

CHILDREN'S ATTITUDES TOWARD PLAY  
AND CHILDREN'S PLAY BEHAVIORS

by

LOUISE MARILYN TOFFOLI

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Department of Physical Education and Recreation

The University of British Columbia  
2075 Wesbrook Place  
Vancouver, Canada  
V6T 1W5

Date October 5, 1976.

## ABSTRACT

This investigation studied children's attitudes toward play and their play behavior when engaged in free play on their school playground. Subproblems of this study attempted to determine if there were differences in free play on school playgrounds when considering the variables of; 1. sex, 2. grade, 3. school and 4. sex within each grade. In addition, the compatibility of the questionnaire-interview technique with the observed behavior technique was assessed.

Three hundred and thirty-nine grade one, two and three children served as subjects for this study. Two techniques were utilized for data collection; 1. a questionnaire-interview, and 2. observations. The questionnaire-interview assessed: children's desire to play, reasons for playing, favorite time to play, favorite spot to play, play behaviors and the type of equipment children use. The observations assessed: children's favorite spot to play and children's play behaviors.

The conclusions of this study are as follows:

1. The questionnaire-interview and observation techniques can be successfully utilized to determine selected attitudes and behaviors of children.
2. Children play on their school playground because there are fun things, they can socialize (children play with friends who are generally their own age) and because of

pleasant feelings.

3. The school playground is mainly used during school hours.

4. Females were more likely to choose an activity because it was fun while the males chose an activity because they could use it in a game.

5. Children's choices of activities and equipment were comparable.

6. Males use the playing field more while females use the blacktop area more often.

7. Children preferred high energy activities with medium and high energy activities increasing in preference with increases in grade.

8. The equipment area is used most often with both sexes and each of the grades making equal use of it.

9. The males and females showed preferences in play behaviors.

10. Males perform high energy activities more than females who perform medium and low energy activities more than males.

11. Grades one, two and three children have different play behaviors.

12. The activities children said they preferred were actually what they were seen doing.



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## CHAPTER I

### INTRODUCTION

It is generally agreed that a broader base of knowledge about play is essential if school playgrounds are to provide children with adequate provision for meaningful experiences in free play. A better understanding of the necessity for play as an integral part of the growth and development of a child has yet to be established. Gillander (1971) stated that when studying children, "we must first understand the true meaning of play in a young child's life." p.20) For these reasons this study attempted to provide more knowledge of play by assessing children's attitudes toward play and children's play behaviors and also by finding out more about the experiences which children find most meaningful. General literature on play was used to establish a framework of knowledge upon which this study was based.

Schools may have a considerable tolerance for children's play but they have not developed the full potential of play as an essential means of learning. Some educators are not as aware as they might be of the role of play as a vital activity of childhood (Salvay,1974). Riley (1973) wrote that, "Often play's values must be translated into academic terms to justify its existence." (p.146) The values of play for its own sake are not always understood. The importance of having play taken seriously

and not ignored or consciously rejected cannot be stressed often enough (Van Anne,1974). Play helps children consider and understand the various alternatives in life through freedom of action and thought. Sutton-Smith (1972) clearly affirmed the need for play in education with his statement:

As the modern world seems to be excessively confusing and complex in its problems and demands, it would seem that any education system that did not maximize a child's play capacities is guiding him down a blind alley. Any education system that lets a child go forth with play deficits, does not leave him equipped for what lies ahead. (p.10)

Play is a major contributor to the educational development of young children (Sutton-Smith,1972). It contains the necessary elements for education and thus should be facilitated in the school environment. Due to the obvious concerns expressed by numerous play researchers (Hansen and Hansen,1972; Martinello,1973; Salvay,1974) this investigator undertook the task of assessing children's play attitudes and behavior as they related to school playgrounds. Educators must recognize the importance of schools providing the most conducive environment for learning to play and learning through play. Play's function in self fulfillment and in bringing meaning, satisfaction and an opportunity for learning must be recognized, otherwise, children will be denied an essential means of growth and development.

#### STATEMENT OF THE PROBLEM

The primary purpose of this investigation was to

study children's attitudes toward play and their play behavior when engaging in free play on their school playgrounds.

#### SUBPROBLEMS

1. To determine if there were sex differences among children in their play attitudes and behavior when engaging in free play on their school playgrounds.

2. To determine if there were grade differences among children in their play attitudes and behavior when engaging in free play on their school playgrounds.

3. To determine if there were systematic school differences among children in their play attitudes and behavior when engaging in free play on their school playgrounds.

4. To determine if there were sex differences among children within each grade in their play attitudes and behavior when engaging in free play on their school playgrounds.

5. To assess the compatibility of the questionnaire-interview technique with the observed behavior technique.

#### DEFINITION OF TERMS

Play, for the purposes of this study, was considered to be behaviors which were chosen freely by the children within the confinements of the school playground during a

free play period.

Free play is a non-instructional aspect of the school programme consisting of unstructured, unorganized play situations observed during two half hour free play periods which were held on the school playground.

Attitudes are feelings or thoughts of children related to preferences or likes and dislikes of specific aspects of play. These are exemplified by the following attitudinal components of the questionnaire-interview:

1. Children's desire to play.
2. Children's reasons for playing.
3. Children's favorite time to play on their school playground.
4. Children's favorite spot to play on their school playground.
5. Children's play behaviors, specifically:
  - a. The favorite things children do.
  - b. The socialization aspect; whether children play alone, with children their own age, with children younger than themselves or with children older than themselves.
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.
6. The types of equipment children use on their school playground.

These attitudinal components pertained solely to play on school playgrounds.

Behavior is the specific overt action or conduct evident during free play as seen under the following categories:

1. The children's favorite spot to play on their school playground.
2. The children's play behaviors, specifically:
  - a. The favorite things children do.
  - b. The socialization aspect; whether children play alone or in groups.
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.

The equipment area is that part of the school playground containing a phase two adventure playground structure which has a tire swing and a slide joined by logs. This structure is manufactured by Big Toys Inc. (See Appendix A)

The blacktop area is that part of the school playground covered with asphalt and most often adjacent to the school.

The playing field is that part of the school playground which is used for organized field sports such as football, baseball and soccer and/or that part of the school playground which is covered with grass.

High energy activities are those activities such as running, skipping and moving by one's hands on the monkeybars,

which require a strenuous amount of movement, speed or strength.

Medium energy activities are those activities which have an inherent capacity for action, however strenuous exertion is not evident in the child's actions. Examples of such activities are; swinging on a swing, sliding, playing hopscotch and kicking a ball.

Low energy activities are those activities which require very little gross motor movement and where fine motor movements predominate. During these activities the child basically remains in one location. Examples of such activities are; sitting and watching others, playing marbles, reading and building or making things using small objects or tools.

A small group is two up to ten children gathered together and interacting with one another either physically or verbally.

Favorite for the attitude data, is what children say is their favorite while, for the observation data it is what children are observed doing most often.

#### CLASSIFICATION CATEGORIES USED IN ORGANIZING THE DATA

##### Categorizing Percentage Agreement for the Majority of Comparisons between Attitude and Behavior Data

1. Outstanding percentage agreement; within 5% or less
2. High percentage agreement; between 6-15% difference
3. Good percentage agreement; between 16-25% difference
4. Major discrepancy; greater than 25% difference.



Comparing Results for all Significant Attitude  
and Behavior Differences for the Variables  
of Sex and Sex within each Grade

1. Moderate preference for; between 20% and 40% discrepancy.
2. High preference for; between 40% and 60% discrepancy.
3. Outstanding preference for; between 60% and 100% discrepancy.

Rank Order Correlations for Aspects of Comparisons  
between Attitude and Behavior Data

1. Outstanding correlation; between .9 and 1
2. High correlation; between .75 and .9
3. Good correlation; between .6 and .75
4. Low correlation; less than .6
5. Major discrepancy; a difference of .4 or greater

Percentages Used to Consider the Reliability  
of the Questionnaire-Interview

1. Outstanding percentage; 90% to 100%
2. High percentage; 75% to 90%
3. Good percentage; 60% to 75%
4. Low percentage; less than 60%

ASSUMPTIONS

This investigation was based on the assumption that children can express their interests and attitudes toward play if the proper language and approach are used (Evans, 1974; Miller, 1972).

## DELIMITATIONS

1. The sample population was delimited to grades one, two and three in the Richmond School District of British Columbia.

2. The children were only observed playing outside.

3. Due to the time factor involved, only two half hour free play sessions per class were feasible.

4. During the free play period, only those children playing in the school playground area under observation were assessed. Children moving from one area to another were not included in an observation.

5. The questionnaire-interview was written for children in language appropriate to the ages included in the study. Therefore it can best be used with children of similar ages.

## LIMITATIONS

1. The free play sessions were held outside, therefore problems of poor weather affected the times when the observations could take place. The time span between the first and last observations for this study was approximately three months.

## SIGNIFICANCE OF THE STUDY

Children's play attitudes and behavior are essential aspects of their development and should be considered as

such (Holme and Massie,1970; Piaget,1951; Sutton-Smith,1971). Play is often regarded as insignificant and thus little emphasis is placed upon it. This study was concerned with developing more awareness of the value of play.

The importance of children's play has been recognized by many authorities. Gillander (1971) stated that, "play is in fact the learning medium for your children."

(p.20) Holme (1970) wrote:

The importance of play in children's physical, intellectual and emotional development is now undisputed; such activities as the exploration of a child's environment, being with other children, physical exercise, imaginative games - activities which we adults normally call play - are all essential to this development. (p.31)

Gesell and Ilg (1946) also stressed the necessity for play. "Deeply absorbing play seems to be essential for full mental growth." (p.360) The investigator set out to substantiate further the need for a greater awareness of the importance of play in children's growth and development.

Numerous play researchers have remarked on many of the values inherent in play. Their comments emphasize the importance of play.

1. Children learn best from materials they select and manipulate. (Ellis,1973; Frostig,1967; Kephart,1967)
2. Play helps perfect body skills. (Caplan and Caplan, 1973; Miller, 1972; Salvay,1974)
3. Play provides the environment and opportunity for children to explore at their own pace. (Sutton-Smith,1971; Whitehurst,1971)

4. Play prompts children to ask questions and develop their cognitive abilities. (Isaacs,1933; Salvay,1974)
5. Play provides the opportunity for children to work individually and independently thus strengthening independence, self-sufficiency and self discovery. (Evans, 1974)
6. Play fosters a spirit of cooperation, sharing and teamwork thus children become aware of the needs of others and the necessity for socialization. Peer groups are important for transmitting games, learning values and attitudes and in gaining status and recognition. (Isaacs, 1933; Miller,1972; Piaget,1951)
7. Through play children learn to understand their world better by absorbing facts from their environments. (Neumann,1974; Riley,1973; Salvay,1974)
8. Play is one of the primary factors important in the integration of the child's personality. Without play, certain aspects of character and personality development will be hindered. (Evans,1974; Gillander,1971)
9. Play can offer relief from stressful situations. (Erikson,1963; Hartley,1952; Hawkes and Pease,1962)
10. Play provides the environment for teachers to observe children's learning and social behavior under conditions free from adult direction. (Hansen and Hansen,1972; Neumann, 1974)

The many functions play serves in the lives of children cannot and should not be under estimated.

Moffitt (1972) wrote:

Many of the activities that are called 'play' are directly related to the development of various kinds of skills that children need for achieving success in academic subjects. (p.47)

The values inherent in play are not independent of those in academics or vice versa. To understand children and what is beneficial to them, one must understand play.

The emphasis in play research is often limited to interpreting play behaviors from observed data and adult opinions. Two examples of researchers who have done extensive work in the area of observing behavior and who have interpreted behaviors solely from observed data are; Kunze (1967) and Cohen (1965). Kunze developed a system for observing behavior of children with language disorders and he set up a programme of training intended to help individuals record and analyse behavioral data skillfully. Cohen devised a detailed system for observing children's behavior in play. Curtis (1971) stressed the need for teachers to make use of the observational technique to gain greater insight into the children they teach.

Children's opinions on interests and choices of play equipment, play activities and other aspects of play as seen on school playgrounds should be considered when assessing play and the types of playgrounds best suited for children. Children's behaviors should not be dictated solely by adult opinions (King,1970; Miller,1972).

Miller (1972) wrote:

Playgrounds should be built upon children's needs, not adult's needs. Unless children's

interests are ascertained and provided for,  
children will not be motivated to engage  
in activity. (p.18)

Children's ideas can make valuable contributions to a greater understanding of play and to the development of better playgrounds.

## CHAPTER II

### RELATED LITERATURE

#### DEFINITIONS OF PLAY

Numerous definitions have been written in an attempt to clarify the play experience yet questions continue to arise. A number of well-known play researchers have attempted to define the parameters within which play experiences can be found. Although the following definitions are only a few interpretations of play, they help to bring more depth and clarity to this study.

Huizinga (1949) considered play to be a necessary aspect of each day.

Summing up the formal characteristics of play we might call it a free activity standing quite consciously outside "ordinary" life as being "not serious," but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means. (p.13)

Sutton-Smith (1972) stated that:

Play is what a person does when he can choose the arbitrariness of the constraints within which he will act or imagine. (p.32)

Vaň Anne (1974) wrote:

In play man opens himself to his being, tests it, either conquers it or he doesn't, but in the process experiences the thrill that comes in the confrontation and discovery of self. (p.7)

Moffitt (1972) defined play as follows:

Play is a powerful inner force through which a child reaches out to interact with his environment involving movement and different sensory modes. Play activities provide the momentum through which a child can make a more balanced thrust toward maturation. (p.45)

These definitions of play are useful references for this study. Play researchers find it difficult to agree on one precise definition of play because this term is such an abstract concept. However, by considering various interpretations of play, it is readily apparent that play is a basic need of every individual (Phinney, 1972; Stone, 1970; Walston, 1974). For the purposes of this study, play was considered to be behaviors which were chosen freely by the children within the confinements of the school playground during free play periods.

#### IMPORTANCE OF PLAY

All classrooms, from pre-school through the primary grades could benefit from part of each school day spent on play (Hansen and Hansen, 1972; Salvay, 1974). Educating through play will help make learning become something that children want to be doing and not an uninteresting task (Hansen and Hansen, 1972; Martinello, 1973). There is no reason why education systems cannot use the school playground environment as a medium for learning. The environment in which play occurs is extremely important thus the school playground as the environment for play at school, should be recognized as an important part of the total



school environment.

The aspect of play environment was studied by many play researchers such as; Dattner (1969), Friedberg (1970) and Miller (1972). Children's world of outdoor play was explored using a camera and tape recorder by Stone (1970). The type of equipment, the manner in which it was used by the children, and where the children played helped focus on the characteristics of play, the types of playgrounds and play as it related to the community. The results indicated that playgrounds represent the lifestyle of the surrounding community and that the playgrounds cannot be considered separately from the community.

Walston (1974) stressed the benefits of outdoor play and the need for play environments which enhance learning through play. When play is allowed to be creative and innovative children will learn more readily and gain in their social, emotional, intellectual and physical abilities. Children in Walston's study built their own playgrounds. Proper outdoor play provides opportunities for; self-expression, self-realization, a sense of achievement, various movements and creativity.

Sutton-Smith (1970) recognized that play is not always self-evident but occurs most often in areas designated for play. Usually play is occurring if there are signs of pleasure, relaxation and excitement. Sutton-Smith (1971) felt that before a clear understanding of the meaning of play could be reached, a framework for the descriptive analysis of child's play must be developed. He wrote:

I suggest that the different forms of play are transformations of the four basic modes by which we know the world - imitation, exploration, testing and construction. (p.68)

A child learns through imitation when he models other people or also models his own behavior under different circumstances. Most often a child will imitate powerful persons in his life such as his parents or teachers. Exploration is also an important means of learning. Sutton-Smith (1971) wrote that, "A child understands his world by analysing how things work, how they came to be the way they are, and what they can do." (p.68) This quotation refers to the form of play called exploration. A child also tests if his behavior will cause certain effects. This process of testing continually occurs as a child develops. Sutton-Smith considered the process of construction as a child learning to understand his world by putting things together in his own way.

Piaget (1951) also recognized the difficulty in understanding play and recognizing when it occurs. He wrote:

But the reason for the difficulty lies perhaps in the fact that there has been a tendency to consider play as an isolated function and therefore to seek particular solutions to the problem, whereas play is in reality one of the aspects of any activity. (p.47)

He concluded that the provision of a stimulating environment along with interaction with adults is likely to result in greater development in the child's abilities. For Piaget, interactions with the environment come about

naturally, modified by the child's innate tendency to practice existing schemata and modify them to meet new situations (accommodation) and to incorporate new objects and experiences into existing schemas (assimilation).

#### RESEARCH STUDIES ON PLAY

Researchers have studied children's play through various methodologies. Kretschmer (1972) studied seventy-one hearing impaired and seventy-one normally hearing pre-school children during free play in a studio resembling a nursery school. There were four general categories of behavior from which the 142 videotapes taken were considered. The analysis was concerned with both activities performed and the objects with which the children played. The four categories in which the behavior was classified were: 1. locomotion - any physical movement or positioning of the body, 2. handling - manipulating objects, 3. interaction with self-related to physical contact with oneself as well as any attempt at vocalization and, 4. interaction with objects - imaginative play and problem solving or mechanical acts such as investigating objects. Using these observational categories to analyse the videotapes, the behavior of the hearing impaired and normal children was compared. Results indicated that hearing impaired children were more active, used all sensory modalities, displayed more fearful behavior and engaged in little actual play.

Roderick (1971) studied nursery-kindergarten children during play. A pupil nonverbal category system was developed

as the method of behavior classification. There were three behavior categories; 1. the nonverbal behaviors exhibited, 2. personal interaction and 3. the ability to stay with a task for at least five minutes. The results indicated that frequency of behavior varied with age and sex. This study recommended that more than one observer should study a child and that non-verbal behavior should be recorded separately from decision-making behavior.

Hartley (1964) studied children's perceptions of sex roles in play by having children aged eight and eleven tell which play items of fifty-seven were for boys and for girls. The results showed that each sex claimed more items for itself than the other sex associated with it. Boys tended to be more aware of both sexes roles while girls were more clearly aware of their own role than the male role.

A similar study was conducted by Conn (1951). Game preferences and play attitudes of 193 children were collected for the purpose of determining children's awareness of sex differences. Each child mentioned all of their favorite activities by checking them off a list and by expressing themselves through play interviews. The results of this study showed that male and female choices of games are very different from one another.

In summary, various researchers have found out valuable information from studying children's play. Play is most often a natural environment for children. If the environment does not become too superficial but rather

remains relaxed and natural, researchers can use the play experience to gain more knowledge of children's growth and development.

### SEX STEREOTYPING

Children's acquisition of sex-type behavior begins at infancy. Lewis (1972) strongly suggested that this sex role behavior may be already established by the first year of life. Smart and Smart (1967) felt that the sex-role preferences tended to be stabilized some time between the ages of six and ten. Kohlberg (1966) considered these behaviors to be stabilized at about five or six years of age. It was evident from these studies that a child's maleness or femaleness is established at a very early age.

Extensive research has been directed towards trying to determine the reasons for sexual differences. Since the culture in which a child lives constantly reinforces sex type behavior, it is difficult and almost impossible to determine the extent to which the child's learning of values and attitudes are influenced by underlying biological differences (Hamburg and Lunde, 1973; Hutt and Gibby, 1959; Mussen, 1974).

Children acquire information about the kinds of behavior that are socially approved by the two sexes in many ways. There is observational learning from live models such as parents and peers (Kohlberg, 1966; Mischel, 1968). Through identification with others of the same sex, males and females begin to recognize the variations in sex-role

behavior. They most often identify with the parent of the same sex (Kohlberg,1966). They also learn these behaviors through reinforcement from the environment.

Kohlberg (1966) stated that:

At any given point, the child uses his experiences of his body and his social environment to form basic sex-role concepts and values, but at any given point, environmental experiences also stimulate restructuring of these concepts and values. (p.85)

Although there are many differences, males and females exhibit various similarities in play attitudes and behaviors. Research has shown that young girls exhibited a wider range of play preferences; taking in many so called masculine activities whereas the boys mainly chose masculine activities (Brown,1958; Smart and Smart, (1967). The girls have more freedom of choice for example, girls who climb, play sports with boys and so forth, referred to as tomboys, are socially accepted whereas boys who play with dolls and perform other female activities are not (Brown,1958; Smart and Smart,1967). Sutton-Smith (1972) found that even at the grade four level girls preferred many male activities. However, this attitude was gradually changing. Brown (1958) discovered in his research that males showed stronger preferences for male roles than females did for female roles. He felt this was due to social implications; there were more sociocultural advantages to being male.

Research has continually shown that there are differences in style of play between the sexes with the

males performing more gross-motor activities while females did more fine motor activities (Lewis,1972). Both gross and fine motor coordination are necessary for all children. If social pressures are forcing children to mostly perform one of the two , then social pressures are also inhibiting natural growth and development of children. Bones and muscles grow according to usage.

Hawkes and Pease (1962) made the statement that:

Equipment which encourages practice in both gross and fine body movements should be made available to children. Between the ages of five and eight most children need experience in the use of large muscles. (p.178)

They also stressed the importance of fine motor skills along with Kephart (1967) and Frostig (1967).

Educators should recognize the influence sex-role stereotyping can have on children's attitudes toward play and on play behavior.

Hawkes and Pease (1962) reported that:

Sex-role development assumes much importance during the elementary school years because of the child's growing awareness of himself as a person. (p.113)

Although there is beginning to be a greater tendency for somewhat broader, less rigidly defined sex-typed roles and more overlapping between sex-typed behaviors, more of this freedom of choice is essential. More freedom of choice may encourage children to partake in a wider range of play experiences.

#### LITERATURE SUPPORTING RESEARCH TECHNIQUES

### Research Using Both Techniques

When considering literature on play, research substantiating the assumption of this study was considered. This study was based on the assumption that children can express their interests and attitudes toward play if the proper language and approach are used.

The method of data collection was very important. In particular, questionnaires and direct methods of observing children were specifically selected. In consideration of the work of several play researchers, it seemed worthwhile to use techniques based on their work. Evans (1974) used both techniques to gain a deeper understanding of play. These two techniques accomplished this by being adaptable to children and to various play situations, and can be used in a way that does not inhibit children's natural attitudes and behavior towards play. Her research gave numerous examples of children's comments to situations occurring in play.

According to Evans (1974):

If we take enough time to really observe and listen to children we will begin to understand what they are doing, how they are feeling, and how they are thinking by the ways in which they play. (p.268)

Miller (1972) researched creative outdoor play areas through the processes of; 1. extensive observations of children playing in various environments from backalleys to fancy playgrounds and 2. extensive interviews with the children playing. She considered children up to the age of young teenagers and from both sexes. Miller echoed Evan's view..



when she wrote:

By talking with children and observing their free and spontaneous play activities in the outdoors and elsewhere, adults can gain clues and direct information about youngsters' interests. (p.18)

### Questionnaire-Interview Literature

The interview technique is valuable in its flexibility and adaptability to individual situations, thus making it especially suitable for research with children (Kerlinger, 1973). Some of the advocates of the interview approach as a method of gaining information from children are; Conn (1939), King (1973), Sundberg and Tyler (1973) and Yarrow (1960). All of these researchers agreed that this technique can be extremely successful if care is taken in formulating the questions to be asked and in recording the data. Goals must be clearly established but there should be enough flexibility to make revisions to the interview if necessary.

Conn (1951) made valuable use of play interviews to determine children's preferences for games and their attitudes and behaviors on other aspects. He attributed much of his success on the emphasis he placed on treating children as equals and not as inferior beings. Children's opinions were respected and valued.

Conn (1939) wrote:

In the difficult task of collecting data on significant items of children's attitudes there is one important consideration that too often is forgotten - namely that the child himself has something to contribute. (p.68)

Yarrow (1960) also felt that there must be genuine honesty from the interviewer in her acceptance and liking for the child being interviewed and at the same time maintaining a sense of objectivity. Objectivity can be gained by having the questionnaire completely devised prior to the interview thus each interview is standardized. This limits interviewer bias and ensures that each child interviewed is given the same questions thus making for responses that are comparable.

How better can researchers understand children's attitudes and values if not by direct verbal questioning? Yarrow (1960) stated that, "The interview is the most frequently chosen approach to children's attitudes and values." (p.668) The interview also enables meaningful study of a wider range of information pertaining to a child's life than is possible through the observational technique.

