0.5 - 1.5	A	
rocking boat	0.5	1	1	0.5	0.5 - 0.5		S
rocking chairs	1.0	2	1	0.5	0.5 - 0.5	A	
slide - large	2.0	2	1	1.0	0.5 - 1.5		S
slide - small	1.5	1	1	1.5	1.5 - 1.5	A	
swings	41.0	9	5	4.6	2.0 - 8.5	A	
Sand Pile							
sand pile	123.0	42	9	3.0	0.5 - 11.5	A	
sand toys	6.5	1	1	6.5	6.5 - 6.5	A	
Transportation Toys - Small							
trucks and cars	10.0	2	1	5.0	5.0 - 5.0	A	
Transportation Toys - Large							
baggage cart	10.5	12	6	0.9	0.5 - 2.0	A	
car	9.5	7	5	1.4	0.5 - 4.0	A	
"kiddy kar"	23.0	18	3	1.3	0.5 - 7.0	A	
tractor	11.0	5	5	2.2	0.5 - 5.5	A	
tricycles	24.5	21	7	1.2	0.5 - 4.5	A	
wheelbarrow	1.0	1	1	1.0	1.0 - 1.0		S
Water							
water	44.5	8	6	5.6	1.0 - 18.0	A	
Others	6.0	6					
Totals	361.0	179	9	2.0			

\* "A" indicates materials always available; "S" indicates materials some-  
times available or available upon request.

## APPENDIX C

## THE USES OF THE INDOOR MATERIALS

Types of Materials	Uses	No. Times	Types of Play	
Art Materials	paints	36	creative	
	mashes clay	31	manipulative	
	puts in & takes out of object	21	"	
	colors	17	creative	
	cuts clay	16	manipulative	
	rolls clay with roller	13	"	
	pats clay	9	"	
	hits clay	8	"	
	carries	8	mildly active	
	"digs" at clay	6	manipulative	
	taste	5	explorative	
	flours clay	4	manipulative	
	shows to adult	4	social	
	moves paint cups	4	mildly active	
	looks at child's painting	3	social	
	rubs clay	2	manipulative	
	wipes up paint	2	mildly active	
	drops on floor	1	manipulative	
	gives to child	1	social	
	pulls clay into pieces	1	manipulative	
	hits paper with brush	1	mildly active	
	stirs paint	1	manipulative	
	opens crayon box	1	"	
	closes crayon box	1	"	
	Balls	throws	1	mildly active
		throws to another person	2	social
holds		2	inactive	
drops		2	mildly active	
Books	looks at	1	inactive	
	picks up and lays down	1	mildly active	
Building Materials Small	carries	3	mildly active	
	puts together	3	manipulative	
	gives to helper	2	social	

## APPENDIX C (continued)

Types of Materials	Uses	No. Times	Types of Play
Building Materials Small (continued)	throws	1	mildly active
	holds	1	inactive
	drops	1	mildly active
	removes from container	1	manipulative
Building Materials Large	climbs on	14	active
	walks on	13	"
	jumps from	5	"
	sits on	5	inactive
	builds	3	constructive
	stands on	2	inactive
	gives to helper	2	social
	stacks up	1	constructive
	pushes on floor	1	active
	carries	1	"
Doll Corner	carries	14	mildly active
	looks in or at object	9	explorative
	picks up object	9	mildly active
	puts object on table	8	"
	sweeps	7	imitative
	irons	7	"
	sits doll in chair	6	"
	gives object to adult	4	social
	puts lids on pots and pans	4	imitative
	holds object	3	inactive
	raises tray of doll chair	3	mildly active
	puts doll in bed	3	imitative
	takes objects out of cupboard	3	mildly active
	"pours" from pitcher into cup	3	imaginative
	moves object	3	active
	holds telephone to ear	3	imitative
	tries to sit in doll chair	2	explorative
	sits in or on object	2	inactive
	"feeds" doll	2	imaginative
	dresses & undresses doll	2	imitative
	puts object on stove	2	mildly active
	throws object	2	"
	"drinks" from cup	2	imaginative
"eats"	2	"	