Yarrow (1960) was able to make use of this technique with very young children. He cited this possibility in the following statement. "On the whole, research evidence suggests that the direct interview can be used effectively with four year-olds." (p.564) During interviewing of all persons, especially young children, the interviewer must be certain that the children are clear as to the purpose of the interview, their particular role in the interview and the interviewer's role. With this clarification made, the children will most likely exhibit less apprehension

towards the interview situation and are likely to enjoy themselves. If children enjoy their involvement in the research they will make a valuable contribution to the study through their direct, honest and thorough responses.

Sundberg and Tyler (1973) realized the necessity for keeping the child relaxed during the interview. This can be best accomplished by allowing the child to do most of the talking. Although the child is encouraged, his responses are not directed or influenced by the bias of the investigator. To gain the most reliable and valid data possible, great care must be taken in establishing the purpose for which it is done and the methodology of recording the data. The less structured, the less reliable and valid interviews are likely to be (Sundberg and Tyler, 1973).

The interview technique has many qualities that make its inclusion along with the observational approach necessary in research on play. Kerlinger (1973) has listed many of these qualities.

1. Interviews can obtain a great deal of information.
2. They are flexible and adaptable to individual situations.
3. The interviewer knows if the child does not understand.
4. The interview permits probing into the context of, and reasons for, answers to questions.
5. It is a psychological measuring instrument.

Greatest success will be achieved with the interview technique if the investigator takes care in avoiding

the following potential weaknesses as suggested by Kerlinger (1973):

1. more than one idea to a question
2. ambiguous words and expressions
3. leading questions which threaten the validity
4. demanding knowledge that is above the capabilities and understanding of the child.

If the interview technique is used in an appropriate manner, it can be extremely valuable in research.

Kerlinger (1973) stated:

The success of the interview in sociology and psychology should encourage educational researchers to master its intricacies and to use it where it is clearly appropriate. (p.476)

### Observational Literature

It is possible to gain valuable information in the understanding of young children by observing and recording play behavior. More research in children's play has utilized the observational approach rather than the interview approach. It is beneficial to discuss the work of some of the researchers who have used the observational technique to clarify the potential uses of such a technique.

Observations can be used for a wide range of purposes related to young children. Preiser (1972) studied the effect of decreased available space on the free play behavior of three and four year olds; Phinney (1972) set out to determine children's level of classification ability by observing spontaneous behavior of children interacting with blocks at two levels of complexity. The children were classified into two levels of ability. The

results did not indicate any interaction between ability and complexity for this study. Bishop (1972) used a time lapse movie camera to test children's responses to pictures of playgrounds and also to test the responses of playground designers. A comparison of the responses was made. The hypothesis that adult designers are insensitive to children's preferences was found to be true. Holme (1970) observed how children responded to different play environments to determine if the kinds of playgrounds that children really want and will go on using are being built. In her study Holme found that children play in varied environments many of which are not designated as play spaces such as back alleys and streets. Children respond to the environment in which they are familiar.

Observing physical behavior can tell researchers a considerable amount of information about children's ways of looking at life: their social, emotional and physical development through play (Brown, 1958; Curtis, 1971; Hartley, 1964; Isaacs, 1933; Sutton-Smith, 1971; Whitehurst, 1971). A variety of instructions on observation and recording techniques were found in the literature on play such as those stated by Kunze (1967).

The first step in such a training program is to help the student distinguish between description of behavioral events and statements of impressions resulting from his observation of behavioral events. (p.474).

He also stated that the structure for recording behavioral

events be such that it facilitates recording behavior while discouraging the recording of impressions. Suggestions on details that would be meaningful in explaining behavior were given. Generalizations that can be made through observations and pertain to matters of vital importance to children, will help provide clues to children's thoughts and feelings.

Cohen (1965) wrote:

When we come to see children's behavior through the eyes of its meaning to them, from the inside out, we shall be well on our way to understanding them. (p.5)

If observations are to be beneficial, consideration should be made of the technique used, its appropriateness for the problem being considered and the assets and limitations of the approach. The actual data collection should be free from interpretation to prevent bias from the observer. Kerlinger (1973) stated that, "The more the burden of interpretation put upon the observer, the greater the validity problem." (p.506) Being objective prevents the data from being distorted. An observational instrument is more useful if the resulting data can be summarized quantitatively rather than qualitatively (Furst and Hill, 1971; Kunze, 1967; King and Thompson, 1969).

One of the most important considerations in any observation system is to know clearly what is being observed since this will dictate the operational system. Curtis (1971) stressed the vital importance of observations in studying motor development in children.

She stressed focusing on how the child uses his body; the process of movement, not the product. She felt films were beneficial in developing the skill of observers.

Several researchers made valuable contributions in clarifying the criteria helpful for selecting the most useful instrument.

1. The observer must first decide what he wishes to see (Kerlinger, 1973; King and Thompson (1969); Sutton-Smith, 1970).

2. The observer must have a clear idea of how he wants to use the data (Cohen, 1970; Furst and Hill, 1971; Sutton-Smith, 1970)

3. The degree of validity depends on how well the instrument reflects the theories which generated it (Furst and Hill, 1971; Kerlinger, 1973; Kunze, 1967).

4. The instrument should be reliable such that the same results occur when the same population is observed at different times and/or by different observers (Furst and Hill, 1971; Kunze, 1967).

5. Observers should identify their own biases and be cautious that these biases do not hinder the results (Curtis, 1971; King and Thompson, 1969).

By being careful in devising a useful instrument in which to observe children at play, the observer can find out what satisfies children's needs. The generalizations that can be made on what is seen happening gives further knowledge into the matters that are of vital

importance to young children during play. Curtis (1971) expressed this view in his well written statement:

We must remember that in our haste, there is serious danger that we will not stop to really look at the small child - or, if we do look, we may fail to see him. (p.33)

Utilization and understanding of the observational technique is valuable and should not be underestimated as a means of learning more about children's play.

Considerable literature on play was investigated for this study. General literature on play provided a basis from which the investigator could justify this study. The major emphases of the related literature were placed on information dealing with researchers' interpretations of the term play, the importance of play, research studies on play, literature on sex stereotyping as evidenced in children's play and information substantiating the two research techniques used in this study.

The literature dealing with definitions of play, the importance of play and research studies on play made it clear that research in play is being undertaken and that it is important to continue further research. This literature substantiated the initial statements made in this study, that more knowledge about play and a better understanding of the necessity for play are essential.

The information dealing with the questionnaire-interview technique and observation technique substantiated the assumption that children can express their interests and attitudes towards play if the proper language and



approach are used. Numerous researchers have successfully used these techniques to gain greater insight into children's play. Their various uses of the two techniques supported the approach taken in this study.

## CHAPTER III

### METHODS AND PROCEDURES

Play researchers have used various approaches to gain further knowledge of children's play. Although research on play has more often made use of the observation technique than the questionnaire-interview technique, both have been successful in gaining valuable knowledge of what young people consider important in play (Ellis, 1973; Evans, 1974; Miller, 1972; Sutton-Smith, 1971). Based on numerous play researchers' success with these two techniques, this study examined play attitudes and behavior through these two relevant sources.

### ASSESSMENT TECHNIQUES

#### Attitude Assessment Using the Questionnaire-Interview Technique

A questionnaire-interview was given on a one-to-one basis with each child. This research instrument was written in children's language, terms they understand, to secure information related to children's attitudes toward play when engaging in free play on their school playgrounds. The questionnaire-interview technique acknowledges the need to involve children. Children can make valuable contributions to the further understanding of play.

#### Behavior Assessment Using the Observation Technique

The children were observed in free play on their school playground.

A pilot study was undertaken during the summer of 1975 using both techniques to develop basic investigator competencies in these assessment measures (See Appendix E).

#### SELECTION OF THE SAMPLE

Five elementary schools within the Richmond School District, Richmond, British Columbia were selected, with similar playgrounds as the major criteria. Other criteria were; similar socio-economic backgrounds and similar interview rooms. This school district was chosen since its school board was extremely enthusiastic and interested in the area of children's play. Within each school a grade one, two and three class were randomly selected making a total of five grade one, five grade two and five grade three classes. The total number of children interviewed was 354 with 339 of these children observed during free play. Since each child had to be both observed and interviewed, the sample group for this study consisted of 339 subjects. All data analysis was based on those 339 children.

Classes were selected randomly to reduce the possibility of bias. The children were chosen on a class basis to facilitate data collection and to cause the least amount of disturbance at the schools. The classes were chosen with the following criteria in mind:

1. They were similar in size.
2. They had similar numbers of males and females.
3. They were able to play on the school playground during a free play period.

#### ORGANIZATION OF TIME AND SPACE

There were five schools with three classes to be interviewed and observed per school. It took four days per school, therefore a total of twenty days was needed for data collection. Six more days were needed to test the reliability of the questionnaire-interview. Weather problems prevented the observations from taking place on consecutive days. See Appendix B for questionnaire-interview and Appendix C for observation schedule.

Each questionnaire-interview took approximately ten minutes to complete. Thus at least one class of children were interviewed per day. The observations took place during two separate half hour free play sessions per class and generally after the interviewing was completed. The time span between the two techniques for each school varied depending upon the weather. There was a three month time period over which testing took place.

#### METHODOLOGY

##### Attitude Assessment Using the Questionnaire-Interview Technique

The questionnaire-interview assessed the following

attitudinal components: (See Appendix B for complete Questionnaire)

1. Children's desire to play. (Question 1)
2. Children's reasons for playing. (Questions 2 & 3)
3. Children's favorite time to play on their school playground. (Question 4)
4. Children's favorite spot to play on their school playground. (Question 5)
5. Children's play behaviors, specifically;
  - a. The favorite things children do.  
(Questions 7 & 8)
  - b. The socialization aspect; whether children play alone, with children their own age, with children younger than themselves or with children older than themselves. (Question 6)
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.  
(Question 6)
6. The types of equipment children use on their school playground. (Questions 9 & 10)

The following instructions were emphasized by the investigator:

1. The investigator was interested in determining what children like to do on their school playground

and why it was liked.

2. There are no right or wrong answers to the questions - what was desired was their own personal opinions.

3. If there were ever any questions the children should feel free to ask them.

The questionnaire-interview was administered to one class at a time. As one child was being interviewed another child sat outside of the interviewing room until the questionnaire-interview taking place was completed. Then this child was called in and the child who had just finished answering the questions returned to the class and sent the next child. For simplicity's sake the order of questionnaire-interviews followed the class list.

Approximately ten minutes was needed for each child to complete the questionnaire-interview, however, this time varied depending upon the specific child. Since only two children at a time were involved with the interviewing, there was very little disturbance in the classes. When asking the specific questions, the interviewer used the following techniques:

1. Each question was read aloud and repeated when necessary. The choices, when given, were read slowly.

2. The questionnaire was placed in front of each child so that they could read it with the investigator. This was mainly for the benefit of the older children.

3. The investigator recorded the responses.

## Behavior Assessment Using the Observation Technique

The observations assessed selected aspects of the questionnaire-interview, that is: (See Appendix D for complete form)

1. The children's favorite spot to play on their school playground (See Question 5 of Questionnaire-Interview)
2. The children's play behaviors, specifically;
  - a. The favorite things children do.  
(See Questions 7 & 8 of the Questionnaire-Interview)
  - b. The socialization aspect; whether children play alone or in groups. (See Question 6 of the Questionnaire-Interview)
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things (See Question 6 of Questionnaire-Interview)

The observation categories used corresponded directly with question components from the questionnaire-interview with a slight modification to the socialization aspect. Since only one class at a time was using the playground during the free play condition, the children were basically of the same age. Therefore, only two observational categories were used: 1. children playing alone and, 2. children playing in a small group.

Observations took place on a class basis with the investigator observing all of the sample group on the school playground during two separate half hour sessions of free play per class. This procedure for observing the children, made it possible for the investigator to observe only those children interviewed.

Over the half hour period, the investigator observed each of the three play areas: 1. equipment area, 2. blacktop area and, 3. playing field for ten minutes per area broken down into two separate five minute observational sessions. There was a total of six complete observations over the half hour period. The order of areas to be observed was randomly selected per class per school using a Table of Random Numbers (Kerlinger, 1973). The observations made in respect to the selected components of the questionnaire-interview, were recorded by the investigator for each complete observation. Observations were undertaken by the investigator at each of the three play areas rather than observing specific children moving from one area to another.

#### METHOD OF ANALYSIS

##### Questionnaire-Interview

All questions were tabulated and data placed on computer cards. The data was analysed as follows:

1. Chi square values were determined for the total responses to each question.



2. Chi square values were determined by the computer programme Statistical Programme for the Social Sciences, version 5.01 through the computer at the University of British Columbia for each of the following sub-problems.

a. To determine if there are sex differences among children in their play attitudes when engaging in free play on their school playgrounds.

b. To determine if there are grade differences among children in their play attitudes when engaging in free play on their school playgrounds.

c. To determine if there are school differences among children in their play attitudes when engaging in free play on their school playgrounds.

d. To determine if there are sex differences among children within each grade in their play attitudes when engaging in free play on their school playgrounds.

### Observations

All observations were recorded on a per class basis. The data was then analysed in the same manner as the questionnaire-interview.

1. Chi square values were determined for the total observations to each observation category.

2. Chi square values were determined for each of the following sub-problems.

a. To determine if there are sex differences among children in their play behavior when engaging in

free play on their school playgrounds.

b. To determine if there are grade differences among children in their play behavior when engaging in free play on their school playgrounds.

c. To determine if there are school differences among children in their play behavior when engaging in free play on their school playgrounds.

d. To determine if there are sex differences among children within each grade in their play behavior when engaging in free play on their school playgrounds.

#### Questionnaire-Interview Reliability

For the purpose of testing the reliability of the questionnaire-interview technique, three classes from two schools were reinterviewed. A sample group of 129 children was used. The questionnaire-interviews were administered in an identical manner to the first set of interviews.

Once the data was collected, the investigator analyzed each child's initial responses and the responses of the reinterview session. The questions were considered independently since they were each designed to assess a specific aspect of the child's attitude toward free play on their school playground. The reliability of the questionnaire-interview was determined by calculating percentages of children who gave identical replies to the same questions. Thus the percentages refer to the percentage of agreement between children's initial responses and reinterview responses.

### Comparison Between Attitude Data and Behavior Data

The compatibility of the attitude data (questionnaire-interview approach) with the behavior data (observations) was determined as follows:

1. The adjusted frequency percentages of the two were compared for the comparison of;  
a. favorite spot, b. socialization, and  
c. degree of energy used.
2. Spearman's coefficient of rank order correlation was determined for the comparisons of;  
a. activities, and b. kinds of games  
(Ferguson, 1971).

The two different methods were used since rank order correlations are not useful when only a small number of choices are ranked. This was the case for the three comparisons, favorite spot, socialization and degree of energy. However, sufficient numbers of choices for the comparisons; activities and kinds of games allowed for rank ordering.

### Statistical Significance

To be statistically significant, the data must exhibit a .01 level of significance.

### CHARACTERISTICS OF THE DATA

The dependent variables for the investigation were the children's behaviors and attitudes and the independent variables were: sex, grade, school and sex within each grade. Since the variables were considered under the terms of

equality or difference, they were nominal variables (Ferguson,1971).

## RELIABILITY OF THE EVALUATIVE TECHNIQUES AND THE INVESTIGATOR

### Questionnaire-Interview

The questionnaire used for this study had been revised numerous times and developed with the help of children. The investigator had used a similar instrument with children in supervised playgrounds (See Appendix E). The major difference in emphasis was seen in the type of play environment under consideration.

The investigator's assumption that children could respond to a questionnaire-interview was tested during these preliminary sessions and on the basis of face validity appeared successful. Garrett (1958) commented on face validity in the following quotation:

A test is said to have face validity when it appears to measure whatever the author had in mind, namely, what he thought he was measuring.... Face validity is necessary, too, when we must decide what items are suitable for children and which are acceptable to adults. (p.355)

The investigator tried to make the wording of each question as simple as possible and with no ambiguity. Only one thought or idea was suggested in each question to prevent confusion and misinterpretation by the children.

### Observations

The observational categories used for this study

were comparable with selected question components from the questionnaire-interview. The investigator had used similar observational categories with children in supervised playgrounds (See Appendix E). The major difference in emphasis was seen in the type of play environment under consideration.

The investigator recorded the particular behaviors dictated by the observational categories. Only selected behaviors were recorded; the investigator did not attempt to observe all behaviors. What was recorded was what the investigator saw. No judgments as to attitudes toward play were made.

#### Investigator

The investigator had previously used both the questionnaire-interview technique and the observation technique with young children (See Appendix E). Many of the initial problems of interviewing as experienced by the investigator and recognized by play researchers have been rectified. One potential problem of interviews as stated by Sundberg and Tyler (1973) was, "The less clearly they are structured the less reliability and validity they are likely to have." (p.113) The investigator overcame this problem by standardizing the questions, thus structuring the questionnaire-interview. The questions were completely formulated prior to the interview.

The questions used should not have more than one

idea per question, should be short, and should not be leading or its validity will be threatened (Kerlinger, (1973). The investigator took considerable thought in choosing the questions and tested them with children. Kerlinger (1973) also stated that another potential shortcoming of the questionnaire-interview technique was the time factor. The maximum length of an interview session in this study was ten minutes. The children did not get bored within this time period. Many of the other initial problems of interviewing such as; getting accustomed to talking with children, relating to them, helping them feel at ease and providing a pleasant interview environment have been worked out with the experience the investigator had during the pilot study.

Many of the initial problems of observing as experienced by the investigator and recognized by play researchers have also been rectified. One potential problem is that direct observations can only describe what the child has said and done. The method is misused if one makes any attempt to discover what that behavior means qualitatively (Kretschmer;1972). The observational categories for this study sought to discover what children did; no interpretations as to why they behaved as they did was made. Kretschmer (1972) also wrote that observations can be a lengthy process. The investigator was careful to limit the time period to two separate thirty minute sessions per class.

Roderick (1971) found difficulty in the observational system when the category for coding movement was not explicit. The investigator resolved this problem by providing definite categories for observations. Before one can begin data collection one must be sure of the behavior categories (Cohen,1963; Kunze,1967) . Many other initial problems of observations such as; determining a useful recording method making use of a coding system, randomization of observation sessions for the sample population and generally becoming accustomed to gathering as much information as possible in a limited period were rectified as a result of the pilot study.

## CHAPTER IV

### RESULTS AND DISCUSSION

#### INTRODUCTION

The results from the questionnaire-interview data and observational data were analysed with respect to children's attitudes toward play and their play behavior when engaging in free play on their school playgrounds. The children's attitudes were examined by means of the questionnaire-interview and their behaviors were examined by means of the observations.

The reliability of the questionnaire-interview was considered first since the reliability proved to be further justification for interpretations made on the general attitude results. The general attitude data was considered next with interpretations related to the six attitudinal components. The general behavior data followed the attitude data. The behavior results were analysed in terms of the behavior categories. Next to be discussed was the comparison between attitude data and behavior data by; sex, grade, school and sex within each grade.

Following these general comparisons, children's attitudes and behavior towards play when engaged in free play on their school playground with respect to the specific comparisons of sex, grade, school and sex within each grade were discussed. These discussions were further subdivided



into attitude and behavior results.

TEST-RETEST RELIABILITY OF THE QUESTIONNAIRE-INTERVIEW  
(SEE APPENDIX G)

The questionnaire-interview was readministered to 129 children with relatively equal numbers from grades one (46), two (38) and three (45). There was a time period of just over two months between interviews.

The majority of reliability percentages were either high or outstanding (see Chapter 1 for percentage interpretation). Children's desire to play showed an outstanding percentage while children's reasons for playing, children's favorite time to play on their school playground, children's favorite spot to play on their school playground, children's play behaviors and the type of equipment children use on their school playground, most often showed a high percentage. (See Appendix F for Table 29) Percentages were given for each question and for the most frequent responses within each question. The percentages for the favorite responses were higher than for the complete questions. Children seemed to be more consistent in their attitudes for their preferred choices than for their less popular choices. The less popular choices caused the percentages on the questions to be lower than for the favorite choices.

The test-retest analysis of the questionnaire-interview technique indicated a majority of high and outstanding reliability percentages. Thus it was considered reliable for the purposes of this study. The children in

grades one, two and three were consistent in their stated attitudes towards free play on their school playgrounds. The questionnaire-interview technique was adapted to young children and young children were able to respond to it.

GENERAL ATTITUDE DATA  
(SEE APPENDIX H)

The attitude data referred to the data gathered from the questionnaire-interview. The percentage of children who selected a particular choice divided by the total number of children who responded to the question (otherwise known as the adjusted frequency), was determined. Chi square values were also determined for the purpose of deciding if there were significant differences in children's attitudes for the following selected attitudinal components.

1. Children's desire to play.
2. Children's reasons for playing.
3. Children's favorite time to play on their school playground.
4. Children's favorite spot to play on their school playground.
5. Children's play behaviors, specifically;
  - a. The favorite things children do.
  - b. The socialization aspect; whether children play alone, with children their own age, with children younger than themselves or with children older than themselves.
  - c. The degree of energy used by the children;

whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.

6. The types of equipment children use on their school playground.

#### Children's Desire To Play

Children's desire to play was placed first on the questionnaire-interview to allow children to respond to this particular question without being influenced by the remaining questions. The results for this attitudinal component showed statistically significant differences at the .01 level in children's preferences. These differences are presented in Table 1. Figure 1 presents children's responses to the attitudinal component dealing with children's desire to play.

TABLE 1

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES  
FOR CHILDREN'S DESIRE TO PLAY

Question #1** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Yes	339	169.5	169.5	28,730.25	169.5
No	0	169.5	169.5	28,730.25	169.5
Total	339				$\chi^2 = 339.0^*$
* $p < .01, \chi^2_{.01, 1} = 6.64$					
** Do you like to play?					

FIGURE 1

CHILDREN'S RESPONSES REFLECTING  
THEIR DESIRE TO PLAY

Responses

Question #1\*

Yes

No

%	0	10	20	30	40	50	60	70	80	90	100
*Do you like to play?											

---

It was evident from Figure 1 that play was important to 100% of the children; they liked to play. These results further substantiated the need for a study of this nature. Children's desire to play, was also evident to many play researchers such as: Riley (1973), Sutton-Smith (1971) and Whitehurst (1971).

Children's Reasons For Playing

Play must satisfy children's needs if it is to be meaningful (Flinchum and Hanson, 1972; O'Shea, 1925). Haverson (1971) stated that, "We will have to assess the needs, to study the ways, to evaluate the results." (p.33) It was imperative that children's reasons for playing be considered. Children's specific behaviors may be more easily understood if a better understanding of their reasons for playing is achieved.

The statistical significance of questions dealing with children's reasons for playing are presented in Table 2. Figure 2 presents each of the questions dealing with children's reasons for playing.

TABLE 2

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES  
FOR CHILDREN'S REASONS FOR PLAYING

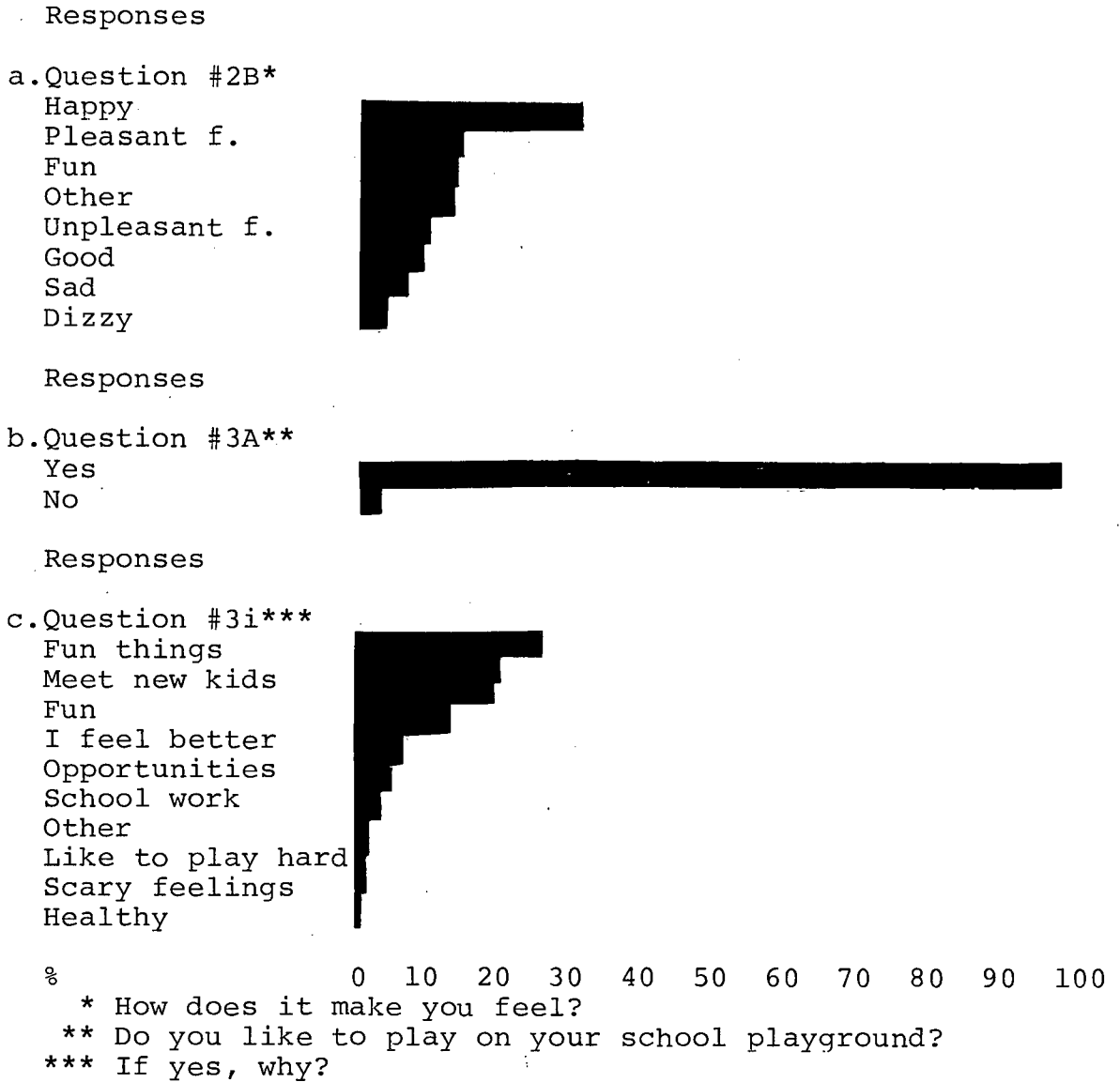
a. Question #2B**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Happy	96	38.5	57.5	3306.25	85.88
Pleasant feelings	44	38.5	5.5	30.25	.78
Fun	42	38.5	3.5	12.25	.32
Other	41	38.5	2.5	6.25	.16
Unpleasant feelings	29	38.5	-9.5	90.25	2.34
Good	26	38.5	-12.5	156.25	4.06
Sad	19	38.5	-19.5	380.25	9.88
Dizzy	11	38.5	-27.5	756.25	19.64
Total	N=308				$\chi^2=123.06^*$
*p < .01, $\chi^2_{.01, 7} = 18.48$					
** How does it make you feel?					
b. Question #3A**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Yes	329	169.5	159.5	25,440.25	150.09
No	10	169.5	-159.5	25,440.25	150.09
Total	339				$\chi^2=300.18^*$
*p < .01, $\chi^2_{.01, 1} = 18.48$					
** Do you like to play on your school playground?					

TABLE 2 (continued)

c. Question #3i** O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Ranking Responses				
Fun things 88	42.12	46.12	2,127.05	50.50
Meet new kids 68	42.12	26.12	682.25	16.20
Fun 67	42.12	25.12	631.01	14.98
I feel better 46	42.12	4.12	16.97	.40
Provides opportunities 21	42.12	-21.12	446.05	10.59
Do school work better after 18	42.12	-24.12	581.77	13.81
Other 11	42.12	-31.12	968.45	22.99
Like to play hard 8	42.12	-34.12	1,164.17	27.64
Scary feelings 7		-35.12	1,233.41	29.28
Healthy 3		-39.12	1,530.37	36.33
Total 337			$\chi^2 = 224.72^*$	
* $p < .01, \chi^2_{.01, 9} = 21.67$				
**If yes, why?				

FIGURE 2

CHILDREN'S RESPONSES REFLECTING  
THEIR REASONS FOR PLAYING



From Figure 2 it was evident that children repeatedly gave similar choices for their reasons for playing. When asked if they had certain kinds of feelings when playing on their school playground, 54.9% of the sample population said yes. Of this particular group three feelings were most popular; 1. happy (31.2%), 2. pleasant feelings (14.3%) and 3. fun (13.6%). (See

Figure 2-a) Table 2-a showed that this aspect of reasons for playing had statistically significant differences, at the .01 level, in children's preferences. Children played because of positive feelings. This further substantiated Whitehurst's (1971) contention that, "Not the least among the meanings of movement for the young child are sheer enjoyment and sensuous pleasure." (p.35).

Of the sample population, 97.1% liked to play on their school playground. (See Figure 2-b) The results for this aspect showed statistically significant differences, at the .01 level, in children's preferences. (See Table 2-b) These children were given several choices from which they selected their reasons for playing and then ranked their favorite three reasons. Children's three most popular reasons for playing on their school playground as listed in Figure 2-c were; 1. because there are fun things (26.1%), 2. for the socialization aspect (20.2%) and 3. because of the element of fun (19.9%).

The children were also asked to state which choices were reasons why they liked playing on their school playground. Of the population 97.3% stated that there are fun things was one of their reasons while 97.1% chose the element of fun and 95.6% chose the socialization aspect as reasons. (See Appendix H - Table 30) The major reasons for playing were; the fun things, pleasant feelings and the opportunities for socializing.



Children's Favorite Time To Play  
on Their School Playground

When children's favorite time to play on their school playground was considered, the results showed statistically significant differences, at the .01 level, in children's preferences. Table 3 presents these differences. Figure 3 presents children's responses to each of the choices of favorite time.

TABLE 3

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES FOR CHILDREN'S  
 FAVORITE TIME TO PLAY ON THEIR SCHOOL PLAYGROUND

Question #4** Responses	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Lunch	154	56.33	97.67	9,539.43	169.35
Recess	86	56.33	30.33	919.91	16.33
After school	48	56.33	-8.33	69.39	1.23
Weekends	36	56.33	-20.33	413.31	7.34
Evenings	11	56.33	-45.33	2,054.81	36.48
Before school	3	56.33	-53.33	2,844.09	50.49
Total	338				$\chi^2 = 281.22^*$
* $p < .01$ , $\chi^2_{.01,5} = 15.09$					
** When do you play most often on your school playground?					

FIGURE 3

CHILDREN'S RESPONSES REFLECTING THEIR FAVORITE  
TIME TO PLAY ON THEIR SCHOOL PLAYGROUND

Responses

Question #4\*



% 0 10 20 30 40 50 60 70 80 90 100  
\*When do you play most often on your school playground?

Children were asked to choose two favorite times from a list of six choices. It was evident from the results presented in Figure 3, that children had definite preferences in the time during which they played on their school playground. On a percentage basis, lunch hour (45.6%) and recess (25.4%) had much higher preferences than any of the other choices. (See Figure 3). It was evident that the school playgrounds were used most often during school hours.

Children's Favorite Spot to Play  
On Their School Playground

The attitudinal component classified as children's favorite spot to play on their school playground showed statistically significant differences, at the .01 level, in children's preferences. These differences were presented in Table 4. Figure 4 presents each of the choices for

children's responses reflecting the area of the playground in which they prefer to play.

TABLE 4

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES FOR CHILDREN'S FAVORITE SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND

a.Question #5A**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Yes	278	169.5	108.5	11,772.25	69.45
No	61	169.5	-108.5	11,772.25	69.45
Total	339				$\chi^2 = 138.90^*$
* $p < .01, \chi^2_{.01,1} = 6.64$					
**Do you have a favorite spot to play on your school playground?					
b.Question #5B**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Equipment	171	69.5	101.5	10,302.25	148.23
Playing field	63	69.5	-6.5	42.25	.61
Sand	15	69.5	-54.5	2,970.25	42.74
Other	15	69.5	-54.5	2,970.25	42.74
Blacktop	14	69.5	-55.5	3,080.25	44.32
Total	278				$\chi^2 = 278.64^*$
* $p < .01, \chi^2_{.01,4} = 13.28$					
**If yes, what is it?					

FIGURE 4

CHILDREN'S RESPONSES REFLECTING THEIR FAVORITE  
SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND

Responses

a. Question #5A\*

Yes

No

Responses

b. Question #5B\*\*

Equipment

Playing field

Sand

Other

Blacktop

% 0 10 20 30 40 50 60 70 80 90 100

\*Do you have a favorite spot to play on your  
school playground?

\*\*If yes, what is it?

---

When asked if they had a favorite spot to play on their school playground, 82.0% of the sample group responded in the affirmative. The equipment area (61.5%) and the playing field (22.7%) were the most popular choices. (See Figure 4-b) It cannot be assumed however that given other circumstances children would still prefer the equipment

area. The children's attitudinal preferences for the equipment area in this study may have been due to the lack of opportunities for participating on the other playground areas.

### Children's Play Behaviors

The attitudinal component classified as children's play behaviors was sub-divided into; 1. the favorite things children do; 2. the socialization aspect and 3. the degree of energy used. The statistical significance of questions dealing with children's play behaviors are presented in Table 5. Figure 5 presents the results for each of these subdivisions.

TABLE 5

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES  
FOR CHILDREN'S PLAY BEHAVIORS

a.Question #6A**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Own age	185	84.75	100.25	10,050.06	118.58
Older	75	84.75	-9.75	95.06	1.12
Younger	47	84.75	-37.75	1,425.06	16.81
Play alone	32	84.75	-52.75	2,782.56	32.83
Total	2	339			$\chi^2 = 169.34^*$
*p < .01, $\chi^2_{.01, 3} = 11.34$					
**Which of the following choices do you do most often; play alone, play with children your own age, younger than yourself or older than yourself?					
b.Question #6B**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
A lot of energy	159	113	46	2,116.0	18.72
Quiet things	125	113	12	144.0	1.27
Some energy	55	113	-58	3,364.0	29.77
Total	2	339			$\chi^2 = 49.76^*$
*p < .01, $\chi^2_{.01, 2} = 9.21$					
**Which of the following choices do you do most often; high, medium or low energy activities?					

TABLE 5 (continued)

c.Question #7** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Running	130	30.82	99.18	9,836.67	319.16
Swinging	51	30.82	20.18	407.23	13.21
Sliding	39	30.82	8.18	66.91	2.17
Climbing	27	30.82	-3.82	14.59	.47
Making things	25	30.82	-5.82	33.87	1.10
Kicking	19	30.82	-11.82	139.71	4.53
Skipping	12	30.82	-18.82	354.19	11.49
Jumping	11	30.82	-19.82	392.83	12.75
Throwing	10	30.82	-20.82	433.47	14.06
Other	8	30.82	-22.82	520.75	16.90
Hopping	7	30.82	-23.82	567.39	18.41

Total<sup>2</sup> 339 $\chi^2 = 414.25^*$ \* $p < .01, \chi^2_{.01, 10} = 23.21$ 

\*\*What things do you do most often on your school playground?

d.Question #7Why** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Fun	73	44	29	841.00	19.11
Other	61	44	17	289.00	6.57
Can play games	55	44	11	121.00	2.75
It's healthy	53	44	9	81.00	1.84
I like it	25	44	-19	361.00	8.20
Be with friends	24	44	-20	400.00	9.09
Good facilities	17	44	-27	729.00	16.57

Total<sup>2</sup> 308 $\chi^2 = 64.13^*$ \* $p < .01, \chi^2_{.01, 6} = 16.81$ 

\*\*Why, for first choice?

TABLE 5 (continued)

e.Question #8** Responses	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Tag	114	56.5	57.5	3,306.25	58.52
Games you make up	75	56.5	18.5	342.25	6.06
Sports	61	56.5	5.5	30.25	.54
Make things	51	56.5	-5.0	25.00	.44
Games on equipment	24	56.5	-32.5	1,056.25	18.69
Special equip- ment games	14	56.5	-42.5	1,806.25	31.97
Total	2	339			$\chi^2 = 116.16^*$
*p < .01, $\chi^2_{.01, 5} = 15.09$					
**What favorite kinds of games do you do most often on your school playground?					



FIGURE 5

# CHILDREN'S RESPONSES REFLECTING THEIR PLAY BEHAVIORS

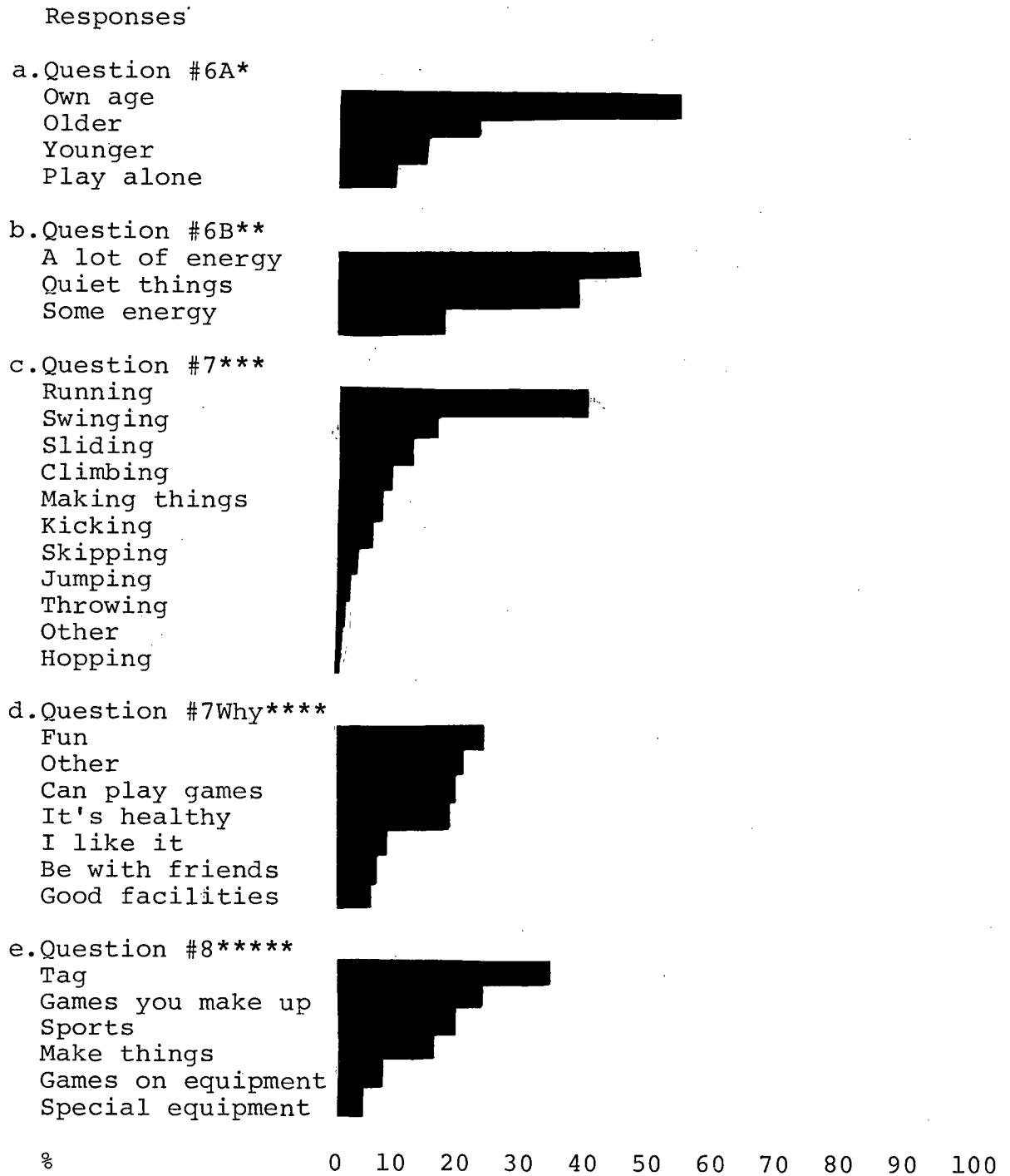


FIGURE 5 (continued)

- \*Which of the following choices do you do most often; play alone, play with children your own age, younger than yourself or older than yourself?
  - \*\*Which of the following choices do you do most often; high, medium or low energy activities?
  - \*\*\*What things do you do most often on your school playground?
  - \*\*\*\*Why, for first choice?
  - \*\*\*\*\*What favorite kinds of games do you do most often on your school playground?
- 

The favorite things children do. Children were asked to state five favorite activities they did most often on their school playground. Only the first ranking was emphasized for analytical purposes since the pattern of responses was consistent throughout the other rankings. This aspect showed statistically significant differences, at the .01 level, in children's preferences. (See Table 5-c).

Running was preferred over all of the other activities with 38.3% of the children ranking it first of eleven choices. The importance of running for growth and development of control, balance and muscular strength has been expressed by such play researchers as; Moffitt (1972) and Smart and Smart (1967). Miller (1972) wrote that,

"Children love to move! - most of all run." (p.18)

Figure 5-c showed that on the basis of percentage, four other activities were important to the children. These activities in order of preference were; swinging (15.0%), sliding (11.5%), climbing (8.0%), and making things (7.4%). The children liked their particular favorite activity mainly because it was either fun (23.7%), the activity could be used in a game (17.9%) and it is healthy to engage in the activity (17.2%). (See Figure 6-a) The preference for a particular activity because it was fun, provided additional support for Gillander's contention. Gillander (1971) wrote:

Fun to the child is not an objective of play, but rather its by-product. In a playground, if little else is offered except repetitive activities of a limiting nature, fun becomes sterile. But when it engages the whole child in physical and emotional exercises of creative imagination and self-confidence building expression, then fun is wholesome and meaningful. (p.21)

Children are therefore unlikely to be attracted to either an activity or piece of equipment if the enjoyment element is not present. Many researchers who have studied children's activities supported the findings of this study. Brown (1958) stated that, running, climbing and jumping are popular activities of children and these activities are beneficial in the coordination and efficiency of movement. Miller (1972) expressed her view that children loved to create, manipulate and build with sand, water and other materials found in their surroundings.

A preference for tag and chasing games (33.6%) was evident from Question #8 which dealt with kinds of games. This aspect showed statistically significant differences, at the .01 level, in children's preferences. (See Table 5-e) Running is a major aspect of tag and chasing games and both were ranked first. This illustrated children's consistency for behaviors, involving running. Figure 5-e illustrated that games you or your friends make up (22.1%) and sports (18.0%) were ranked second and third respectively. Games you make up referred to games that children initiate on their own, set up their own rules and need no special types of equipment. Walking and talking with friends and watching other children playing were examples of this choice. Both games you make up and sports could also involve a considerable amount of running, particularly sports, since the sports observed most often were soccer and grass hockey. The fourth favorite game was activities where you can build or make different things from sand, paper and other materials (15.0%).

The results for favorite kinds of games provided additional support for some play researchers' results. Sutton-Smith (1972) discovered that singing games, make-believe and tagging games pre-dominated in the play of children up until the age of nine. In one of his studies he asked 561 five and six year olds to rank order their game preferences and the results showed that tag was ranked first for both males and females. Games which would be

classified as games you and your friends make up such as house, dolls, and farmer in the dell, were also extremely important to the sample population in Sutton-Smith's study. Smart and Smart (1967) stated that, ball games, tag, chasing and jumping games are very popular with children.

The play environment must present a challenge and allow for expression, creativity and originality in play. It is a real challenge to give children the proper environment. Without equal opportunities for various games and activities, children may be restricted in their choices of activities or games.

The socialization aspect. The socialization aspect as presented in Figure 5-a, proved considerably important in this study and showed statistically significant differences, at the .01 level, in children's preferences. (See Table 5-a) Children needed the play experience because it provided an opportunity to be with their friends and to make new friends. Sutton-Smith (1972) supported this view when he wrote:

Toward the end of the 19th century psychologists began to stress the great importance of games in a child's development, particularly in social development. (p.221)

When children were asked what they did most often; play alone, play with children your own age, children younger than yourself or children older than yourself, only 9.4% of the sample group stated that they played alone. From Figure 5-a it can be seen that children preferred to be in groups, and most often groups of children their own age (54.6%). This finding

supports research by Hutt and Gibby (1959) and Smart and Smart (1967) which determined that at six to ten years of age, socialization away from the family becomes important as children become more and more involved with and participate in social groups.

The degree of energy used. The degree of energy expended was categorized as; things that take a lot of energy, some energy and quiet sitting things. The children's preferences for a particular degree of energy was illustrated in Figure 5-b. Children liked things that took a lot of energy (46.9%) most often. Quiet sitting things and things that take some energy were ranked second and third respectively. This attitudinal component showed statistically significant differences, at the .01 level, in children's preferences. (See Table 5-b) Children require opportunities to perform behaviors which require expenditure of energy, particularly a lot of energy.

The Type of Equipment Children Use  
On Their School Playground

This attitudinal component showed statistically significant differences, at the .01 level, in children's preferences. The differences were presented in Table 6. Based on their first ranking, children did have definite preferences for particular types of equipment. The other rankings followed similar patterns of results. These preferences were presented in Figure 6.

TABLE 6

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES FOR THE TYPE  
OF EQUIPMENT CHILDREN USE ON THEIR SCHOOL PLAYGROUND

a.Question #9** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Go up and down	59	33.5	25.5	650.25	19.41
Slide on	56	33.5	22.5	506.25	15.11
Spin around on	47	33.5	13.5	182.25	5.44
Climb	43	33.5	9.5	90.25	2.69
Swing on	41	33.5	7.5	56.25	1.68
Other	29	33.5	-4.5	20.25	.60
Balance on	28	33.5	-5.5	30.25	.90
Build with	23	33.5	-10.5	110.25	3.29
Roll on or over	6	33.5	-27.5	756.25	22.57
Crawl on	3	33.5	-30.5	930.25	27.77
Total	335				$\chi^2 = 99.46^*$
* $p < .01, \chi^2_{.01, 9} = 21.67$					
**What things do you use most often on your school playground?					
b.Question #9Why**	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Fun	89	33.11	55.89	3,123.69	94.34
Other	68	33.11	34.89	1,217.31	36.78
Like it	36	33.11	2.89	8.35	.25
I get dizzy	22	33.11	-11.11	123.43	3.73
It is versatile	22	33.11	-11.11	123.43	3.73
I can go high	18	33.11	-15.11	228.31	6.90
Can play games	15	33.11	-18.11	327.97	9.90
It's healthy	14	33.11	-19.11	365.19	11.03
Allows for creativity	14	33.11	-19.11	365.19	11.03
Total	298				$\chi^2 = 177.69^*$
* $p < .01, \chi^2_{.01, 8} = 20.09$					
**Why, for first choice?					

TABLE 6 (continued)

c.Question #10A**	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Responses					
Yes	209	113	96.00	9,216.00	81.56
No	125	113	12.00	144.00	1.27
Don't know	5	113	-108.00	11,664.00	103.22
Total	339				$\chi^2 = 186.05^*$
* $p < .01, \chi^2_{.01, 2} = 9.21$					
**Do you want more things to play on or with in your school playground?					
d.Question #10B**	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Responses					
Other	69	36.33	32.67	1,067.33	29.38
Swing on	68	36.33	31.67	1,002.99	27.61
Climb	38	36.33	1.67	2.79	.08
Manipulate	35	36.33	-1.33	1.77	.05
Slides	33	36.33	-3.33	11.09	.30
Teeter-totters	25	36.33	-11.33	128.37	3.53
Things to ride	25	36.33	-11.33	128.37	3.53
Merry-go-round	22	36.33	-14.33	205.35	5.65
Forts	12	36.33	-24.33	591.95	16.29
Total	327				$\chi^2 = 86.42^*$
* $p < .01, \chi^2_{.01, 8} = 20.09$					
**If yes, what kinds of things?					