## APPENDIX C (continued)

Types of Materials	Uses	No. Times	Types of Play
Doll Corner (continued)	rocks in chair	2	mildly active
	holds telephone to mother's ear	2	social
	crawls on table	1	active
	takes objects out of refrigerator	1	mildly active
	takes doll clothes out of drawer	1	"
	closes cabinet doors	1	explorative
	opens & closes drawers	1	"
	bites doll	1	"
	takes blankets off of dolls	1	mildly active
	puts doll in chair	1	imitative
	offers object to child	1	social
	pushes object onto floor	1	mildly active
	puts dishes in object	1	"
	takes cover off bed	1	"
	lies on bed	1	imitative
	stands on object	1	inactive
	puts object on cabinet	1	mildly active
	takes lid off of pans	1	"
	puts dishes into play sink	1	"
	drops object	1	"
	"stirs" with spoon	1	imitative
	rocks chair	1	mildly active
	talks on play telephone	1	imitative
turns bell on telephone	1	manipulative	
Hammer and Pegs	hits pegs with hammer	4	mildly active
	gives to child	1	social
	puts on floor	1	mildly active
Large Wheelless Equipment	rocks	39	active
	rides on	24	active
	pushes around	18	"
	stands on steps	17	mildly active
	turns wheel	8	active
	pushed by adult	7	mildly active
	sits in or on	7	inactive
	walks up steps	6	active

## APPENDIX C (continued)

Types of Materials	Uses	No. Times	Types of Play
Large Wheelless Equipment (continued)	climbs on	5	active
	rocks object	4	mildly active
	bounces on object	2	active
	crawls under	1	"
	crawls up step (gate)	1	"
	jumps on	1	"
	leans on rocking horse	1	inactive
	examines	1	explorative
	pulls gate around	1	active
	turns knob of steering wheel	1	mildly active
holds knob of steering wheel	1	"	
Miniature Replicas of Animals and People	examines	4	explorative
	picks up	3	mildly active
	stands up	3	manipulative
	dumps out of container	3	"
	carries	1	mildly active
	puts in "house"	1	imaginative
	names for adult	1	social
Musical Instruments	makes noise with object	8	creative
	hits object with instrument	2	mildly active
	picks up	1	"
Push and Pull Toys	pushed	14	active
	pulled	9	"
	swings back and forth	3	"
	"mows"	1	imitative
	carries	1	mildly active
Record Player	listens to record	23	inactive
	turns on player	15	manipulative
	changes record	7	"
	holds records	2	inactive
	offers record to child	2	social
	carries records	2	mildly active
	picks up records	1	"
	drops records	1	"

## APPENDIX C (continued)

Types of Materials	Uses	No. Times	Types of Play
Stuffed Animals	picked up	7	mildly active
	holds	4	inactive
	puts in or on object	4	mildly active
	carries	3	"
	drops	3	"
	shows to adult	2	social
	pats	1	mildly active
	offers to child	1	social
	looks at	1	explorative
Table Toys	puts together	61	manipulative
	takes apart	46	"
	puts object in	20	"
	carries	13	mildly active
	strikes keys of register	13	"
	picks up	11	"
	examines	8	explorative
	puts on table or floor	8	mildly active
	drops	6	"
	hits object with	4	"
	opens & closes drawer	4	manipulative
	takes objects out	4	"
	shows to adult	3	social
	gives to child	3	"
	takes out of object	3	manipulative
	puts into object	2	"
	screws & unscrews	2	"
	stacks up	2	"
	knocks down	2	"
	turns around	2	"
	opens and closes lid	1	"
	puts in mouth	1	explorative
	pretends to pour	1	imaginative
	bites	1	explorative
	rolls on table	1	mildly active
	lines up	1	manipulative
	holds	1	inactive
throws on floor	1	mildly active	

## APPENDIX C (continued)

Types of Materials	Uses	No. Times	Types of Play
Transportation Toys	pushes	51	mildly active
Small	examines	21	explorative
	carries	16	mildly active
	puts object in	6	manipulative
	puts together	4	"
	holds	4	inactive
	sits up	4	manipulative
	looks in	4	explorative
	takes object out	3	manipulative
	shows to adult	3	social
	takes wheels off	3	manipulative
	turns propellor	3	"
	gives to person	3	social
	sits on	3	inactive
	pulls	2	mildly active
	lines up	2	"
	puts into object	2	"
	piles up	1	"
	puts wheels on	1	manipulative
	puts on table	1	mildly active
	dumps out back of truck	1	"
	raises & lowers back of truck	1	manipulative
	turns over	1	"
	takes apart	1	"
	throws	1	mildly active
	bites	1	explorative
	puts on floor	1	mildly active
	"flies" airplane	1	imaginative
Transportation Toys	pushes	27	active
Large	rides on	10	"
	sits on	9	inactive
	moves handle back and forth	8	manipulative
	puts object in	8	mildly active
	pushed by adult	4	"
	pulls	2	active
	rides in	2	"
	looks in	2	explorative
	takes object out	2	mildly active
	walks on	2	active