FIGURE 6

CHILDREN'S RESPONSES REFLECTING THE TYPE OF EQUIPMENT  
THEY USE ON THEIR SCHOOL PLAYGROUND

Responses

a. Question #9\*

Go up and down  
Slide on  
Spin around on  
Climb  
Swing on  
Other  
Balance on  
Build with  
Roll on or over  
Crawl on



b. Question #9Why\*\*

Fun  
Other  
I like it  
I get dizzy  
It is versatile  
I can go high  
Can play games  
It's healthy  
Allows for  
creativity



c. Question #10A\*\*\*

Yes  
No  
Don't know



d. Question #10B\*\*\*\*

Other  
Swing on  
Climb  
Manipulate  
Slides  
Teeter-totters  
Things to ride  
Merry-go-rounds  
Forts



% 0 10 20 30 40 50 60 70 80 90 100

\*What things do you use most often on your school playground?

\*\*Why for first choice?

\*\*\*Do you want more things to play on or with in your school playground?

\*\*\*\*If yes, what kinds of things?

Things to go up and down on (17.6%), things to slide on (16.7%), things to spin around on (14.0%), things to climb (12.8%) and things to swing on (12.2%) were the five favorite choices for the question asking children what equipment they used most often on their school playground. These results were presented in Figure 6-a. Of the total population, 87.9% responded when asked why they preferred a specific piece of equipment. The most popular response as seen in Figure 6-b was because it was fun (29.9%).

It is essential that the equipment provide children with meaningful and enjoyable experiences. Playgrounds should be designed with children's favorite activities in mind. The results showed that children's preferences for things to slide on, things to climb and things to swing on reflected three of the five activities i.e. swinging, climbing and sliding discussed in the attitudinal component, children's play behaviors. Children wanted equipment which reflected their choices of activities. Dattner (1969) stated that, "left alone, children choose environments rich in experience." Equipment should be versatile, imaginative and enjoyable. Dattner (1969) also wrote:

Children given the opportunity and the raw materials will design a playground far better than most facilities designed for them by adults.  
(p.61)

Figure 6-c presents children's responses when asked if they wanted more things to play on or with in their school playground. For this question, 61.7% of the children answered in the affirmative. Since a moderately

high percentage of children were not satisfied with their playground, concern should be expressed as to the relevance of existing school playgrounds. It would have been beneficial to have asked children why they wanted more things thus determining if the playground equipment is satisfactory.

The children were asked to give two types of things that they would most like to see in their school playground. This showed statistically significant differences, at the .01 level, in children's preferences. The specific preferences as presented in Figure 6-d were; 1. things to swing on (20.8%), 2. things to climb (11.6%), 3. things to manipulate (10.7%) and slides (10.1%).

The similarity of the choices for this question along with those for activities and things used most often, is very apparent. The most popular choices for each of these questions were comparable. Children stated that they did certain activities and yet also stated that they wanted more equipment to do these same activities. It seems that they want more equipment to ensure that they have a greater chance to perform their desired activities. More equipment would allow for more opportunities to perform certain activities. The types of equipment most popular in this study were; 1. things to go up and down on, 2. things to slide on, 3, things to spin around on, 4. things to swing on and 5. things to climb. Equipment should be chosen carefully and with children's preferences kept in mind. Otherwise, equipment may be built but not used or enjoyed because it does not fulfill the requirements necessary to perform desired behaviors.

GENERAL BEHAVIOR DATA  
(SEE APPENDIX I)

The behavior data referred to the data gathered from the observations. The adjusted frequency which is the percentage of children observed performing each choice divided by the number of children observed for the particular behavioral category, was determined. The following behavior categories were observed:

1. Children's Favorite Spot to Play On  
Their School Playground.
2. Children's Play Behaviors.
  - a. The Favorite Things Children Do.
  - b. The Socialization Aspect.
  - c. The Degree of Energy Used.

Children's Favorite Spot To Play  
On Their School Playground

Each of the three areas observed on the playgrounds, 1. the equipment area, 2. the playing field and 3. the black-top area were observed on two separate occasions for a total of twenty minutes per class. The behavior data for favorite spot showed statistically significant differences, at the .01 level, in children's behaviors. Table 7 presents these differences. The results for children's favorite spot to play were presented in Figure 7 and they showed evidence of definite preferences for play areas.

TABLE 7

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES FOR CHILDREN'S  
FAVORITE SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND  
(BEHAVIOR DATA)

Question #1** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Equipment	825	457	368	135,424.00	296.33
Playing field	346	457	-111	12,321.00	26.96
Blacktop	200	457	-257	66,049.00	144.00
Total	1371				$\chi^2=467.29^*$
*p<.01, $\chi^2_{.01, 2}=9.21$					
**Children's favorite spot to play on their school playground.					

FIGURE 7

CHILDREN'S BEHAVIORS REFLECTING THEIR FAVORITE  
SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND

Responses

Question #1\*

Equipment area  
Playing field  
Blacktop

%                    0   10   20   30   40   50   60   70   80   90   100

\* Children's favorite spot to play on their school playground.

The children's favorite area was the equipment area (60.2%). The second area used most often was the playing field with 25.2%. This behavior category exhibited similar results to the comparable attitudinal component.

### Children's Play Behaviors

The behavior category classified as children's play behaviors was subdivided into; 1. the favorite things children do, 2. the socialization aspect and 3. the degree of energy used. Table 8 presents the subdivisions which showed statistically significant differences at the .01 level of significance. Figure 8 presents the results for each of these subdivisions.

TABLE 8

COMPARISON OF OBSERVED AND EXPECTED FREQUENCIES  
FOR CHILDREN'S PLAY BEHAVIORS  
(BEHAVIOR DATA)

a.Question #2ai** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Running	340	124.64	215.36	46,379.93	372.11
Swinging	239	124.64	114.36	13,078.21	104.93
Climbing	215	124.64	90.36	8,164.93	65.51
Sliding	183	124.64	58.36	3,405.89	27.32
Making things	149	124.64	24.36	593.41	4.76
Other	108	124.64	-16.64	276.89	2.22
Kicking	39	124.64	-85.64	7,334.21	58.84
Skiping	29	124.64	-95.64	9,147.01	73.39
Throwing	26	124.64	-98.64	9,729.85	78.06
Hopping	24	124.64	-100.64	10,128.41	81.26
Jumping	19	124.64	-105.64	11,159.81	89.54

Total 1371

$\chi^2 = 957.94^*$

\* $p < .01, \chi^2_{.01, 10} = 29.59$

\*\*The activities children prefer to do.

b.Question 2aii** Responses	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
Games on equipment	648	228.5	419.5	175,980.25	770.15
Tag	204	228.5	-24.5	600.25	2.63
Sports	161	228.5	-67.5	4,556.25	19.94
Games you make up	156	228.5	-72.5	5,256.25	23.00
Make things	136	228.5	-92.5	8,556.25	37.44
Special equipment	66	228.5	-162.5	26,406.25	115.56

Total 1371

$\chi^2 = 968.72^*$

\* $p < .01, \chi^2_{.01, 5} = 15.09$

\*\*The kinds of games children prefer to do.

TABLE 8 (continued)

c.Question #2b**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
Play in a group	1286	685.5	600.5	360,600.25	526.04
Play alone	85	685.5	-600.5	360,600.25	526.04
Total	1371				$\chi^2 = 1052.08^*$
* $p < .01$ , $\chi^2_{.01, 1} = 6.64$					
**The socialization aspect.					
d.Question #2c**	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Responses					
A lot of energy	691	457	234.00	54,756.00	119.82
Quiet things	347	457	-110.00	12,100.00	26.48
Some energy	333	457	-124.00	15,376.00	33.64
Total	1371				$\chi^2 = 179.94^*$
* $p < .01$ , $\chi^2_{.01, 2} = 9.21$					
**The degree of energy used.					



FIGURE 8

# CHILDREN'S BEHAVIORS REFLECTING THEIR PLAY BEHAVIORS

## Responses

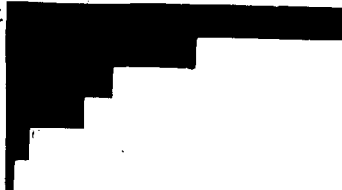
### a. Question #2ai\*\*\*

Running  
Swinging  
Climbing  
Sliding  
Making things  
Other  
Kicking  
Skipping  
Throwing  
Hopping  
Jumping



### b. Question #2aii\*\*\*\*

Games on equipment  
Tag  
Sports  
Games you make up  
Make things  
Special equipment



### c. Question #2b\*

Play in a group  
Play alone



### d. Question #2C\*\*

A lot of energy  
Quiet things  
Some energy



% 0 10 20 30 40 50 60 70 80 90 100

\*The socialization aspect.

\*\*The degree of energy used.

\*\*\*The activities children do.

\*\*\*\*The kinds of games children do.

The things children do. Children were observed to determine the activities they did most often. The results showed statistically significant differences, at the .01 level, in children's behaviors. (See Table 8-c) Figure 8-c illustrated children's most frequent choices for kinds of activities and showed that running was performed most often over all of the other activities with 24.8% of the observational results favoring running. Four other activities which children did in order of highest percentage frequency were; swinging (17.4%), climbing (15.7%), sliding (13.4%) and making things (10.6%). These five activities were the same as the top five activities for the attitude data.

The results for children's most frequent behavior in respect to the aspect of kinds of games were presented in Figure 8-d. The preferences observed were; 1. the school playground equipment (47.3%) as the choice performed most often, followed by 2. tag and chasing games (14.9%), 3. sports (11.7%) and 4. games you make up (11.4%). The other two choices had lower percentages. The playground equipment was the game performed most often for the observations yet ranked fifth for the questionnaire-interview. Children played on the equipment although when given equal opportunities to select other games as reflected in the questionnaire-interview they chose something else.

It is dangerous to assume that children's needs are being satisfied by the playground equipment because they are seen playing on it. The fact that the results of the

observational technique and the questionnaire-interview technique showed a contradiction for kinds of games was evidence enough to give further justification to the methodology of this study. In order to reduce the possibility of incorrect assumptions being made, both observations and questionnaire-interview should be used when determining children's play attitudes and behavior.

The socialization aspect. The socialization aspect was considered for the behavioral data. This behavior category exhibited similar results to the comparable attitudinal component. Children were observed as either alone or in a group. The results showed statistically significant differences, at the .01 level, in children's preferences. (See Table 8-a) Figure 8-a presents the results for the socialization aspect as reflected by the behavior data. Only 6.2% were observed playing alone. The children were most often seen playing in groups.

The degree of energy used. The degree of energy used was categorized in a similar manner to the attitude data with things that take a lot of energy, some energy and quiet things as the choices. The results for this behavior category were presented in Figure 8-b. The observational results showed statistically significant differences, at the .01 level, in children's behaviors. (See Table 8-b) Children were observed expending a lot of energy (50.4%) most often. Quiet sitting things and things that take some energy were ranked second and third respectively.

COMPARISON BETWEEN ATTITUDE DATA (QUESTIONNAIRE-INTERVIEW)  
AND BEHAVIOR DATA (OBSERVATIONS)

The investigator was interested in comparing the information gathered during the observational sessions with that from the questionnaire-interviews. The purpose of such a comparison was to assess the compatibility of the questionnaire-interview approach with the observed behavior approach. In other words, to determine the relationship between what children as a group were actually observed doing and what they said they did.

The results from the comparison between the attitude data and behavior data were presented in Table 9. Table 9 was subdivided into the five following comparisons; 1. favorite spot, 2. socialization, 3. degree of energy, 4. activities and 5. kinds of games.

TABLE 9

COMPARISON BETWEEN ATTITUDE DATA AND BEHAVIOR DATA

CLASSIFI- CATION	CHOICES	OBSERVATION RESULTS	INTERVIEW % RESULTS	% DIFFERENCE
a.Area	equipment area	60.2%	61.5%	1.3% *a
	playing field area	25.2%	22.7%	2.5%
	blacktop area	14.6%	5.0%	9.6%
		N=1371	N=278	

TABLE 9 (continued)

CLASSIFI- CATION	CHOICES	OBSERVATION RESULTS	INTERVIEW RESULTS	% DIFFERENCE
b.Sociali- zation	play in a			
	group	93.8%	90.6%	3.2%
	play alone	6.2%	9.4%	3.2%
		N=1371	N=339	

c.Degree of Energy	a lot of			
	energy	50.4%	46.9%	3.5%
	quiet things	25.3%	36.9%	11.6%
	some energy	24.3%	16.2%	8.1%
		N=1371	N=339	

\*a - for the interview results, 10.8% chose the 'other' category.

CLASSIFI- CATION	CHOICES	OBSERVATION RESULTS	INTERVIEW RESULTS	D	D <sup>2</sup>
d.Activi- ties	Running	1st	1st	0	0
	Jumping	11th	8th	3	9
	Throwing	9th	9th	0	0
	Kicking	7th	6th	1	1
	Climbing	3rd	4th	-1	1
	Hopping	10th	11th	-1	1
	Skipping	8th	7th	1	1
	Making things	5th	5th	0	0
	Sliding	4th	3rd	1	1
	Swinging	2nd	2nd	0	0
	Other	6th	10th	-4	16
	Total	1371	339	$\Sigma D^2 =$	30
				p =	.864

TABLE 9 (continued)

CLASSIFI- CATION	CHOICES	OBSERVATION RESULTS	INTERVIEW RESULTS	D	D <sup>2</sup>
e.Kinds of Games	Sports	3rd	3rd	0	0
	Tag	2nd	1st	1	1
	Games you make up	4th	2nd	2	4
	Special equipment	6th	6th	0	0
	Games on equipment	1st	5th	-4	16
	Make things	5th	4th	1	1
	Total	1371	339	$\Sigma D^2 =$	22
				p =	.372

Percentage differences between the percentage adjusted frequencies of both techniques were determined for the comparisons of; 1. children's favorite spot to play on their school playground, 2. the socialization aspect and 3. the degree of energy used. Rank order correlations were used for the comparisons of activities and kinds of games.

It was extremely valuable to make comparisons between the two techniques since a high compatibility would seem to infer that both techniques were measuring the same thing. The results for the majority of comparisons verified this inference. (See Table 9) Although the major emphasis for this assessment was placed upon the compatibility of general responses, further consideration was also made within the following categories;

1. the compatibility of observation and questionnaire-interview results for the variable sex
2. the compatibility of observation and questionnaire-interview results for the variable grade
3. the compatibility of observation and questionnaire-interview results for the variable school
4. the compatibility of observation and questionnaire-interview results for the variable sex within each grade.

The results of these two techniques for 1. favorite spot, 2. the socialization aspect, and 3. the degree of energy used, had either high or outstanding percentage agreements. Table 9-a presents the observation and questionnaire-interview results for the equipment area as (60.2%) and (61.5%) respectively, the playing field (25.2%) and (22.7%), and the blacktop (14.6%) and (5.0%) respectively. Table 9-b presents the results for the socialization comparison. The results showed that 90.6% of the children stated that they played in groups and 93.8% were actually observed playing in groups.

The findings for the degree of energy used comparison, revealed the close relationship for each of the three degrees of energy. These findings were presented in Table 9-c. A lot of energy, the favorite choice, had an

outstanding percentage agreement of 3.5%, and quiet sitting things (11.6%) and things that take some energy (8.1%) had high percentage agreements.

The final comparison, the things children do determined compatibility of the two techniques by means of rank order correlations. The particular choices of activities and kinds of games ranked during the questionnaire-interviews as being done most often were compared with the rankings of numbers observed performing these particular behaviors.

A rank order correlation of .864 was obtained for the comparison of activities. The activities children said they preferred to do were actually what they were seen doing. The attitudes and behaviors with respect to activities were compatible. The findings showed that the five most popular activities were identical for both techniques, i.e. 1. running, 2. swinging, 3. climbing, 4. sliding and 5. making things. The results of this comparison also reflected the compatibility of the two approaches.

A rank order correlation of .372 was established for the comparison of kinds of games. This low correlation was largely the result of the discrepancy for the choice of activities you do on the school playground equipment. Children were observed playing games on the school playground equipment more than any of the other game choices where as they only ranked this choice fifth on the questionnaire-interview. Thus children's behaviors and attitudes differed on their choices of kinds of games with



the major difference occurring for the choice of playground equipment.

This low correlation for kinds of games was extremely difficult to explain. It was hard to understand why children's attitudes for kinds of games contradicted with their behaviors yet there was consistency for all other comparisons. This low correlation can partially be explained as resulting from a weakness in the comparison. The investigator classified the children's behaviors into six types of games. During the interviewing the children stated their preferences. The comparison may have resulted in a low correlation due to a difference in interpretations of these games. The children may have classified behaviors differently than the investigator. If this is true, then the investigator recorded behaviors as certain games where in fact they may have been other games from the children's point of view. For example, the investigator classified children moving up and down on the equipment as games on the school playground equipment where in fact, the children may have considered it tag and chasing games or games you or your friends make up. Thus the comparison breaks down.

It has become evident from this discrepancy that extreme care must be taken in making the comparisons for the questionnaire-interview and observation techniques as similar as possible. Comparisons of these two techniques can successfully be made if it is remembered that although both techniques are using the same categories to classify

data, they still measure different things. The questionnaire-interview measures attitudes while the observations measure behaviors.

The techniques should be taken into account both individually and jointly for this particular comparison. The compatibility of these two techniques should not be rejected only on the basis of the inconsistency for kinds of games since all other comparisons were compatible. These two techniques can be successfully used together, although it seems from the discrepancy for kinds of games that an attempt must be made to limit misinterpretations. When reconsidering the choices for activities, the socialization aspect and the degree of energy used, there seemed to be little opportunity for confusion whereas the choice of kinds of games showed definite evidence of misinterpretation. For this question, a specific behavior could possibly be classified under more than one type of game.

The observation and questionnaire-interview approaches were compatible for comparisons based on general responses. The categories of comparison with respect to sex, grade, school and sex within each grade were also considered to determine if there were differences for these particular variables.

### Sex

The majority of comparisons exhibited either a high or outstanding percentage agreement. These results were comparable to those from the general responses. (See Appendix

J for Table 32). The males and females were equally consistent with their attitudes and behavior for the five comparisons. Sex differentials were insignificant.

### Grade

The majority of comparisons for the variable grade exhibited either a high or outstanding percentage agreement. These results were also comparable to those from the general responses. (See Appendix K for Table 33) Each grade was equally consistent with their attitudes and behavior for the five comparisons. There was a tendency for more consistency between behavior and attitudes for the degree of energy comparison as the grades increased. However, no major discrepancy between grades occurred. When activities were considered, the rank order correlations for the grade two and grade three children, .816 and .766 respectively, were higher than for the grade one children (.666). (See Appendix K for Table 33) It seemed that the older children were most consistent in their behaviors and attitudes for activities although no major discrepancies occurred. Grade differentials were also insignificant.

### School

The majority of comparisons for the variable school exhibited either a high or outstanding percentage agreement. These results were also comparable to those from the general responses. (See Appendix L for Table 34) There were not any schools which tended to either be consistently higher or

lower on percentage agreements. There were some discrepancies between schools on particular comparisons, but these discrepancies were not major nor were they consistent throughout the comparisons. Again, no significant differences were evident.

#### Sex Within Each Grade

The majority of comparisons for the variable sex within each grade were also either high or outstanding in their percentage agreements. These results were also comparable to those from the general responses. (See Appendix M for Table 35) Generally, the five comparisons were equally consistent, although a few minor discrepancies occurred. Percentage agreements tended to increase with increase in grade when degree of energy was examined. Males within each of the three grades tended to be more consistent than the females in their attitudes and behaviors for activities and kinds of games. Again, no significant differences were evident.

#### CHILDREN'S ATTITUDES AND BEHAVIOR WHEN ENGAGED IN FREE PLAY ON THEIR SCHOOL PLAYGROUND IN RELATION TO SEX DIFFERENCES

Children's attitudes and behaviors were considered to determine if there were differences in the area of free play on school playgrounds when considering the variable of sex. The investigator hoped to determine if children's attitudes toward play and/or their behavior in play were affected by the sex of the child. Only those questions which exhibited significant differences were considered.

There were no significant differences between sexes for the attitudinal components, children's desire to play, children's reasons for playing, children's favorite time to play on their school playground, the socialization aspect and the type of equipment children used on their school playground. All behavior categories except for socialization showed significant differences.

Sex differences were evident, although many comparisons were not statistically significant. These results seem to further substantiate Hawkes and Pease's (1962) statement that, "Sex differences in play begin to appear with some consistency among six and seven year olds." (p.88) This study attempted to determine sex differences related to play.

#### Attitude Data

Children's favorite spot to play on their school playground. Table 10 presents the differences between sexes for the attitudinal component classified as children's favorite spot. It was evident from Table 10 that there was a definite difference in children's preference for favorite spot when sex was considered.

TABLE 10

SEX DIFFERENCES FOR CHILDREN'S FAVORITE SPOT TO PLAY  
ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question # 5B	N for Responses	Male	Female	Difference
Blacktop	14	35.7%	64.3%	28.6%
Playing field	63	73.0%	27.0%	46.0%
Sand	15	26.7%	73.3%	46.6%
The total number of females = 135 and males = 143 for this question.				

This component showed statistically significant differences at the .01 level in children's preferences. (See Appendix O for Table 36) The differences occurred for the choices of blacktop, playing field and sand. The males had a high preference for the playing field while the females had a moderate preference for the blacktop. Few children selected sand as an other choice but of those who did, the females exhibited a higher preference for it over the males.

Children's play behaviors. The attitudinal component classified as children's play behaviors showed significant sex differences for the favorite things children do and the degree of energy used.

TABLE 11

SEX DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(ATTITUDE DATA)

a. Question #6B	N for Responses	Male	Female	Difference
A lot of energy	159	66.0%	34.0%	32.2%
Some energy	55	38.2%	61.8%	23.6%
Quiet things	125	34.4%	65.6%	31.2%
The total number of females = 170 and males = 169 for this question.				
b. Question #7	N for Responses	Male	Female	Difference
Throwing	10	60.0%	40.0%	20.0%
Kicking	19	100.0%	0.0%	100.0%
Hopping	7	0.0%	100.0%	100.0%
Skipping	12	0.0%	100.0%	100.0%
Making things	25	32.0%	68.0%	36.0%
The total number of females = 170 and males = 169 for this question.				
c. Question #7Why	N for Responses	Male	Female	Difference
Fun	73	34.2%	65.8%	31.6%
Can play games	55	78.2%	21.8%	56.4%
The total number of females = 152 and males = 156 for this question.				
d. Question #8	N for Responses	Male	Female	Difference
Sports	61	86.9%	13.1%	73.8%
Made up games	75	32.0%	68.0%	36.0%
Special equipment	14	7.1%	92.9%	85.8%
Make things	51	39.2%	60.8%	21.6%
The total number of females = 170 and males = 169 for this question.				

## 1. The Favorite Things Children Do

Differences between males and females for specific activities were recorded in Table 11-a. Favorite things showed statistically significant differences, at the .01 level in children's preferences. (See Appendix O for Table 36) Both sexes showed definite preferences for particular activities. The males had an outstanding preference for kicking and a moderate preference for climbing and throwing and catching. On the other hand, the females exhibited an outstanding preference for hopping and skipping, and a high preference for making things. The remaining activities showed similar preferences by both sexes.

Males and females differed in their reasons why they chose their favorite activity. This showed statistically significant differences at the .01 level, in children's preferences. (See Appendix O for Table 36) The females chose the aspect of fun more often, while the males chose the activity because they could use it in a game. (See Table 11-b)

Smart and Smart (1967) achieved some interesting results from their research which support the findings of the present study for the things children prefer to do. They asked eight and eleven year olds to determine if certain activities were for boys or girls or both. Approximately 80% of the females and 90% of the males said that climbing trees and playing with balls and a bat were male activities.



The males and females had definite preferences in their choices of kinds of games. The males had an outstanding preference for sports while the females had a high preference for special equipment games. Numerous researchers also discovered that males preferred sports. Rosenberg and Sutton-Smith (1963) wrote:

Games and sports are positively associated with the male sex role, but negatively associated with the female sex role. (p.124)

In other research, Sutton-Smith (1972) presented 2,689 children with a check list of 181 items and they were asked to mark their preferences. Sports, tag and games you make up were most popular with the males while tag and games you make up were most popular with the females. These results agreed with those found in the present study.

There was a high consistency between the results for kinds of games and degree of energy. Sports which most often require a high degree of energy, and the choice of things that take a lot of energy were of more interest to the males. Special equipment games, made up games and games where you build and make things, along with activities such as hopping and jumping were more popular with the females. These activities most often require some energy but not a lot of energy.

Conn (1951) wrote:

Terman concluded that the average boy prefers more active games requiring greater strength, muscular dexterity, and elaborate, fixed rules of play, while the average girl's activities are of a semi-sedentary nature involving small groups. (p. 98)

The results of this study lend further support to Conn's statement.

## 2. The Degree of Energy Used

Table 11 showed the degree of energy to be another attitudinal component where males and females differed in their responses. The results showed statistically significant differences at the .01 level, in children's preferences. (See Appendix O for Table 36) The females exhibited a moderate preference for quiet things and things that take some energy while the males exhibited a moderate preference for things that take a lot of energy. In respect to his research on sexual differentiation, Elkind (1971) wrote:

Sex differences are seen most readily in play activities. In general, boys tend to engage in vigorous active play and highly organized games that require muscular dexterity and skill and involve competition between teams. Girls in contrast, tend to participate in more sedentary activities. (p. 15)

Conn (1951) asked children for their favorite activities and sports, for those of the opposite sex and why they made their particular selections. Results from his study indicated that the children felt that girls do not play as strenuously or work as hard as boys. The major reasons for this assumption as reflected in the children's responses were as follows; 1. girls are more timid and afraid of being hurt, and 2. just because that's the way things are - boys were boys and girls were girls and each sex just had different preferences. Flinchum and Hanson (1972) stated that, "there

is evidence that cultural focus on sex roles makes boys seek active and girls passive activities." (p.19)

### Behavior Data

#### Children's favorite spot to play on their school playground.

Table 12 presents the differences observed for the areas on which males and females were seen playing.

TABLE 12

#### SEX DIFFERENCES FOR CHILDREN'S FAVORITE SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND (BEHAVIOR DATA)

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Question #1 Responses	N for Responses	Males	Females	Difference
Blacktop area	200	38.0%	62.0%	24.0%
Playing field	346	73.1%	26.9%	46.2%
The total number of females = 663 and males = 708 for this question.				

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The results showed statistically significant differences, at the .01 level, in children's behaviors. (See Appendix O for Table 36) The differences occurred for the choices of blacktop and playing field. Consistent with the attitude data, the behavioral data showed that the males had a high preference for the playing field while the females had a moderate preference for the blacktop.

Children's play behaviors. The behavior category classified as children's play behaviors showed significant sex

differences for the things children do and the degree of energy used.

TABLE 13

SEX DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(BEHAVIOR DATA)

a.Question #2ai Responses	N for Responses	Male	Female	Difference
Running	340	71.2%	28.8%	42.4%
Jumping	19	31.6%	68.4%	36.8%
Throwing	26	38.5%	61.5%	23.0%
Kicking	39	97.4%	2.6%	94.8%
Hopping	24	0.0%	100.0%	100.0%
Skiping	29	6.9%	93.1%	86.2%
The total number of females = 663 and males = 708 for this question.				
b.Question #2aii Responses	N for Responses	Male	Female	Difference
Sports	161	100.0%	0.0%	100.0%
Made up games	156	27.6%	72.4%	44.7%
Special equipment	66	31.8%	68.2%	36.4%
The total number females = 663 and males = 708 for this question.				
c.Question #2c Responses	N for Responses	Male	Female	Difference
A lot of energy	691	63.4%	36.6%	26.8%
Quiet things	347	36.9%	63.1%	26.2%
The total number of females = 663 and males = 708 for this question.				

# 1. The Favorite Things Children Do

It was evident from observing male and female behavior that they had specific preferences for different activities. These differences were presented in Table 13-a. These results showed statistically significant differences at the .01 level, in children's behaviors. The males had

an outstanding preference for kicking, a high preference for running and a moderate preference for throwing and catching. On the other hand, the females exhibited an outstanding preference for hopping and skipping and a moderate preference for jumping. The remaining activities did not show at least a moderate preference by either sex. These results were similar to the attitude results.

The males and females also showed definite preferences in their choices of kinds of games. The males had an outstanding preference for sports while the females had a high preference for made up games and a moderate preference for special equipment games. (See Table 13-b). These results were comparable with the attitude results.

## 2. Degree of Energy Used.

Table 13-c presents the observational data for degree of energy used and it showed that males and females had different preferences for the degree of energy used. The results showed statistically significant differences at the .01 level, in children's behaviors. (See Appendix O for Table 36) The males exhibited a moderate preference for things that take a lot of energy while the females exhibited a moderate preference for quiet things. Again, these results were compatible with the results from the attitude data.

The results from this study showed differences in the males' and females' choices for the attitudinal components;

1. children's favorite spot,
2. children's play behaviors

and the behavior categories, 3. children's favorite spot to play and 4. children's play behaviors. However, there were numerous similarities between sexes which could be due to the fact that it is not until the third or fourth grades that many sex differences begin to appear (Sutton-Smith, 1972). As children learn to differentiate between the so-called sex roles, they begin to prefer behaviors that are accepted as appropriate for their own sex. Another reason for relative similarities on some of their choices is due to the fact that girls' interests are more indecisive than males and females become sex oriented after eight years of age. Males show their awareness of sex stereotyping at an earlier age (Hutt and Gibby, 1959).

The results for this study were similar to those found in the research of numerous play researchers such as: Hawkes and Pease (1962), Smart and Smart (1967), Rosenberg and Sutton-Smith (1963), Conn (1951) and others. Males and females do show different preferences in play. As previously stated, these researchers felt that social pressures have a strong influence in determining children's attitudes and behavior in play. This investigator set out in one of the subproblems to determine if there were sex differences among children in their play attitudes and behavior. Differences were evident and should not be overlooked or considered insignificant.

However, along with recognizing the sex differences in play, it is also important to understand why these

differences occur and if these differences should be encouraged. The investigator contends that playgrounds must provide equal play opportunities for both sexes and yet encourage children of both sexes to participate in what are considered to be play behaviors of the opposite sex. A wide range of play activities is beneficial for children. 101

#### CHILDREN'S ATTITUDES AND BEHAVIOR WHEN ENGAGED IN FREE PLAY ON THEIR SCHOOL PLAYGROUND IN RELATION TO GRADE DIFFERENCES

Children's attitudes and behaviors were considered to determine if there were grade differences in free play on school playgrounds. The investigator attempted to determine if children's play behaviors and/or their attitudes toward play varied depending upon the grade. Only those questions which exhibited significant differences were considered. There were no significant differences among grades for the following attitudinal components; 1. children's desire to play, 2. children's reasons for playing, 3. children's favorite time to play on their school playground and 4. the socialization aspect. All behavior categories showed significant differences except for the socialization aspect. When discrepancies among grades one, two and three were evident, they most often showed patterns of increasing or decreasing preference with increase in grade. This suggests that certain attitudes and behaviors change as children increase in age.

#### Attitude Data

Table 14 presents only those choices for favorite

spot that show at least a moderate preference.

TABLE 14

GRADE DIFFERENCE FOR CHILDREN'S FAVORITE SPOT TO PLAY  
ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question #5B Responses	N for Responses	Grade 1	Grade 2	Grade 3
Playing field	14	50.0%	7.1%	42.9%
Blacktop area	63	17.5%	36.5%	46.0%
Sand	15	60.0%	20.0%	20.0%
The total number of children responding to this question from grade 1=94, grade 2=88 and grade 3=96				

Children's favorite spot to play on their school playground.

There was a definite difference in children's preference for favorite spot when grade was considered. This component showed statistically significant differences, at the .01 level, in children's preferences (See Appendix O for Table 37). The popularity of the blacktop area increased with increase in grades. The playing field also showed a difference for grades with grades one and three closely agreeing but with the grade twos having much less interest in this area. Sand was not one of the choices given on the questionnaire-interview, but it was mentioned by a few of the children as an other choice. The grade one children mentioned sand more often than the grade twos and threes. The equipment area which was most popular, showed consistency of results for all grades.

Children's play behaviors. The attitudinal component



classified as children's play behaviors showed significant grade differences for the favorite things children do and the degree of energy used. These results are presented in Table 15.

TABLE 15

GRADE DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(ATTITUDE DATA)

Question #7 Responses	N for Responses	Grade 1	Grade 2	Grade 3
Jumping	11	54.5%	27.3%	18.2%
Throwing	10	0.0%	30.0%	70.0%
Kicking	19	21.1%	36.8%	42.1%
Running	130	25.4%	35.4%	39.2%
Climbing	27	14.8%	33.3%	51.9%
Hopping	7	0.0%	28.6%	71.4%
Skipping	12	16.7%	66.7%	16.7%
Making things	25	44.0%	28.0%	28.0%
Sliding	39	46.2%	33.3%	20.5%
Swinging	51	47.1%	27.5%	25.5%
The total number of children responding to this question from grade 1=108, grade 2=114 and grade 3=117.				
Question #7Why Responses	N for Responses	Grade 1	Grade 2	Grade 3
Fun	73	49.3%	27.4%	23.3%
Like it	25	28.0%	32.0%	40.0%
Can play games	55	14.5%	36.4%	49.1%
Good facilities	17	47.1%	29.4%	23.5%
The total number of children responding to this question from grade 1=101, grade 2=106 and grade 3=101.				

Question #8: Responses	N for Responses	Grade 1	Grade 2	Grade 3
Sports	61	16.4%	36.1%	47.5%
Make things	51	54.9%	29.4%	15.7%
Special equip- ment	14	35.7%	42.9%	21.4%

The total number of children responding to this question from grade 1=101, grade 2=106 and grade 3=101.

Question #6B Responses	N for Responses	Grade 1	Grade 2	Grade 3
A lot of energy	159	25.8%	33.3%	40.9%
Some energy	55	16.4%	34.5%	49.1%
Quiet things	125	46.4%	33.6%	20.0%

The total number of children responding to this question from grade 1=108, grade 2=114 and grade 3=117.

### 1. The Favorite Things Children Do

Differences among grades one, two and three for specific activities were recorded. This showed statistically significant differences, at the .01 level in children's preferences (See Appendix O for Table 37). The differences either increased or decreased with increases in grade. It may be that children chose specific behaviors suitable for the stage of growth they were presently in.

Such activities as throwing and catching, kicking, running, climbing and hopping increased in popularity as grades increased. These results further substantiated research by Smart and Smart (1967). They discovered that, "children's interest in running and climbing increases steadily from six to nine." (p.239) Jumping, making things, sliding and swinging decreased in popularity with increases in grade. The grades one and three children similarly showed little interest in skipping while the

grade two children were slightly more interested in it.

(See Table 15-a)

The difference in behaviors was not sporadic but rather showed definite patterns in relation to grade increase. Specific activities extremely important to the youngest children i.e. jumping, making things, sliding and swinging became less important with older children and activities which were of little interest to the youngest children i.e. throwing and catching, kicking, running, climbing, hopping and skipping became increasingly more popular as children matured. (See Table 15-a)

The grades differed in their reasons as to why they chose their favorite activity. This showed statistically significant differences, at the .01 level, in children's preferences. (See Appendix O for Table 37)

The choices of 1. fun and 2. because there are facilities to do the activity, decreased in popularity with increases in grade. The choices of 1. because they like the activity and 2. the activity can be used in games increased with increases in grade. The younger children were more likely to choose an activity because it was fun and there were good facilities whereas the older children were more likely to choose an activity because they liked it and they could use it in games. Playing games was also more popular with the older children for their choices of kinds of games. Older children preferred sports.

It was evident from Table 15-c that the three grades had definite preferences in their choices of kinds of games.

This aspect showed statistically significant differences at .01 level in children's preferences. (See Appendix O for Table 37) The three choices which caused this discrepancy among grades were; sports, activities where the child can build or make different things from sand, paper, and other materials and special equipment games. Sports increased in popularity with increases in grade. Sports most often require a high degree of energy and the patterns for both choices are compatible. Making things, a quiet activity, decreased in popularity with increases in grade. Again, these two choices had compatible results. For special equipment games, the grades one and two children had similar responses while the grade threes showed less interest in them. The other choices for kinds of games did not show any major differences for the variable grade.

## 2. The Degree of Energy Used

Degree of energy was another attitudinal component where grades differed in their responses. Table 15-d presented these results. The results showed statistically significant differences, at the .01 level, in children's preferences. (See Appendix O for Table 37) Things that take a lot of energy and some energy became more popular with the children as grades increased. The reverse occurred for quiet things. The results from the other questions dealing with attitudes toward play behaviors helped explain the reasons for the differences in degree of energy. The preferences for activities may have been strongly affected by the amount of energy necessary to perform

specific activities. Most often, the activities and kinds of games preferred by the older children required a lot of energy while those preferred by the younger children required less energy.

The type of equipment children used on their school playground. Table 16 presents the grade differences for the attitudinal component considering children's preferences for equipment.

TABLE 16

GRADE DIFFERENCES FOR THE TYPE OF EQUIPMENT CHILDREN  
USE ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question #10A Responses	N for Responses	Grade 1	Grade 2	Grade 3
NO	125	31.2%	24.8%	44.0%
The total number of children responding to this question from grade 1=108, grade 2=114 and grade 3=117.				

The results showed that grades one, two and three children in this study had similar attitudes toward the type of equipment they used on their school playground. The only question that showed statistically significant differences, at the .01 level, in children's preferences was the question which asked if they wanted more things to play on or with in their school playground. The grade three children responded negatively most often.

Behavior Data

Children's favorite spot to play on their school playground. Grades one, two and three were observed on the school playground with the result that they had definite differences in their preferences for play areas. These results are presented in Table 17.

TABLE 17

GRADE DIFFERENCES FOR CHILDREN'S FAVORITE SPOT TO PLAY  
ON THEIR SCHOOL PLAYGROUND (BEHAVIOR DATA)

Question #1 Responses	N for Responses	Grade 1	Grade 2	Grade 3
Playing field	200	31.5%	16.5%	52.0%
Blacktop area	346	28.9%	27.7%	43.4%
The total number of children responding to this question from grade 1=437, grade 2=443 and grade 3=491.				

This behavioral category showed statistically significant differences at the .01 level, in children's behaviors (See Appendix O for Table 37). The differences occurred for the choices of playing field and blacktop area. Generally consistent with the attitude data, the behavioral data showed that there was a tendency for increased interest in the blacktop area with increase in grade. Although there was also a similar tendency for the playing field, the grade two children showed less interest than the grade one children.

TABLE 18

GRADE DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(BEHAVIOR DATA)

a.Question #2ai Responses	N For Responses	Grade 1	Grade 2	Grade 3
Jumping	19	0.0%	21.0%	79.0%
Throwing	26	19.2%	7.7%	73.1%
Kicking	39	7.7%	30.8%	61.5%
Running	340	26.2%	27.0%	46.8%
Climbing	215	31.6%	40.9%	27.4%
Hopping	24	37.5%	0.0%	62.5%
Skipping	29	55.2%	37.9%	6.9%
Making things	149	44.3%	34.9%	20.8%
Sliding	183	35.0%	34.4%	30.6%
Swinging	239	32.6%	35.6%	31.8%

The total number of children responding to this question from grade 1=437, grade 2=443 and grade 3=491.

b.Question #2aii Responses	N for Responses	Grade 1	Grade 2	Grade 3
Sports	161	4.3%	13.7%	82.0%
Make things	134	46.3%	32.8%	20.9%

The total number of children responding to this question from grade 1=437, grade 2=443 and grade 3=491.

c.Question #2c Responses	N for Responses	Grade 1	Grade 2	Grade 3
A lot of energy	691	27.5%	31.2%	41.2%
Some energy	333	31.5%	32.3%	36.0%
Quiet things	347	40.9%	34.3%	24.8%

The total number of children responding to this question from grade 1=437, grade 2=443 and grade 3=491.

Children's play behaviors. The behavior category classified as children's play behavior showed significant grade differences for the things children do and the degree of energy used. Table 18 presents these differences.

## 1. The Favorite Things Children Do

By observing behavior it was evident that grades had specific preferences for activities. These results showed statistically significant differences, at the .01 level, in children's behavior. (See Appendix O for Table 37) Such activities as jumping, kicking and running became more popular as grades increased with a similar tendency for throwing and catching, climbing and hopping. Skipping, making things and sliding decreased in popularity with increase in grade. There was no difference for swinging. These results were basically comparable with the attitude results.

The grades also showed definite preferences in their behavior for kinds of games. These results showed statistically significant differences at the .01 level, in children's behaviors. (See Appendix O for Table 37) The two choices which caused this discrepancy among grades were; sports and activities where the child can build or make things from sand, paper and other materials. As with the attitude results, sports increased in percentage frequency with increases in grade and making things decreased in percentage frequency with increases in grade.

## 2. Degree of Energy Used

The behavioral data showed that the three grades had different preferences for the degree of energy used. The results showed statistically significant differences at the .01 level in children's behaviors. (See Appendix O for Table 37) A lot of energy and some energy increased



in percentage frequency with increases in grade and quiet things decreased in percentage frequency for increases in grade. These results followed the same patterns as with the attitude results.

The results from this study exhibited grade differences in children's attitudes and behavior. It is evident that many play attitudes and behaviors of children from grades one through to three correspond, yet differences do exist and these should not be ignored. Children's preferences should be recognized and measures taken to assure that their needs are met within each grade. The assumption cannot be made that children from grades one to three require and incline toward the same interests in play behaviors. Patterns illustrating changing preferences in play choices are already beginning to appear even within the first three grades of elementary school.

#### CHILDREN'S ATTITUDES AND BEHAVIOR WHEN ENGAGED IN FREE PLAY ON THEIR SCHOOL PLAYGROUND IN RELATION TO SCHOOL DIFFERENCES

Children's attitudes and behaviors were considered to determine if there were differences in the area of free play on school playgrounds when considering the variable of school. The investigator hoped to determine if children's attitudes toward play and/or their preferences for particular play behaviors were affected by their school. Only those questions which exhibited significant differences were considered. There were no significant differences for the attitudinal components, children's desire to play, children's

reasons for playing, children's favorite time to play on their school playground, the socialization aspect and the degree of energy used. There were no significant differences among schools for the behavior categories, the socialization aspect and the degree of energy used.

The investigator did not expect many significant differences for this variable since the schools were chosen on their similarity with one another. Further investigation and analysis was necessary to determine why there were discrepancies.

An apparent cause for much of the discrepancy was the imbalance in numbers of males and females in each grade within each school. Ideally, there should have been equal or nearly equal number of males and females per grade per school. To prevent the inequalities in numbers of children affecting the school results, the data was analysed on the basis of sex within each grade by school. These analyses were not affected by the imbalance.

#### Attitude Data

Children's play behaviors. The attitudinal component classified as children's play behaviors showed significant school differences for the favorite things children do. These differences were presented in Table 19.

TABLE 19

SCHOOL DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(ATTITUDE DATA)

Question #8	N for	Grauer	Errington	Bridge Lee	Woodward	
Responses	Res- ponses					
<hr/>						
Grade 2 females						
games you make up	20	50.0%	25.0%	10.0%	15.0%	0.0%
build things	7	0.0%	0.0%	42.9%	0.0%	57.1%
Grade 3 males						
sports	25	0.0%	24.0%	20.0%	12.0%	44.0%
tag	20	20.0%	10.0%	15.0%	50.0%	5.0%
The total number of females=60 and males = 63 for this question.						

### 1. The Favorite Things Children Do

Differences between schools for specific kinds of games were recorded. The results showed statistically significant differences, at the .01 level (See Appendix O for Table 38), for the grade two females and grade three males preferences for kinds of games. The females differed for the choices; games you make up and activities where you build or make things. The males differed for the choices; sports and tag and chasing games.

The type of equipment children use on their school play-ground. Table 20 presents the difference between schools for the question related to the things children use most often on their school playground.

TABLE 20

SCHOOL DIFFERENCES FOR THE TYPE OF EQUIPMENT CHILDREN USE  
ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question #9 Responses	N for Res- ponses	Grauer	Errington	Bridge Lee	Woodward
Grade 3 males					
things to spin around on	12	8.3%	66.7%	8.3%	8.3%
things to climb	14	14.3%	0.0%	21.4%	42.9%
The total number of males = 63 for this question.					

This showed statistically significant differences, at the .01 level (See Appendix O for Table 38) for grade three males. These males differed for the choices of things to spin around on and things to climb.

When considering the number of comparisons for the analysis of males and females in each grade within each school, the three differences observed in this study are relatively insignificant.

#### Behavior Data

#### Children's favorite spot to play on their school playground.

Table 21 presents the differences among schools for the behavior category classified as children's favorite spot to play on their school playground.

TABLE 21

SCHOOL DIFFERENCES FOR CHILDREN'S FAVORITE SPOT TO  
PLAY ON THEIR SCHOOL PLAYGROUND (BEHAVIOR DATA)

Question #1 Responses	N for Res- ponses	Grauer	Errington	Bridge Lee	Woodward	
Blacktop area	200	9.7%	18.0%	13.2%	22.4%	9.8%
Playing field	346	26.2%	32.0%	14.7%	27.6%	25.2%
Equipment area	825	64.1%	50.0%	72.1%	49.3%	65.0%
The total number of children responding to this question from Grauer=290, Errington=278, Bridge=265, Lee=272 and Woodward=266.						

The results showed statistically significant differences, at the .01 level in children's behaviors. (See Appendix O for Table 38) The differences occurred for the blacktop area, playing field and equipment area.

Children's play behaviors. The behavior category classified as children's play behaviors showed significant school differences for the favorite things children do. Table 22 presents these differences.

TABLE 22

SCHOOL DIFFERENCES FOR CHILDREN'S PLAY BEHAVIORS  
(BEHAVIOR DATA)

Question #2a	N for Responses	Grauer Res- ponses	Errington	Bridge	Lee	Woodward
Running	340	24.1%	29.8%	20.4%	28.7%	20.7%
Jumping	19	.7%	4.3%	0.0%	1.8%	0.0%
Throwing and catching	26	0.0%	1.8%	.4%	7.0%	.4%
Kicking	39	3.4%	2.5%	0.0%	2.2%	6.0%
Climbing	215	14.8%	11.9%	18.1%	18.0%	15.4%
Hopping	27	0.0%	6.5%	1.5%	1.8%	0.0%
Skipping	29	0.0%	0.0%	0.0%	4.0%	6.8%
Making things	146	14.5%	5.0%	15.8%	7.4%	10.5%
Sliding	183	12.8%	12.6%	17.4%	7.0%	17.3%
Swinging	239	17.2%	17.6%	18.5%	15.8%	18.0%
Other	108	12.4%	7.9%	7.9%	6.2%	4.5%

N=1371

The total number of children responding to this question from Grauer=290, Errington=278, Bridge=265, Lee=272 and Woodward =266.

Question #2a	N for Responses	Grauer Res- ponses	Errington	Bridge	Lee	Woodward
Sports	161	10.0%	6.8%	9.8%	16.9%	15.4%
Tag and chasing	204	16.9%	20.9%	11.7%	12.9%	11.6%
Games you make up	156	13.4%	19.8%	8.3%	9.6%	5.3%
Special equipment	66	1.0%	4.3%	0.0%	11.8%	7.1%
Games on equipment	648	45.2%	43.2%	55.5%	41.5%	51.5%
Build things	136	13.4%	5.0%	14.7%	7.4%	9.0%

N=1371

The total number of children responding to this question from Grauer=290, Errington=278, Bridge=265, Lee=272 and Woodward =266.

## 1. The Favorite Things Children Do

Differences between schools for activities and kinds of games were recorded. Both aspects showed statistically significant differences, at the .01 level, in children's behaviors. (See Appendix O for Table 38) The differences did not seem to occur in any particular choices but rather throughout all choices.

The percentage agreements among the schools with the lowest and highest percentages for the three differences, exhibited good and high percentage agreement. Therefore, there were no major discrepancies in school comparisons even though discrepancies were evident. The discrepancies among schools did not seem to present any type of pattern, with any particular schools showing more disagreements than the others. However, there was a tendency for one school to have slightly more discrepancies while another school had slightly fewer discrepancies than the remaining schools.

The investigator found it difficult to account for the significant differences that occurred. They may have been the outcome of not having the schools more similar. However, the playgrounds were almost identical, the schools were all within the same School Board thus they would generally follow the same principles, and the schools chosen were from similar socio-economic groups. It would have been extremely difficult to have chosen five schools even more similar than those used for this study.

A few obvious differences between schools were noted and may have affected the results. On the average, one school had the least number of children per class while another had the largest sized classes. The differences in numbers of children may have affected children's preferences while playing on the playground. Children in the larger classes may not have been able to select their favorite choices as often as those in smaller classes due to the types of facilities and the numbers they can accommodate. Also, the attitudes of the teachers and principals within each school are likely to differ on their interests towards play and on their basic objectives. It was impossible to prevent these differences from potentially affecting the results of this study.