## APPENDIX C( continued)

Types of Materials	Uses	No. Times	Types of Play
Transportation Toys Large (continued)	honks horn	2	manipulative
	examines	1	explorative
	turns around	1	active
Water	washes	39	manipulative
	fills objects	34	"
	drinks	28	explorative
	pours out	21	manipulative
	turns water on & off	14	"
	feels water with hands	11	explorative
	stirs water	8	manipulative
	squeezes out of object	8	"
	pours over object	7	"
	pours in object	7	"
	wipes water off of hands	6	"
	"soaps" hands & dishes	6	"
	watches water	5	explorative
	"paints" with water	5	imaginative
	"feeds" doll water	3	"
	fills baby bottles	2	manipulative
	turns egg beater in water	2	"
	puts water in pan	2	"
	makes water spray	1	explorative
	wipes water off of clothes	1	imitative
	turns faucet around	1	explorative
takes out and puts in the stopper	1	manipulative	

## APPENDIX D

## THE USES OF THE OUTDOOR MATERIALS

Types of Materials	Uses	No. Times	Types of Play
Balls	holds	1	inactive
	throws	1	mildly active
	rolls on pavement	1	active
	puts on back of tricycle	1	mildly active
Climbing Equipment	climbs up and down	28	active
	goes under or in	9	"
	sits on	8	inactive
Large Wheelless Equipment	swings	11	mildly active
	walks on	9	active
	sits in	5	inactive
	pushes swing	4	active
	slides down slide	2	"
	rocks	2	"
	moves	1	"
props boards on blocks	1	"	
Sand Pile	puts sand in object	42	manipulative
	takes sand out of object	16	"
	jumps or falls in sand pile	13	active
	pats sand down	8	manipulative
	throws sand	7	mildly active
	pushes object in sand	6	"
	walks in sand	5	"
	lets sand fall through fingers	5	explorative
	watches sand fall	5	inactive
	runs in sand	4	active
	puts sand on side of sand pile	4	manipulative
	feels sand	2	explorative
	walks around side of sand pile	2	mildly active
	pours water in sand	2	"
	kicks sand	1	active

## APPENDIX D (continued)

Types of Materials	Uses	No. Times	Types of Play
Sand Pile (continued)	offers sand to child	1	social
	sifts sand	1	manipulative
	brushes off sand	1	mildly active
	piles up sand	1	manipulative
Transportation Toys Small	pushes	5	mildly active
	puts parts together	1	manipulative
Transportation Toys Large	rides on or in	29	active
	pushes	26	"
	sits on or in	13	inactive
	works handles back & forth	6	manipulative
	pushed by adult	5	mildly active
	pulls	3	active
examines	1	explorative	
Water	used as paint	18	imaginative
	shakes out water	3	mildly active
	pours out	3	"
	wipes up with cloth	2	"
	carries to sand pile	1	"

## APPENDIX E

OBSERVATION OF TODDLER AGED CHILD  
IN FREE PLAY ACTIVITIES

Name of Child \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_  
Date of Observation \_\_\_\_\_ Total Time \_\_\_\_\_  
Observer \_\_\_\_\_ Setting \_\_\_\_\_

Time	Materials	Description of Activities	Total Time



## APPENDIX F

INFORMATION ABOUT  
TODDLER PARENTS

Name of Child \_\_\_\_\_

Home Address \_\_\_\_\_

Number of Children in Family \_\_\_\_\_ Position of Toddler in Family \_\_\_\_\_

Child's Playmates    many \_\_\_\_\_ enough \_\_\_\_\_ few \_\_\_\_\_  
                          younger \_\_\_\_\_ same age \_\_\_\_\_ older \_\_\_\_\_

Occupation of Father \_\_\_\_\_

Occupation of Mother \_\_\_\_\_

Education ( number of years or degree obtained).

Father - High School \_\_\_\_\_ College \_\_\_\_\_ Post-Graduate \_\_\_\_\_

Mother - High School \_\_\_\_\_ College \_\_\_\_\_ Post-Graduate \_\_\_\_\_