Further research is necessary before the investigator could state that specific factors were definitely the cause of the significant differences for the variable of school. However, further consideration of the size of school playgrounds and the type of playground equipment in light of the school enrolment is recommended. Basically, there were few differences in the area of free play on school playground when considering the variable of school.

CHILDREN'S ATTITUDES AND BEHAVIOR WHEN ENGAGED IN FREE  
PLAY ON THEIR SCHOOL PLAYGROUND IN RELATION TO SEX  
DIFFERENCES WITHIN EACH GRADE

Children's attitudes and behaviors were considered to determine if there were differences in the area of free play on school playgrounds when considering the variable of sex



within each grade. The investigator attempted to determine if children's attitudes toward play and/or their preferences for particular play behaviors were affected by the sex of the child within each grade. Only those questions which exhibited significant differences were considered. There were no significant differences between sexes within each grade for the attitudinal components; children's desire to play, children's reasons for playing, children's favorite time to play on their school playground and the socialization aspect. All behavioral categories showed significant differences except for the socialization aspect.

#### Attitude Data

##### Children's favorite spot to play on their school playground.

There was a slight difference in children's preference for favorite spot when sex within each grade was considered.

Table 23 presents these.

TABLE 23

#### SEX DIFFERENCES WITHIN EACH GRADE FOR CHILDREN'S FAVORITE SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question #5B Responses	N for Responses	Males	Females	Difference
Grade 3:				
Playing field	29	72.4%	27.6%	44.8%
The total number of females = 45 and males = 51.				

This attitudinal component showed statistically significant differences at the .01 level, in children's preferences. (See Appendix O for Table 39) All choices had similar results except for the playing field for the grade threes. The males showed a moderate preference for the playing field.

Children's play behaviors. The attitudinal component classified as children's play behaviors was statistically significant for the favorite things children do and the degree of energy used. Table 24 presents these differences.

#### 1. The Favorite Things Children Do

Table 24-a presents the differences between the males and females in grade two for the aspect of favorite activities. This aspect showed statistically significant differences at the .01 level, in children's preferences. (See Appendix O Table 39) The males exhibited an outstanding preference for kicking and the females showed an outstanding preference for skipping and a moderate preference for sliding. All other choices showed similar results.

Differences between the males and females in grade one, two and three were evident for the aspect of favorite kinds of games. This was presented in Table 24-b and showed statistically significant differences at the .01 level (See Appendix O for Table 39) for grades one, two and three. For the grade one comparison, the males showed a high preference for sports and a moderate preference for tag. The females showed a moderate preference for games you

make up and activities where you can build or make things. For the grade two comparison, the males exhibited an outstanding preference for sports and the females showed an outstanding preference for special equipment and a high preference for games you make up. For the grade three comparison, the males showed an outstanding preference for sports and the females showed a moderate preference for games you make up.

## 2. The Degree of Energy Used

Table 24-c presents the differences between the males and females in grades two and three for the degree of energy used. This aspect showed statistically significant differences at the .01 level, in children's preferences. (See Appendix O for Table 39) For the grade two children, the males exhibited a moderate preference for a lot of energy activities and the females exhibited a moderate preference for some energy activities and quiet things. For the grade three children, the males exhibited a moderate preference for a lot of energy and the females exhibited a moderate preference for quiet things. Hawkes and Pease (1962) recognized this difference in degree of energy expenditure. They wrote:

Beginning at age five or six boys show an increasing superiority in sustained energy output and muscular strength, which may correspond to their preference for active play. Girls' preference is for quieter pursuits. (p.115)

TABLE 24

SEX DIFFERENCES WITHIN EACH GRADE FOR CHILDREN'S  
PLAY BEHAVIORS (ATTITUDE DATA)

a.Question #7 Responses	N for Responses	Males	Females	Difference
Grade 2:				
Kicking	7	100.0%	0.0%	100.0%
Skipping	8	0.0%	100.0%	100.0%
Sliding	13	38.5%	61.5%	23.0%
The total number of females=60 and males=54.				
b.Question #8 Responses	N for Responses	Males	Females	Difference
Grade 1:				
Sports	10	80.0%	20.0%	60.0%
Tag	34	64.7%	35.3%	29.4%
Games you make up	24	33.3%	66.7%	33.4%
Make things	28	28.6%	71.4%	42.8%
The total number of females=56 and males=52.				
Grade 2:				
Sports	22	90.9%	9.1%	81.8%
Games you make up	27	25.9%	74.1%	48.2%
Special equipment	6	0.0%	100.0%	100.0%
The total number of females=60 and males=54.				
Grade 3:				
Sports	29	86.2%	13.8%	72.4%
Games you make up	24	37.5%	62.5%	25.0%
The total number of females=54 and males=63.				
c.Question #6B Responses	N for Responses	Males	Females	Difference
Grade 2:				
A lot of energy	53	66.0%	34.0%	32.0%
Some energy	19	31.6%	68.4%	36.8%
Quiet things	42	31.0%	69.0%	38.0%
The total number of females=60 and males=54.				
Grade 3:				
A lot of energy	65	66.2%	33.8%	32.4%
Quiet things	25	32.0%	68.0%	36.0%
The total number of females=54 and males=63.				

The type of equipment children use on their school playground. The males and females within each grade had similar attitudes toward the type of equipment they use on their school playground. Table 25 presents the only question which showed discrepancies. This question asked if the children wanted more things to play on or with in their school playground.

TABLE 25

SEX DIFFERENCES WITHIN EACH GRADE FOR THE TYPE OF EQUIPMENT CHILDREN USED ON THEIR SCHOOL PLAYGROUND (ATTITUDE DATA)

Question #10A Responses	N for Responses	Males	Females	Difference
Grade 2:				
No	31	22.5%	77.4%	54.8%
The total number of females=60 and males=54.				

This attitudinal component showed statistically significant differences, at the .01 level, in children's preferences. The grade two females had a high preference for the negative response.

#### Behavior Data

Children's favorite spot to play on their school playground. Table 26 presents the differences for favorite spot when the variable of sex within each grade was considered. Table 26 showed males and females within each grade to have definite differences in their preference for play areas.

TABLE 26

SEX DIFFERENCES WITHIN EACH GRADE FOR CHILDREN'S FAVORITE  
SPOT TO PLAY ON THEIR SCHOOL PLAYGROUND (BEHAVIOR DATA)

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Question #1 Responses	N for Responses	Males	Females	Difference
Grade 1:				
Blacktop	63	19.0%	81.0%	62.0%
Playing field	100	60.0%	40.0%	20.0%
The total number of females=56 and males=52.				
Grade 2:				
Blacktop	33	33.3%	66.7%	33.4%
Playing field	96	67.7%	32.3%	35.4%
The total number of females=60 and males=54.				
Grade 3:				
Playing field	150	85.3%	14.7%	70.6%
Equipment area	237	37.6%	62.4%	24.8%
The total number of females=54 and males=63.				

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This behavioral category showed statistically significant differences at the .01 level in children's behaviors. (See Appendix O for Table 39) For the grade one comparison, the males showed a moderate preference for the playing field while the females showed an outstanding preference for the blacktop area. The grade two males and females showed moderate preference for the playing field and blacktop area respectively. The grade three males showed an outstanding preference for the playing field and the females showed a moderate preference for the equipment area.

Children's play behaviors. Table 27 presents grade differences for the behavior category classified as children's play behaviors.

TABLE 27

SEX DIFFERENCES WITHIN EACH GRADE FOR CHILDREN'S  
PLAY BEHAVIORS (BEHAVIOR DATA)

a.Question #2ai Responses	N for Responses	Males	Females	Difference
Grade 1:				
Running	89	64.0%	36.0%	28.0%
Climbing	68	64.7%	35.3%	29.4%
Hopping	9	0.0%	100.0%	100.0%
Skipping	16	0.0%	100.0%	100.0%
Sliding	64	67.2%	32.8%	34.4%

The total number of females =219 and males =218.

Grade 2:				
Kicking	12	91.7%	8.3%	83.4%
Skipping	11	18.2%	81.8%	63.6%
Sliding				
Making things	52	32.7%	67.3%	34.6%
Running	92	63.0%	37.0%	26.0%

The total number of females =223 and males =220.

Grade 3:				
Running	159	79.9%	20.1%	59.8%
Jumping	15	40.0%	60.0%	20.0%
Kicking	24	100.0%	0.0%	100.0%
Climbing	59	39.0%	61.0%	22.0%
Hopping	15	0.0%	100.0%	100.0%
Swinging	76	36.8%	63.2%	26.4%

The total number of females =221 and males =270.

b.Question #2aii Responses	N for Responses	Males	Females	Difference
Grade 1:				
Sports	7	100.0%	0.0%	100.0%
Tag	78	60.2%	39.8%	20.4%
Games you make up	52	13.5%	86.5%	73.0%
Special equipment	25	20.0%	80.0%	60.0%

The total number of females =219 and males =218.

TABLE 27 (continued)

	N for Responses	Males	Females	Difference
Grade 2:				
Sports	22	100.0%	0.0%	100.0%
Games you make up	43	32.6%	67.4%	34.8%
Special equipment	20	40.0%	60.0%	20.0%
Make things	44	31.8%	68.2%	36.4%

The total number of females =223 and males =220.

Grade 3:				
Sports	132	100.0%	0.0%	100.0%
Tag	49	36.7%	63.3%	26.6%
Games you make up	63	34.9%	65.1%	30.2%
Special equipment	21	38.1%	61.9%	23.8%
Games on equip- ment	198	39.9%	60.1%	20.2%
Make things	28	39.3%	60.7%	21.4%

The total number of females =221 and males =270.

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c.Question #2C	N for Responses	Males	Females	Difference
Grade 2:				
Quiet things	119	38.6%	61.4%	22.8%
The total number of females =223 and males =220.				

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### 1. The Favorite Things Children Do

All sex differences within each grade for children's play behaviors were presented in Table 27. By observing male and female behavior within each grade, it was evident that males and females have specific preferences for activities. These results showed statistically significant differences at the .01 level, in children's behaviors.

(See Appendix O for Table 39) For the grade one comparison, the males had a moderate preference for running, climbing and sliding while the females had an outstanding preference for hopping and skipping.



The grade two comparison exhibited an outstanding preference for kicking and a moderate preference for running for the males and an outstanding preference for skipping and a moderate preference for making things for the females. The grade three comparison exhibited an outstanding preference for kicking and a high preference for running for the males and an outstanding preference for hopping and a moderate preference for jumping, climbing and swinging for the females.

Again, the males and females within each grade showed definite preferences in their choices of kinds of games. These results showed statistically significant differences at the .01 level, in children's behaviors. (See Appendix O for Table 39) For each of the grades the males showed an outstanding preference for sports. The grade one males showed a moderate preference for tag while the females showed an outstanding preference for games you make up and special equipment games. The grade two females showed moderate preferences for games you make up, special equipment games and activities where you can build or make things. The grade three females showed moderate preferences for tag, games you make up, special equipment games, games on the school playground equipment and activities where you can build or make things.

## 2.The Degree Of Energy Used

The observational data showed a difference for the grade two comparison. It showed statistically significant difference at the .01 level, in children's behaviors (See

Appendix O for Table 39). The females showed a moderate preference for quiet things.

Before many statements related to differences in attitudes of males and females within each of the three grades should be made, more research is needed. Larger numbers of children within each grade are necessary. However, it is important to note that more discrepancies occurred at the grade two level. Also, the differences which occurred for each of the grades generally followed the patterns evident in the results for the sex comparisons. It was difficult to determine why this resulted, but it was possible that the grade two children were in the beginning of the transitional stage when sex roles were questioned or for some reason they had more pressures. Comments by play researchers on these pressures may be of help in clarifying the question of differences.

Hamburg (1973) wrote:

Many subtle as well as obvious pressures are placed on children to produce such differences. Sex-typing precedes and is a part of identification, and results from a pattern of rewards and punishments administered by parents, teachers, older brothers and sisters, and playmates. (p.330)

Kohlberg (1966) wrote:

All children become aware of body differences, are exposed to basic gender labeling, and perceive certain salient differences in males and females roles inside and outside the family. In large part, individual differences in children's sex-role attitudes reflect variations in the development of these concepts, variations due to differences in age, general intelligence, and experiences stimulating development of sex-role concepts. (p. 155)

The rate at which the child develops determines the formation of his attitudes toward sex-roles.

This study discovered evidence of differences between sexes within each grade. Before the specific differences should be emphasized, a larger sample per choice is necessary. It was difficult to make many assumptions since the values of N for several choices were small. However, there is the likelihood that males and females within grades one, two and three do have separate preferences in their play attitudes and behavior, and the educational system should recognize this.

Hawkes and Pease (1962) wrote:

The characteristics of children's play changes with age and maturation. It is usually energetic, active, noisy and closely related to the development of motor skills. (p.91)

## CHAPTER V

### SUMMARY AND CONCLUSIONS

#### PURPOSE

This investigation studied children's attitudes toward play and their play behavior when engaging in free play on their school playgrounds. Subproblems of this study attempted to determine if there were differences in free play on school playgrounds when considering the variables of sex, grade, school and sex within each grade. In addition the compatibility of the questionnaire-interview technique with the observed behavior technique as measures of play attitudes and behaviors respectively, was assessed.

#### RESEARCH METHODOLOGY

Three hundred and thirty-nine grade one, two and three children served as subjects for this study. All subjects were from five elementary schools within the Richmond School District, Richmond, British Columbia. Two techniques were utilized for data collection; 1. a questionnaire-interview, and 2. observations. Three classes per school were interviewed and observed. Four days in each school were required for data collection. Thus a total of twenty days was needed to complete the data collection aspect of the study. Six additional days were needed to test the reliability of the questionnaire-interview.

Each child was interviewed on a one-to-one basis.

It took approximately ten minutes per child to complete the questionnaire-interview with the investigator recording the responses. This technique assessed the following attitudinal components:

1. Children's desire to play.
2. Children's reasons for playing.
3. Children's favorite time to play on their school playground.
4. Children's favorite spot to play on their school playground.
5. Children's play behaviors, specifically:
  - a. The favorite things children do.
  - b. The socialization aspect; whether children play alone, with children their own age, with children younger than themselves or with children older than themselves.
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.
6. The types of equipment children use on their school playground.

The observations took place during two separate half hour free play sessions per class. Over the half-hour period, the investigator observed each of the three play areas; 1. equipment area, 2. blacktop area and 3. playing field, for

ten minutes per area broken down into two separate five minute observational sessions. There was a total of six complete observations over the half hour period. The observations assessed selected behavioral aspects of the questionnaire-interview, that is;

1. The children's favorite spot to play on their school playground.
2. The children's play behaviors, specifically;
  - a. The favorite things children do.
  - b. The socialization aspect; whether children play alone or in groups.
  - c. The degree of energy used by the children; whether they did activities that took a lot of energy, took some energy or they engaged in quiet things.

Frequency distributions were determined for the total responses to the questions and the overall observations. Chi square values were calculated to determine if there were differences among children in their preferences of choices for particular questions in the area of play attitudes and behavior when engaging in free play on their school playgrounds. In addition, chi values were determined for both the attitude and behavior results to determine if there were sex differences, grade differences, school differences and/or sex differences within each grade in play attitudes and behavior when engaging in free play on their school playgrounds.

The reliability of the questionnaire-interview technique was tested on 129 children from the total sample

population (N=339). The questionnaire-interview was administered in an identical manner to the initial set of interviews. Percentages of children who gave identical responses on the test-retest, on particular questions and particular responses within each question were determined. The compatibility of the questionnaire-interview technique with the observed behavior technique was determined either by calculating frequency percentages of the two techniques or by calculating Spearman's coefficient of rank-order correlation depending upon the comparison.

## RESULTS

The results of the investigation as determined by analysis are all statistically significant unless otherwise stated. These results were classified under the following attitudinal components and behavior categories:

### Attitudinal Components

Children's desire to play. Play was important to 100% of the children; they liked to play. Children's desire to play showed no significant differences with respect to sex, grade, school and sex within each grade.

Children's reasons for playing. Children have specific reasons why they like to play on their school playground with the most popular reasons being; 1. because there are fun things, 2. because there are opportunities for socializing, and 3. because of pleasant feelings such as happy and fun.

In addition, the reasons 1. because they could do their work better after playing and 2. because they feel better after playing, were of some importance. Children's reasons for playing showed no significant differences with respect to sex, grade, school and sex within each grade.

Children's favorite time to play on their school playground.

Children most often play on their school playground during lunch hour and recess. Children's favorite time to play on their school playground showed no significant differences with respect to sex, grade, school and sex within each grade.

Children's favorite spot to play on their school playground.

When asked if they had a favorite spot to play on their school playground, 82.0% of the children responded in the affirmative. The most popular spots in order of preference were; 1. the equipment area and 2. the playing field.

When considering sex differences, the males showed a high preference for the playing field while the females had a high preference for sand and a moderate preference for the blacktop. In addition, the following grade differences were evident. The popularity of the blacktop area increased with increases in grade. The grade one children showed more interest in the sand and both grade one and three children showed more interest in the playing field. No school differences occurred. There was a slight difference in children's preferences for favorite spot when sex within grade three was considered. The males showed a moderate preference for the playing field.



Children's play behaviors. The attitudinal component classified as children's play behaviors was subdivided into; the favorite things children do, the socialization aspect and the degree of energy used.

1. The Favorite Things Children Do

Running was the most popular activity followed by swinging, sliding, climbing, and making things. The children liked their particular favorite activity mainly because it was either a. fun, b. the activity could be used in a game or c. it's healthy to engage in the activity. A preference for tag and chasing games was evident followed by games you or your friends make up and sports.

Both sexes showed definite preferences for particular activities and kinds of games. The males had an outstanding preference for kicking and a moderate preference for climbing and throwing and catching. The females exhibited an outstanding preference for hopping and skipping, and a high preference for making things. The females chose fun more often as the reason why they chose their favorite activity while the males chose the activity because they could use it in a game.

Definite preferences for particular activities and kinds of games were evident for the variable grade. The preferences either increased or decreased with increase in grade. The grades differed in their reasons as to why they chose their favorite activities. The choices of fun and because there are facilities to do the activity seemed to

decrease in popularity with increases in grade while the choices of because they like the activity and the activity can be used in games increased as a function of grade. No school differences occurred for this attitudinal component. Sex differences within grade two occurred.

## 2. The Socialization Aspect

Children need the play experience because it provided an opportunity to be with their friends and to make new friends. Children preferred to be in groups and most often groups of children their own age. The socialization aspect showed no significant differences with respect to sex, grade, school and sex within each grade.

## 3. The Degree of Energy Used

Children require opportunities to perform behaviors which include expenditure of all degrees of energy although they preferred high energy activities.

In considering sex differences, the males exhibited a moderate preference for high energy activities while the females exhibited a moderate preference for medium and low energy activities. In addition, the following grade differences occurred. High and medium energy activities became more popular as grades increased while the reverse occurred for low energy activities. No significant school differences occurred. There were a few significant differences in children's preference for degree of energy used when sex within grades two and three was considered.

The type of equipment children use on their school play-

ground. The types of equipment used most often on the school playground in order of priority were; 1. things to go up and down on, 2. things to slide on, 3. things to spin around on, 4. things to climb and things to swing on.

No sex differences occurred. In considering grade differences, the grades had similar attitudes toward the type of equipment they used on their school playground. However, the grade one and two children wanted more things to play on or with in their school playground more so than the grade three children. School differences occurred although there were no major discrepancies. The males and females within each grade had similar attitudes toward the type of equipment they use on their school playground. However, a difference between sexes for the question asking if the children wanted more things to play on or with in their school playground occurred for grade two. The females had a high preference for the negative response.

Behavior CategoriesChildren's favorite spot to play on their school playground.

Children were observed most often on the equipment area followed by the playing field.

Males and females had definite differences in their preferences for play areas. The males had a high preference for the playing field while the females had a moderate preference for the blacktop area. In addition grade differences also occurred. There was increased interest in the blacktop

and playing field with increases in grade. School differences occurred for favorite spot although no major discrepancies were evident. The males and females within each of the three grades had differences in their choices of favorite spot. For the grade one comparison, the males showed a moderate preference for the playing field while the females showed an outstanding preference for the blacktop area. The grade two males and females showed moderate preferences for the playing field and blacktop area respectively. The grade three males showed an outstanding preference for the playing field while the females showed a moderate preference for the equipment area.

Children's play behaviors. The behavior category classified as children's play behaviors was subdivided into; the favorite things children do, the socialization aspect and the degree of energy used.

#### 1. The Favorite Things Children Do

The activities children were observed doing most often were, a. running, b. swinging, c. sliding, d. climbing and e. making things. The kinds of games children were observed doing most often were; a. games on the school playground equipment, b. tag and chasing games and c. sports.

Both sexes showed definite preferences for particular activities and kinds of games. In addition, grades were observed doing different activities and games. The differences either increased or decreased with grade increases. School

differences occurred although no major discrepancies were evident. The males and females within each of the three grades were observed doing different activities and games.

## 2. The Socialization Aspect

Children were most often observed playing in groups. The socialization aspect showed no significant differences with respect to sex, grade, school and sex within each grade.

## 3. The Degree of Energy Used

Children were most often observed expending a lot of energy. Sex differences occurred for this behavior category. The males exhibited a moderate preference for things that take a lot of energy while the females exhibited a moderate preference for quiet things. In addition, grade differences occurred. As grades increased, the children were observed doing a lot of energy and some energy activities more often. The opposite occurred for quiet things. No significant school differences occurred. Significant sex differences were evident in grade two. The females showed a moderate preference for quiet sitting things.

## CONCLUSIONS

Conclusions related to the methodology utilized in this study are as follows:

1. Children in grades one, two and three can express their attitudes on a questionnaire-interview if the questions are stated in a simple and easily comprehensive manner. (p.47)

2. The observation technique can be successfully utilized to determine selected play behaviors of children. (p.74)
3. The questionnaire-interview and observation technique can be successfully utilized to compliment one another in determining children's play behaviors. (p.82)

In addition the conclusions resulting from the attitude data and behavior data are as follows:

1. Children play on their school playground because there are fun things, they can socialize and because of pleasant feelings. (p.54)
2. The school playground is mainly used during school hours. (p.57)
3. Play on the school playground is a time for socializing Children play with friends who are generally their own age. (p.67 and 81)
4. Children stated they preferred high energy activities and were observed doing high energy activities most often. (p.85)
5. The activities children said they preferred were actually what they were seen doing. (p.86)
6. Females were more likely to choose an activity because it was fun while the males were more likely to choose an activity because they could use it in a game. (p.94)
7. The equipment children stated they used most often were comparable with the activities they said they did most often. (p.72)
8. Males use the playing field more than females while

females use the blacktop area more than males. (p.92)

9. The equipment area is used most often with both sexes and each of the three grades making equal use of it. (p.59, 76, 91, 102)

10. The males and females from grades one through to three already begin to show preferences for different play behaviors. (p.90)

11. Grades one, two and three children have different play behaviors with the differences increasing with grade increases. (p.101)

12. Males perform high energy activities more than females while females perform medium and low energy activities more than males. (p.96)

13. Medium and high energy activities increased in preference with increases in grade. (p.106)

#### RECOMMENDATIONS

1. The construction of equipment and facilities on the school playground should take children's preferences into consideration since this may result in greater participation and enjoyment of the playground by the children.

2. Increased effort should be made to listening to children and observe them in a free play environment since a greater understanding of children and play is likely to result.

3. More awareness of the potential use of the school playground as a valuable environment for children to socialize and learn about social interaction is needed.

4. Determining children's reasons for selecting their play preferences as reflected in their favorite time to play, favorite spot to play, play behaviors and the equipment children use most often may clarify why certain choices were preferred over others.

5. It would seem from the research that there is a need for further attention to the differences between males and females in their attitudes toward play and their play behaviors. However, along with the recognition of sex differences and provision for them, it is also important that children of both sexes be encouraged to participate in a variety of activities and not limit their play experiences due to sex stereotyping.

6. It would seem from this research that grade has an influence on children's attitudes toward play and play behaviors and provision should be made for these differences. This is important since most elementary schools have one playground for children from kindergarten through to grade six and assume that it is sufficient for all of them.



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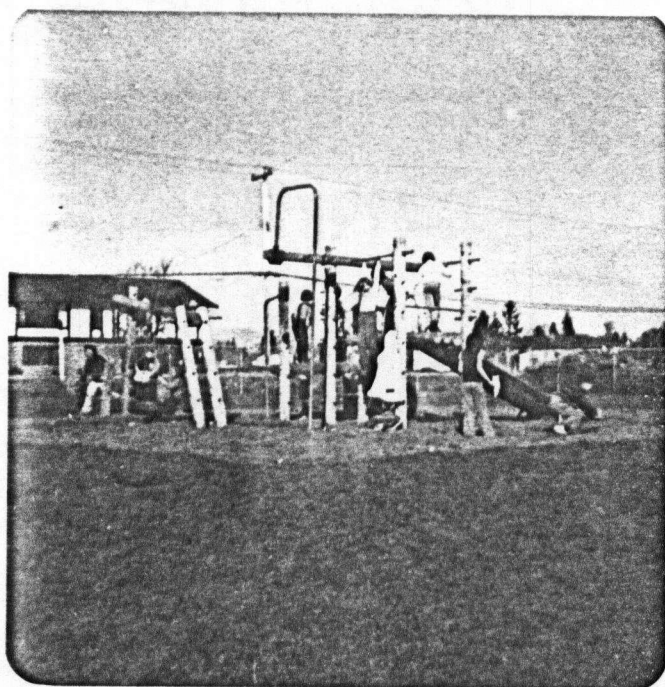
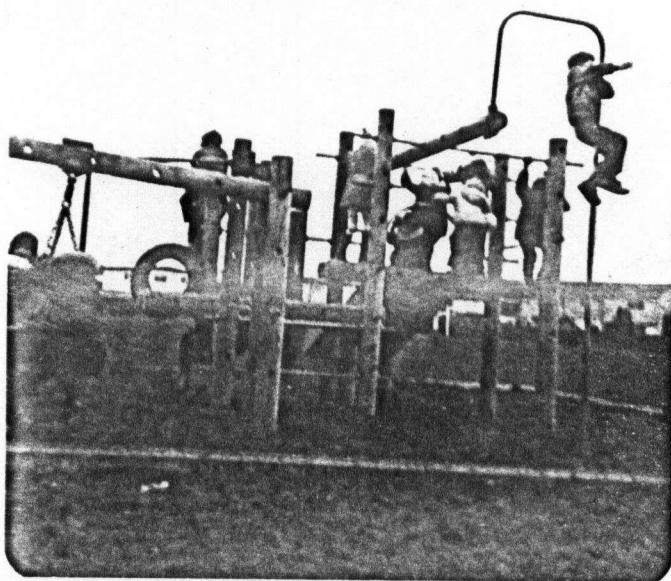
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## APPENDIX A

THE TYPE OF PLAYGROUND EQUIPMENT LOCATED  
ON THE SCHOOLS USED IN THIS STUDY





APPENDIX B  
QUESTIONNAIRE-INTERVIEW

1. Do you like to play? Yes No Don't know  
(Desire To Play)
  
2. A) Do you get any kinds of feelings when playing  
on your school playground? Yes No Don't know  
(Reasons For Playing)  
B) How does it make you feel?(LIST THREE FEELINGS)
  
3. A) Do you like to play on your school playground?  
Yes No Don't know  
(Reasons For Playing)
  - i. If yes, why? 1) because it's fun
  - 2) I can meet new kids and be with  
my friends
  - 3) I like scary feelings when  
moving fast, swinging or climbing  
high
  - 4) I like to play hard
  - 5) there are fun things (Equipment)
  - 6) I can do my school work better  
after playing
  - 7) I feel better after playing
  - 8) Other -----

(ALLOW SEVERAL  
CHOICES - FROM  
CHOICES RANK  
ORDER TOP 3)

ii) If no, why? 1) it's not fun

2) other children bother or bug me

3) I get scary feelings when moving  
fast, swinging or climbing high  
and I don't like these feelings

4) play is hard work

5) there are no fun things (Equipment)

6) I find it hard to do my school  
work after playing

7) I don't feel good after playing

8) other -----

4) When do you play most often on your school playground?

(Most Popular Time)

1. during recesses      4. after school

2. during lunch hours   5. weekends

3. before school        6. evenings (after dinner)

(RANK TOP 2 CHOICES)

5) A) Do you have a favorite spot to play on your school  
playground? Yes No Don't know (Favorite Spot)

B) If yes, what is it? 1) equipment area

2) blacktop area

3) playing field

4) other

(RANK ORDER TOP 2 CHOICES)

6. Which of the following choices do you do most often?

(Play Behaviors)

A) 1) play alone

2) play with children your own age

3) play with children younger than yourself

4) play with children older than yourself

(1 CHOICE)

B) 1) things that take a lot of energy and I feel tired  
after (High Energy Activities)

2) things that take some energy but not a lot

(Medium Energy Activities)

3) quiet sitting things (Low Energy Activities)

(1 CHOICE)

7. What things do you do most often on your school playground? (Play Behaviors)

1) running

7) skipping

2) jumping

8) making things

3) throwing and catching

9) sliding

4) kicking

10) swinging

5) climbing

11) other

6) hopping

(RANK ORDER TOP 3 CHOICES - WHY FOR FIRST CHOICE)

8. What favorite kinds of games do you do most often on your school playground? (Play Behaviors)

- 1) sports i.e. baseball, football, soccer
- 2) tag and chasing games
- 3) games you or your friends make up
- 4) games you need special equipment for i.e.  
tether ball
- 5) activities you do on your school playground  
equipment i.e. the wooden structure
- 6) activities where you can build or make different  
things from sand, paper and other materials
- 7) other -----

9. What things do you use most often on your school playground? (Equipment)

- 1) things to climb
- 2) things to swing on
- 3) things to build with
- 4) things to slide on
- 5) things to roll on or over
- 6) things to balance on
- 7) things to crawl on or over
- 8) things to spin around on
- 9) things to go up and down on
- 10) other -----

(RANK ORDER TOP 3 CHOICES - WHY FOR FIRST CHOICE)

10. A) Do you want more things to play on or with  
in your school playground? Yes No Don't Know

(Equipment)

B) If yes, what kinds of things?

(RANK ORDER TOP 2)

## APPENDIX C

TABLE 28

## QUESTIONNAIRE-INTERVIEW AND OBSERVATION SCHEDULE

SCHOOLS	QUESTIONNAIRE-INTERVIEW	OBSERVATIONS
Grauer	November 17th, 18th and 19th (1975) *Reinterview; January 14th and 15th (1976)	February 9th and March 11th (1976)
Errington	November 21st, 24th and 25th (1975) *Reinterview; January 21st and 22nd (1976)	November 20th and 27th (1975)
Bridge	November 26th and 28th, and December 1st (1975)	March 15th and 17th (1976)
Woodward	December 3rd, 9th and 10th (1975)	March 15th and 17th (1976)
Lee	December 2nd, 4th and 8th (1975)	March 12th and 17th (1976)

APPENDIX D  
BEHAVIOR ASSESSMENT TECHNIQUE

Weather  
School  
Day and Date  
Grade

Play Area	Socialization		Degree of Energy		Activities		Kinds of Games	
	Alone (A) or		High (H), Medium					
	Group (G)		(M) or Low (L)					
	Males	Females	Males	Females	Males	Females	Males	Females

## APPENDIX E

## PILOT STUDY

The pilot study used a similar methodology as in this study. 200 children from three playgrounds were interviewed individually on the topic of play on playgrounds. The investigator recorded all responses which were then placed on computer cards for analysis by;

1. responses to individual questions
2. responses in relation to sex
3. responses in relation to age
4. responses in relation to the playgrounds
5. responses in relation to sex within each age

Observations were collected on the hour throughout the day (3 days/playground) and recorded on a chart by the investigator. The observations were directed at;

1. the total number of children in the playground at a given time
2. the favorite play patterns - ranking the top three activities and giving the total number of children per activity
3. the top three play areas and the number of children at each.

When the pilot study was taking place, the investigator often asked children for their opinions of the particular questions and whether or not they understood



what was being asked. Since the interviewing was done individually, it was easier for the investigator to ask further questions as a method of checking if in fact the child was comprehending.

The pilot study was of benefit to this study due to the following reasons;

1. children aged five through to twelve were used and the children for this study ranged in ages from approximately six through to eight.
2. the investigator became accustomed to the methodology.
3. the children in the pilot study were able to express their views thus the investigator developed confidence in her approach.
4. modifications to the observational approach and the questionnaire were made to make the present study more meaningful.
5. the children interviewed helped the investigator in wording the questionnaire.
6. the investigator established a good interview approach - speak slowly, repeat each question, emphasize the key words of each question, and observe a child's facial expressions as a method of determining the child's level of comprehension.
7. the one to one approach for interviewing was found to be extremely successful.

## APPENDIX F

TABLE 29

## RELIABILITY OF THE QUESTIONNAIRE-INTERVIEW

## Key:

% no change for the question - the percentage of children who gave the same responses for the question on both interviews divided by the total # of children responding.

Most popular choices - those choices per question which were chosen most often by the children.

% no change for responses - the percentage of children who gave the same responses for the choices on both interviews divided by the total # of children who initially selected the choice

\*\*\*\* Outstanding Percentage

\*\* High Percentage

\* Low Percentage

Question #	% No Change for The Question	Most Popular Responses	% No Change For Responses
1	**** 100%	yes	****100%
2A	** 71.95%	yes	*** 76.46%
2B	25.84% correct on all three choices* 61.39% correct on at least two of three choices** 77.44% correct on at least one of three choices***	happy fun	* 55.28% ** 66.78%

3A	****	95.64%	yes	****	99.27%	161
3i.	****	91.21%	fun	****	98.96%	
			meet new kids	****	96.48%	
			scary feelings	***	76.28%	
			play hard	***	83.78%	
			fun things	****	100%	
			do school			
			work better	****	91.95%	
			feel better	****	91.05%	
3		12.62% correct	fun things	*	54.48%	
Ranking		on all three	friends	**	64.49%	
		choices*				
		59.44% correct	fun	*	55.28%	
		on at least				
		two of three				
		choices*				
		91.31% correct				
		on at least				
		one of three				
		choices****				
4		49.99% correct	lunch	***	82.81%	
		on both	recess.	**	68.18%	
		choices*				
		90.08% correct				
		on least one				
		of two				
5A	***	81.45%	yes	***	86.63%	
5B		45.98% correct	equipment	***	77.34%	
		on both	playing			
		choices*	field	**	63.73%	
		80.71% correct				
		on at least				
		one of two				
		choices***				
6A	**	70.27%	children	***	88.02%	
			your own			
			age			
6B	**	68.90%	a lot of	***	77.36%	
			energy			
			quiet	**	74.87%	
			things			

7	5.06% correct on* five of five choices 46.06% correct on at least four of five choices* 75.55% correct on at least three of five choices***	running swinging sliding climbing making things	** *** *** ** **	162 71.93% 78.34% 77.22% 73.04% 72.25%
7 Why?	* 43.98%	fun	*	56.00%
8	19.12% correct on top three of three* choices 76.61% correct on at least two of three choices*** 98.38% correct on at least one of three choices***	tag made up games	*** **	87.65% 72.62%
9	10.34% correct on three of three* choices 50.13% correct on at least two of three choices* 88.07% correct on at least one of three choices***	things to go up and down on things to slide on	*** **	76.89% 63.83%
9 Why?	* 48.61%	fun	*	54.17%
10A	*** 80.19%	yes	***	83.69%
10B	27.78% correct on both choices* 69.82% correct on at least one of two choices**	things to swing on	*	49.17%

## APPENDIX G

DETAILED ANALYSIS FOR THE RELIABILITY  
OF THE QUESTIONNAIRE-INTERVIEW

The reliability of each question was considered separately. Those questions with yes, no or do not know choices, that is: questions 1, 2A, 3A, 5A and 10A were analysed on a percentage basis. A total percentage of those responses that were the same both times was calculated along with the percentage "no change" for each of the choices: 1. yes, 2. no and 3. do not know. This was to show the investigator where there were discrepancies.

For questions 2B, 3B, 4, 5B, 7 and 10B, a similar method of testing the reliability was used. Since these questions required more than one response, 'no change' percentages were tabulated for consistency in all of the responses i.e. three out of three, two out of two or five out of five depending on the number of responses required. 'No change' percentages were also tabulated for consistency in some of the responses i.e. two out of three, one out of three, one out of two, four out of five, three out of five, two out of five and one out of five depending on the number of responses required. This was to give the investigator further insight into the number of children who were consistent in all of their choices for a particular question and in some of their choices. For example, in question three, if a child gave identical choices for his three favorite reasons why he likes to play on his school

playground, he would be listed as one of those in the percentage giving three of three correct answers.

Once this was done, a further method of testing the reliability by considering each choice for each question individually was helpful in determining which choices had the greatest discrepancies. Question 6A and 6B were analysed on a percentage 'no change' for the questions as a whole and then each choice was looked at separately. Since question 8 asked each child to rank order their first five choices, and there were only six choices given, a percentage of consistency or 'no change' in the first three responses for three of three, two of three and one of three choices were tabulated.

The method of analysis for testing the reliability of this questionnaire-interview, was calculated on a percentage basis. It was felt that this was most appropriate for such a questionnaire-interview because it was designed to determine the number of children responding to each of the choices and calculating those attitudes most popular to this age group.

## APPENDIX H

TABLE 30

GENERAL RESPONSES FOR QUESTIONNAIRE-  
INTERVIEW TECHNIQUE (ATTITUDE DATA)

## Key:

Absolute frequency - the number of children responding to the choice.

Adjusted frequency - the percentage of children who selected a particular choice divided by the total number of children who responded to the question.

Significance level - the significance level was obtained using chi square.

Question	Choice in Order of Preference	Absolute Frequency	Adjusted Frequency (Percent)	Significance Level
#1 Do you like to play?	yes	339 N=339	100%	.01
#2A Do you get any kinds of feelings when playing on your school playground?	yes no do not know	186 146 7 N=339	54.9% 43.1% 2.1%	No Significant Difference

#2B				
How does it make you feel? (List three choices)	happy	96	31.2%	.01
	pleasant feelings	44	14.3%	
	fun	42	13.6%	
	other	41	13.3%	
	unpleasant feelings	29	9.4%	
	good	26	8.4%	
	sad	19	6.2%	
	dizzy	11	3.6%	
	N=308			
3A				
Do you like to play on your school playground?	yes	329	97.1%	.01
	no	10	2.9%	
	N=339			
Yes, because it is fun?	yes	329	97.1%	.01
	no	9	2.7%	
	do not know	1	0.3%	
	N=339			
Yes, because I can meet new kids and be with my friends?	yes	324	95.6%	.01
	no	12	3.5%	
	do not know	3	0.9%	
	N=339			
Yes, because I like scary feelings?	yes	177	52.2%	No Significant Difference
	no	158	46.6%	
	do not know	4	1.2%	
	N=339			
Yes, because I like to play hard?	yes	205	60.5%	.01
	no	124	36.6%	
	do not know	10	2.9%	
	N=339			



#3A  
continued

Yes, be- cause there are fun things	yes	330	97.3%	.01
	no	9	2.7%	
	N=339			
Yes, be- cause I can do my school work better after playing?	yes	280	82.6%	.01
	no	53	15.6%	
	do not know	6	1.8%	
	N=339			
Yes, be- cause I feel better after playing?	yes	293	86.4%	.01
	no	42	12.4%	
	do not know	4	1.2%	
	N=339			
Yes, be- cause it provides an oppor- tunity to do things?	no	288	85.0%	.01
	yes	51	15.0%	
	N=339			
Yes, be- cause play is good for your health?	no	330	97.3%	.01
	yes	9	2.7%	
	N=339			
Yes, be- cause of other reasons?	no	309	91.2%	.01
	yes	30	8.8%	
	N=339			

#3A  
continued

Reasons why? (first rank)	fun things	88	26.1%	.01
	meet new kids	68	20.2%	
	fun	67	19.9%	
	I feel better	46	13.6%	
	provides oppor- tunities	21	6.2%	
	do school work better	18	5.3%	
	after other	11	3.3%	
	I like to play hard	8	2.4%	
	I like scary feelings	7	2.1%	
	play is good for your health	3	.9%	
		N=337		
Do not play because it is not fun?	yes	6	60.0%	no significant difference
	no	4	40.0%	
		N=10		
Do not play because other children bug me	yes	7	70.0%	.01
	no	3	30.0%	
		N=10		
Do not play because I get scary feelings?	no	7	70.0%	.01
	yes	3	30.0%	
		N=10		
Do not play because play is hard work	no	10	100%	.01
		N=10		

#3A  
continued

Do not play - no fun things	yes	6	60.0%	no signifi- cant difference
	no	4	40.0%	
		N=10		
Do not play - hard doing school work after?	yes	5	50.0%	no signifi- cant difference
	no	5	50.0%	
		N=10		
I do not feel good after playing?	no	6	60.0%	no signifi- cant difference
	yes	4	40.0%	
		N=10		
Other	yes	5	50.0%	no signifi- cant difference
	no	5	50.0%	
		N=10		
Reasons why?	other kids	6	23.1%	no signifi- cant difference
	bug me			
	no fun			
	things	6	23.1%	
	it is			
	not fun	4	15.4%	
	other	4	15.4%	
	I do not feel good after	3	11.5%	
	hard to do school work after	2	7.7%	
	get scary feelings	1	3.8%	
		N=26		

#4				
When do	lunch	154	45.6%	.01
you play	recess	86	25.4%	
most	after			
often	school	48	14.2%	
on your	weekends	36	10.7%	
school	evenings	11	3.3%	
playground?	before			
(First	school	3	.9%	
rank)		N=338		

#5A				
Do you	yes	278	82.0%	.01
have a	no	61	18.0%	
favorite		N=339		
spot to				
play on				
your				
school				
play-				
ground?				

#5B				
If yes,	equip-	171	61.5%	.01
what is	ment			
it?	playing			
(First	field	63	22.7%	
rank)	sand	15	5.4%	
	other	15	5.4%	
	blacktop	14	5.0%	
		N=278		

#6A				
Which	play with			
do you	children			
do most	your own			
often?	age	185	54.6%	.01
	children			
	older	75	22.1%	
	children			
	younger	47	13.9%	
	play alone	32	9.4%	
		N=339		

#6B				
Which do	a lot of	159	46.9%	.01
you do	energy			
most	quiet			
often?	things	125	36.9%	
	some			
	energy	55	16.2%	
		N=339		

#7				
What	running	130	38.3%	.01
things	swinging	51	15.0%	
do you	sliding	39	11.5%	
do most	climbing	27	8.0%	
often on	making			
your	things	25	7.4%	
school	kicking	19	5.6%	
playground?	skipping	12	3.5%	
(First	jumping	11	3.2%	
rank)	throwing	10	2.9%	
	other	8	2.4%	
	hopping	7	2.1%	
		N=339		

#7				
Why for	fun	73	23.7%	.01
first	other	61	19.8%	
choice?	can play			
	games	55	17.9%	
	it is			
	healthy	53	17.2%	
	I like it	25	8.1%	
	I can be			
	with my			
	friends	24	7.8%	
	there are			
	good			
	facilities	17	5.5%	
		N=308		

#8				
What	tag and			.01
favorite	chasing	114	33.6%	
kinds of	games you			
games do	make up	75	22.1%	
you most	sports	61	18.0%	
often play	build or			
on your	make things	51	15.0%	
school	games on			
playground?	equipment	24	7.1%	
(First	special			
rank)	equipment			
	games	14	4.1%	
		N=339		

#9

What things go up and			
do you use down on	59	17.6%	.01
most often slide on	56	16.7%	
on your spin around			
school on	47	14.0%	
playground? climb	43	12.8%	
(First swing on	41	12.2%	
rank) other	29	8.7%	
balance on	28	8.4%	
build with	23	6.9%	
roll on or			
over	6	1.8%	
crawl on	3	0.9%	
N=335			

#9

Whyfor fun	89	29.9%	.01
first other	68	22.8%	
choice?? like it	36	12.1%	
I get dizzy	22	7.4%	
it is ver-			
satile	22	7.4%	
I can go			
high	18	6.0%	
can play			
games	15	5.0%	
it is			
healthy	14	4.7%	
allows for			
creativity	14	4.7%	
N=298			

#10A

Do you want yes	209	61.7%
more things no	125	36.9%
to play on do not		
or with in know	5	1.5%
your school		
playground?	N=339	
(First rank)		

#10B

If yes,	other	69	21.1%	.01
what kinds	things to			
of things	swing on	68	20.8%	
	things to			
	climb	38	11.6%	
	things to			
	manipulate	35	10.7%	
	slides	33	10.1%	
	teeter-			
	totters	25	7.6%	
	things to			
	ride	25	7.6%	
	merry-go-			
	round	22	6.7%	
	forts	12	3.7%	

N=327

## APPENDIX I

TABLE 31

GENERAL RESPONSES FOR OBSERVATION TECHNIQUE  
(BEHAVIOR DATA)

## Key:

Absolute frequency - the number of children observed performing each choice.

Adjusted frequency - the percentage of children observed performing each choice divided by the number of children observed for the question.

Significance level - the significance level was obtained using chi square

OBSERVATION	CHOICE IN ORDER OF PREFERENCE	ABSOLUTE FREQUENCY	ADJUSTED FREQUENCY (PERCENT)	SIGNIFICANCE LEVEL
#1				
Favorite	equipment			
spot	area	825	60.2%	.01
	playing			
	field	346	25.2%	
	blacktop	200	14.6%	
		N=1371		



OBSERVATION	CHOICE IN ORDER OF PREFERENCE	ABSOLUTE FREQUENCY	ADJUSTED FREQUENCY (PERCENT)	SIGNIFICANCE LEVEL
#2ai				
Activities	running	340	24.8%	.01
	swinging	239	17.4%	
	climbing	215	15.7%	
	sliding	183	13.4%	
	making things	149	10.6%	
	other	108	7.9%	
	kicking	39	2.8%	
	skipping	29	2.1%	
	throwing and			
	catching	26	1.9%	
	hopping	24	1.8%	
	jumping	19	1.4%	
#2aii				
Kinds of				
Games	games on			.01
	equipment	648	47.3%	
	tag and			
	chasing	204	14.9%	
	sports	161	11.7%	
	games you			
	make up	156	11.4%	
	build or			
	make things	136	9.9%	
	special			
	equipment			
	games	66	4.8%	
#2b				
Sociali-				
zation	play in a			
	group	1286	93.8%	
	play alone	85	6.2%	
		N=1371		
#2c				
Degree of				
Energy	a lot of			.01
	energy	691	50.4%	
	quiet things	347	25.3%	
	some energy	333	24.3%	
		N=1371		

## APPENDIX J

TABLE 32

COMPARISON BETWEEN ATTITUDE DATA AND  
BEHAVIOR DATA IN RELATION TO SEXUAL DIFFERENCES

## Key:

The percentages given are the adjusted frequencies.

Obs. - the observational results (Behavior Data)

Int. - the questionnaire results (Attitude Data)

D. - the difference between results

ED<sup>2</sup> - sum of the differences squared

P - Spearman's coefficient of rank correlation

\* - unless otherwise stated, the values of N are: Obs. Int.

females 663 170  
males 708 169

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Favorite Spot									
Sex	Blacktop			Playing Field			Equipment		
	Obs.	Int.	D.	Obs.	Int.	D.	Obs.	Int.	D.
Female	18.7%	6.7%	12.0%	14.0%	12.6%	1.4%	67.3%	68.9%	1.6%
Male	10.7%	3.5%	7.2%	35.7%	32.2%	3.5%	53.5%	54.5%	1.0%

for Int. females, N=135; males, N=143

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---

Socialization						
Sex	Alone			Group		
	Obs.	Int.	D.	Obs.	Int.	D.
Female	7.8%	11.8%	4.0%	92.2%	88.2%	4.0%
Male	5.4%	7.1%	1.7%	94.6%	92.9%	1.7%

---

## Degree of Energy

Sex	Alot of Energy			Some Energy			Quiet Things		
	Obs.	Int.	D.	Obs.	Int.	D.	Obs.	Int.	D.
Female	38.2%	31.8%	6.4%	28.8%	20.0%	8.8%	33.0%	48.2%	15.2%
Male	61.9%	62.1%	.2%	20.1%	12.4%	7.7%	18.1%	25.4%	7.3%

## Activities

Responses	Males				Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D	D <sup>2</sup>
Running	1st	1st	0	0	3	1	2	4
Jumping	9th	7.5th	1.5	2.25	10	8	2	4
Throwing	8th	7.5th	.5	.25	9	9.5	-.5	.25
Kicking	7th	4th	3	9	11	11	0	0
Climbing	2nd	5th	-3	9	2	6	-4	16
Hopping	11th	10.5th	.5	.25	8	7	1	1
Skipping	10th	10.5th	-.5	.25	7	5	2	4
Making Things	5th	6th	-1	1	4	4	0	0
Sliding	3rd	3rd	0	0	5	3	2	4
Swinging	4th	2nd	2	4	1	2	-1	1
Other	6th	9th	-3	9	6	9.5	-3.5	12.25
Total			ED <sup>2</sup> = 35.5				ED <sup>2</sup> = 46.5	
			P = .841				P = .789	

## Kinds of Games

Responses	Males				Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Sports	2	2	0	0	6	6	0	0
Tag	3	1	2	4	3	1	2	4
Games you make up	5	3	2	4	2	2	0	0
Special Equipment	6	6	0	0	5	4	1	1
Games on Equipment	1	5	-4	16	1	5	-4	16
Make Things	4	4	0	0	4	3	1	1
Total			ED <sup>2</sup> = 24				ED <sup>2</sup> = 22	
			P = .314				P = .372	

## APPENDIX K

TABLE 33

COMPARISON BETWEEN ATTITUDE DATA AND  
BEHAVIOR DATA IN RELATION TO GRADE DIFFERENCES

## Key:

The percentages given are the adjusted frequencies

Obs. - the observational results (Behavior Data)

Int. - the questionnaire results (Attitude Data)

D. - the difference between results

ED<sup>2</sup> - sum of the differences squared

P - Spearman's coefficient of rank correlation

\* - unless otherwise stated, the values of N are: Obs.Int.

grade 1 437 108  
grade 2 443 114  
grade 3 491 117

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Favorite Spot									
Grade	Blacktop			Playing Field			Equipment		
	Obs.	Int.	D.	Obs.	Int.	D.	Obs.	Int.	D.
1	14.4%	7.4%	7.0%	22.9%	11.7%	11.2%	62.7%	58.5%	4.2%
2	7.4%	1.1%	6.3%	21.7%	26.1%	4.4%	70.9%	68.2%	2.7%
3	21.2%	6.3%	14.9%	30.6%	30.2%	.4%	48.3%	58.3%	10.0%

for Int. grade 1, N=94; grade 2, N=88; grade 3, N=96

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Socialization						
Grade	Alone			Group		
	Obs.	Int.	D.	Obs.	Int.	D.
1	8.2%	8.3%	.1%	91.8%	91.7%	.1%
2	6.8%	13.2%	6.4%	93.2%	86.8%	6.4%
3	4.9%	6.8%	1.9%	95.1%	93.2%	1.9%

---

## Degree of Energy

Grade	Alot of Energy			Some Energy			Quiet Things		
	Obs.	Int.	D.	Obs.	Int.	D.	Obs.	Int.	D.
1	43.5%	38.0%	5.5%	24.0%	8.3%	15.7%	32.5%	53.7%	21.2%
2	48.8%	46.5%	2.3%	24.4%	16.7%	7.7%	26.9%	36.8%	9.9%
3	58.0%	55.6%	2.4%	24.4%	23.1%	1.3%	17.5%	21.4%	3.9%

## Activities

Responses	Grade 1			
	Obs.	Int.	D.	D <sup>2</sup>
Running	1	1	0	0
Jumping	11	5.5	5.5	30.25
Throwing	9	10.5	-1.5	2.25
Kicking	10	7.5	2.5	6.25
Climbing	3	7.5	-4.5	20.25
Hopping	8	10.5	-2.5	6.25
Skipping	7	9	-2	4
Making Things	4	4	0	0
Sliding	5	3	2	4
Swinging	2	2	0	0
Other	6	5.5	.5	.25
Total			ED <sup>2</sup> =	73.5
			P =	.666

Responses	Grade 2			
	Obs.	Int.	D.	D.
Running	1	1	0	0
Jumping	9	8.5	.5	.25
Throwing	10	8.5	1.5	2.25
Kicking	7	6.5	.5	.25
Climbing	2	4	-2	4
Hopping	11	10.5	.5	.25
Skipping	8	5	3	9
Making Things	5	6.5	-1.5	2.25
Sliding	4	3	1	1
Swinging	3	2	1	1
Other	6	10.5	-4.5	20.25
Total			ED <sup>2</sup> =	40.5
			P =	.816

## Responses

## Grade 3

	Obs.	Int.	D.	D.
Running	1	1	0	0
Jumping	9.5	9.5	0	0
Throwing	8	6.5	1.5	2.25
Kicking	7	4.5	2.5	6.25
Climbing	3	2	1	1
Hopping	9.5	8	1.5	2.25
Skipping	11	9.5	1.5	2.25
Making Things	6	6.5	-.5	.25
Sliding	4	4.5	-.5	.25
Swinging	2	3	-1	1
Other	5	11	-6	36
Total			ED <sup>2</sup> =	51.5
			P =	.766

## Kinds of Games

## Responses

## Grade 1

	Obs.	Int.	D.	D.
Sports	6	4	2	4
Tag	2	1	1	1
Games you make up	4	3	1	1
Special				
Equipment	5	6	-1	1
Games on				
Equipment	1	5	-4	16
Make Things	3	2	1	1
Total			ED <sup>2</sup> =	24
			P =	.314

Responses	Obs.	Grade 2 Int.	D.	D. <sup>2</sup>
Sports	5	3	2	4
Tag	2	1	1	1
Games you make up	4	2	2	4
Special Equipment	6	6	0	0
Games on Equipment	1	5	-4	16
Make Things	3	4	-1	1
Total			ED <sup>2</sup> =	26
			P =	.257

Responses	Obs.	Grade 3 Int.	D.	D. <sup>2</sup>
Sports	2	2	0	0
Tag	4	1	3	9
Games you make up	3	3	0	0
Special Equipment	6	6	0	0
Games on Equipment	1	5	-4	16
Make Things	5	4	1	1
Total			ED <sup>2</sup> =	26
			P =	.257

## APPENDIX L

TABLE 34

COMPARISON BETWEEN ATTITUDE DATA AND  
BEHAVIOR DATA IN RELATION TO SCHOOL DIFFERENCES

## Key:

The percentages given are the adjusted frequencies

Obs - the observational results (Behavior Data)

Int.- the questionnaire results (Attitude Data)

D. - the difference between results

ED<sup>2</sup> - sum of the differences squared

P - Spearman's coefficient of rank correlation

\* - unless otherwise stated, the values of N are: Obs.Int.

Grauer	290	63
Errington	278	79
Bridge	265	65
Lee	272	68
Woodward	266	64

School	Favorite Spot								
	Blacktop			Playing Field			Equipment		
	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
Grauer	9.7%	12.0%	2.3%	26.2%	10.0%	16.2%	64.1%	68.0%	3.9%
Errington	18.0%	4.7%	13.3%	32.0%	20.3%	11.7%	50.0%	67.2%	17.2%
Bridge	13.2%	5.3%	7.9%	14.7%	19.3%	4.6%	72.1%	59.6%	12.5%
Lee	22.4%	0.0%	22.4%	27.6%	28.3%	.6%	49.3%	54.7%	5.4%
Woodward	9.8%	3.7%	6.1%	25.2%	35.2%	10.0%	65.0%	57.4%	7.6%

For interview results, the values of N are: G. N=50  
E. N=64  
B. N=57  
L. N=53  
W. N=54



## Socialization

School	Alone			Group		
	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
Grauer	6.9%	9.5%	2.6%	93.1%	90.5%	2.6%
Errington	8.6%	6.3%	2.3%	91.4%	93.7%	2.3%
Bridge	7.2%	13.8%	6.6%	92.8%	86.2%	6.6%
Lee	4.0%	8.8%	4.8%	96.0%	91.2%	4.8%
Woodward	4.1%	9.4%	5.3%	95.9%	90.6%	5.3%

## Degree of Energy

School	Alot of Energy			Some Energy			Quiet Things		
	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
Grauer	44.1%	31.7%	12.4%	23.1%	19.0%	4.1%	32.8%	49.2%	16.4%
Errington	47.1%	48.1%	1.0%	27.7%	21.5%	6.2%	25.2%	30.4%	5.2%
Bridge	54.3%	52.3%	2.0%	17.4%	10.8%	6.6%	28.3%	36.9%	8.6%
Lee	52.2%	60.3%	8.1%	27.9%	10.3%	17.6%	19.8%	29.4%	9.6%
Woodward	54.9%	40.6%	14.9%	25.8%	18.8%	7.0%	19.9%	40.6%	20.7%

## Activities

Responses	Grauer				Errington			
	Obs.	Int.	D.	D <sup>2</sup> .	Obs.	Int.	D.	D <sup>2</sup> .
Running	1	1	0	0	1	1	0	0
Jumping	8	9.5	-1.5	2.25	8	9	-1	1
Throwing	10	11	-1	1	10	7.5	2.5	6.25
Kicking	7	5	2	4	9	10.5	-1.5	2.25
Climbing	3	6.5	-3.5	12.25	4	4	0	0
Hopping	10	9.5	.5	.25	6	6	0	0
Skipping	10	6.5	3.5	12.25	11	10.5	.5	.25
Making Things	3	3	0	0	7	5	2	4
Sliding	4	4	0	0	3	3	0	0
Swinging	2	2	0	0	2	2	0	0
Other	6	8	-2	4	5	7.5	-2.5	6.25
Total				ED <sup>2</sup> = 36				ED <sup>2</sup> = 20
				P = .836				P = .909

Responses	Bridge				Lee			
	Obs.	Int.	D.	D <sup>2</sup> .	Obs.	Int.	D.	D <sup>2</sup>
Running	1	1	0	0	1	1	0	0
Jumping	10	6.5	3.5	12.25	10.5	8	2.5	6.25
Throwing	8	9	-1	1	5.5	6.5	-1	1
Kicking	10	9	1	1	9	5	4	16
Climbing	3	2.5	.5	.25	2	4	-2	4
Hopping	7	11	-4	16	10.5	9.5	1	1
Skipping	10	6.5	3.5	12.25	8	9.5	-1.5	2.25
Making								
Things	5	5	0	0	4	6.5	-2.5	6.25
Sliding	4	4	0	0	5.5	3	2.5	6.25
Swinging	2	2.5	-.5	.25	3	2	1	1
Other	6	9	-3	9	7	11	-4	16
Total				ED <sup>2</sup> = 52				ED <sup>2</sup> = 60
				P = .764				P = .727

Responses	Woodward			
	Obs.	Int.	D.	D <sup>2</sup> .
Running	1	1	0	0
Jumping	10.5	6.5	4	16
Throwing	9	8.5	.5	.25
Kicking	7	3.5	3.5	12.25
Climbing	4	6.5	-2.5	6.25
Hopping	10.5	11	-.5	.25
Skipping	6	5	1	1
Making				
Things	5	8.5	-3.5	12.25
Sliding	3	3.5	-.5	.25
Swinging	2	2	0	0
Other	8	10	-2	4
Total				ED <sup>2</sup> = 52.5
				P = .761

## Kinds of Games

Responses	Grauer				Errington			
	Obs.	Int.	D.	D <sup>2</sup>	Obs	Int.	D	D <sup>2</sup>
Sports	5	4	1	1	4	3	1	1
Tag	2	1	1	1	2	1	1	1
Games you make up	3.5	2	1.5	2.25	3	2	1	1
Special Equipment	6	6	0	0	6	6	0	0
Games on Equipment	1	5	-4	16	1	4	-3	9
Make Things	3.5	3	.5	.25	5	5	0	0
Total				ED <sup>2</sup> = 20.50 P = .414				ED <sup>2</sup> = 12 P = .657

Responses	Bridge				Lee			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Sports	4	4	0	0	2	2	0	0
Tag	3	1	2	4	3	1	2	4
Games you make up	5	2.5	2.5	6.25	4.5	3	1.5	2.25
Special Equipment	6	6	0	0	4.5	6	-1.5	2.25
Games on Equipment	1	5	-4	16	1	5	-4	16
Make Things	2	2.5	-.5	.25	6	4	2	4
Total				ED <sup>2</sup> = 26.5 P = .243				ED <sup>2</sup> = 28.5 P = .186

Responses	Woodward			
	Obs.	Int.	D.	D <sup>2</sup>
Sports	2	1	1	1
Tag	3	2	1	1
Games you make up	6	4	2	4
Special Equipment	5	5	0	0
Games on Equipment	1	6	-5	25
Make Things	4	3	1	1
Total				ED <sup>2</sup> = 32 P = .086

## APPENDIX M

TABLE 35

COMPARISON BETWEEN ATTITUDE DATA AND BEHAVIOR  
DATA IN RELATION TO SEXUAL DIFFERENCES WITHIN EACH GRADE

## Key:

The percentages given are the adjusted frequencies

Obs. - the observational results (Behavior Data)

Int. - the questionnaire results (Attitude Data)

D. - the discrepancy between results

ED<sup>2</sup> - sum of the differences squared

P - Spearman's coefficient of rank correlation

\* - unless otherwise stated, the values of N are:

	Obs.	Int.
Grade 1: males, N=218; F., N=219	M., N=52; F., N=56	
Grade 2: males, N=220; F., N=223	M., N=54; F., N=60	
Grade 3: males, N=270; F., N=221	M., N=63; F., N=54	

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Favorite Spot										
Grade	Sex	Blacktop			Playing Field			Equipment		
		%Obs.	%Int.	%D.	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
1	M	5.5%	8.7%	3.2%	27.5%	19.6%	7.9%	67.0%	52.2%	14.8%
2	M	5.0%	2.2%	2.8%	29.5%	34.8%	5.3%	65.4%	58.7%	6.7%
3	M	19.6%	0.0%	19.6%	47.4%	41.2%	6.2%	33.0%	52.9%	19.9%
1	F	23.3%	6.3%	17.0%	18.3%	4.2%	14.1%	58.4%	64.6%	6.2%
2	F	9.9%	0.0%	9.9%	13.9%	16.7%	2.8%	76.2%	78.6%	2.4%
3	F	23.1%	13.3%	9.8%	10.0%	17.8%	7.8%	67.0%	64.4%	2.6%

For interview results, the values of N are:

Grade 1, M., N=46	F., N=48
Grade 2, M., N=46	F., N=42
Grade 3, M., N=51	F., N=45

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## Socialization

Grade	Sex	Alone			Group		
		%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
1	M	7.3%	5.8%	1.5%	92.7%	94.2%	1.5%
2	M	6.4%	14.8%	8.4%	93.6%	85.2%	8.4%
3	M	3.0%	1.6%	1.4%	97.0%	98.4%	1.4%
1	F	9.1%	10.7%	1.6%	90.9%	89.3%	1.6%
2	F	7.2%	11.7%	4.5%	92.8%	88.3%	4.5%
3	F	7.2%	13.0%	5.8%	92.8%	87.0%	5.8%

## Degree of Energy

Grade	Sex	Alot of Energy			Some Energy			Quiet Things		
		%Obs.	%Int.	%D.	%Obs.	%Int.	%D.	%Obs.	%Int.	%D.
1	M	57.8%	51.9%	5.9%	20.2%	5.8%	14.4%	22.0%	42.3%	20.3%
2	M	56.8%	64.8%	8.0%	22.3%	11.1%	11.2%	20.9%	24.1%	3.2%
3	M	69.3%	68.3%	1.0%	18.2%	19.0%	.8%	12.6%	12.7%	.1%
1	F	29.2%	25.0%	4.2%	27.8%	10.7%	17.1%	42.9%	64.3%	21.4%
2	F	40.8%	30.0%	10.8%	26.5%	21.7%	4.8%	32.7%	48.3%	15.6%
3	F	44.3%	40.7%	3.6%	32.1%	27.8%	4.3%	23.5%	31.5%	8.0%

## Activities

Responses	Grade 1 Males				Grade 1 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Running	1	1	0	0	3.5	1	2.5	6.25
Jumping	9.5	7	2.5	6.25	10.5	7	3.5	12.25
Throwing	9.5	10.5	-1	1	9	10.5	-1.5	2.25
Kicking	7	4	3	9	10.5	4	6.4	42.25
Climbing	2	5	-3	9	5	5	0	0
Hopping	9.5	10.5	-1	1	8	10.5	-2.5	6.25
Skipping	9.5	9	.5	.25	7	9	-2	4
Making								
Things	4.5	7	-2.5	6.25	2	7	-5	25
Sliding	3	2.5	.5	.25	6	2.5	3.5	12.25
Swinging	4.5	2.5	2	4	1	2.5	-1.5	2.25
Other	6	7	-1	1	3.5	7	-3.5	12.25
Total				ED <sup>2</sup> = 38 P = .827				ED <sup>2</sup> = 125 P = .432

Responses	Grade 2 Males				Grade 2 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Running	1	1	0	0	4	1	3	9
Jumping	10.5	6.5	4	16	8	10	-2	4
Throwing	8.5	9	-.5	.25	10.5	7.5	3	9
Kicking	7	2.5	4.5	20.25	9	10	-1	1
Climbing	2	4.5	-2.5	6.25	2	5.5	-3.5	12.25
Hopping	10.5	10.5	0	0	10.5	7.5	3	9
Skipping	8.5	10.5	-2	4	7	2.5	4.5	20.25
Making Things	5.5	6.5	-1	1	3	5.5	-2.5	6.25
Sliding	4	4.5	-.5	.25	5	2.5	2.5	6.25
Swinging	3	2.5	.5	.25	1	4	-3	9
Other	5.5	8	-2.5	6.25	6	8	-2	4
Total				ED <sup>2</sup> = 54.5 P = .752				ED <sup>2</sup> = 90 P = .591

Responses	Grade 3 Males				Grade 3 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Running	1	1	0	0	3	1	2	4
Jumping	9	8	1	1	9	9	0	0
Throwing	8	5	3	9	8	7.5	.5	.25
Kicking	4	2.5	1.5	2.25	11	10.5	.5	.25
Climbing	5	2.5	2.5	6.25	2	2.5	-.5	.25
Hopping	10.5	10	.5	.25	7	4	3	9
Skipping	10.5	10	.5	.25	10	7.5	2.5	6.25
Making Things	7	7	0	0	6	5.5	.5	.25
Sliding	3	6	-3	9	4	5.5	-1.5	2.25
Swinging	2	4	-2	4	1	2.5	-1.5	2.25
Other	6	10	-4	16	5	10.5	-5.5	30.25
Total				ED <sup>2</sup> = 48 P = .782				ED <sup>2</sup> = 55 P = .750

## Kinds of Games

Responses	Grade 1 Males				Grade 1 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Sports	4.5	3	1.5	2.25	6	5.5	.5	.25
Tag	2	1	1	1	3	3	0	0
Games you make up	4.5	3	1.5	2.25	2	2	0	0
Special Equipment	6	6	0	0	5	4	1	1
Games on Equipment	1	5	-4	16	1	5.5	-4.5	20.25
Make Things	3	3	0	0	4	1	3	9
Total				ED <sup>2</sup> = 21.5 P = .386				ED <sup>2</sup> = 30.5 P = .129

Responses	Grade 2 Males				Grade 2 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Sports	3	1	2	4	6	6	0	0
Tag	2	2	0	0	2	2	0	0
Games you make up	4.5	4	0.5	.25	4	1	3	9
Special Equipment	6	6	0	0	5	4.5	.5	.25
Games on Equipment	1	5	-4	16	1	4.5	-3.5	12.25
Make things	4.5	3	1.5	2.25	3	3	0	0
Total				ED <sup>2</sup> = 22.5 P = .357				ED <sup>2</sup> = 21.5 P = .386

Responses	Grade 3 Males				Grade 3 Females			
	Obs.	Int.	D.	D <sup>2</sup>	Obs.	Int.	D.	D <sup>2</sup>
Sports	1	1	0	0	6	3.5	2.5	6.25
Tag	4	2	2	4	3	1	2	4
Games you make up	3	3	0	0	2	2	0	0
Special Equipment	6	6	0	0	5	5	0	0
Games on Equipment	2	4	-2	4	1	6	-5	25
Make things	5	5	0	0	4	3.5	.5	.25
Total				ED <sup>2</sup> = 8 P = .772				ED <sup>2</sup> = 35.5 P = -.014

## APPENDIX N

TABLE 36

## DISTRIBUTION OF POPULATION

School	males		Grade 1				males		Grade 2				males		Grade 3				Total	
			females		total				females		total				females		total			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Grauer	9	17.3	12	21.4	21	19.4	9	16.7	15	25.0	24	21.0	8	12.7	10	18.5	18	15.4	63	18.6
Errington	13	25.0	11	19.6	24	22.2	11	20.4	16	26.7	27	23.7	13	20.6	15	28.8	28	23.9	79	23.3
Bridge	12	23.1	13	23.2	25	23.1	9	16.7	11	18.3	20	17.5	13	20.6	7	12.9	20	17.1	65	19.2
Lee	12	23.1	10	17.9	22	20.4	15	28.8	7	11.7	22	19.3	15	23.8	9	16.7	24	20.5	68	20.1
Woodward	6	11.5	10	17.9	16	14.8	10	18.5	11	18.3	21	18.4	14	22.2	13	24.1	27	23.1	64	18.9
Total	52		56		108		54		60		114		63		54		117		339	



# APPENDIX O

## TABLE 37

### SIGNIFICANT SEXUAL DIFFERENCES

Technique	Question #	Degree of Freedom	Significance Level	$x^2$	Calculated $x^2$
Questionnaire-Interview	5B	4	.01	13.28	20.53
	7	10	.01	23.21	42.70
	7 Why	6	.01	16.81	25.10
	8	5	.01	15.09	56.24
	6B	2	.01	9.21	31.60
Observations	1	2	.01	9.21	89.56
	2ai	10	.01	23.21	164.92
	2aii	5	.01	15.09	206.40
	2c	2	.01	9.21	79.21

## TABLE 38

### SIGNIFICANT GRADE DIFFERENCES

Questionnaire-Interview	5B	8	.01	20.09	31.80
	7	20	.01	37.57	48.62
	7 Why	12	.01	26.22	26.96
	8	10	.01	23.21	25.55
	6B	4	.01	13.28	27.18
Observations	1	4	.01	13.28	59.26
	2ai	20	.01	37.57	120.97
	2aii	10	.01	23.21	192.87
	2c	4	.01	13.28	31.22

TABLE 39

## SIGNIFICANT SCHOOL DIFFERENCES

Technique	Question #	Degree of Freedom	Significance Level	$x^2$	Calculated $x^2$
Questionnaire-Interview	8 (females Gd 2)	20	.01	37.57	41.16
	8 (males Gd 3)	16	.01	32.00	35.78
	9 (males Gd 3)	36	.01	58.00	63.47
Observations	1	8	.01	20.09	57.94
	2ai	40	.01	60.00	264.14
	2aii	20	.01	37.57	136.68

TABLE 40

## SIGNIFICANT SEX DIFFERENCES WITHIN EACH GRADE

Questionnaire-Interview	5 (Grade 3)	4	.01	13.28	13.91
	7 (Grade 2)	10	.01	23.21	23.38
	8 (Grade 1)	5	.01	15.09	17.31
	8 (Grade 2)	5	.01	15.09	27.68
	8 (Grade 3)	5	.01	15.09	21.21
	6B (Grade 2)	2	.01	9.21	13.85
	6B (Grade 3)	2	.01	9.21	9.72
	10A (Grade 2)	2	.01	9.21	10.62

TABLE 40 (Cont'd)

Technique	Question #	Degree of Freedom	Significance Level	$x^2$	Calculated $x^2$
Observations	1(Grade 1)	2	.01	9.21	29.33
	1(Grade 2)	2	.01	9.21	17.84
	1(Grade 3)	2	.01	9.21	85.61
	2ai(Grade 1)	10	.01	23.21	65.06
	2ai(Grade 2)	10	.01	23.21	32.14
	2ai(Grade 3)	10	.01	23.21	104.83
	2aii(Grade 1)	5	.01	15.09	50.52
	2aii(Grade 2)	5	.01	15.09	36.07
	2aii(Grade 3)	5	.01	15.09	147.82
	2c (Grade 2)	2	.01	9.21	12.38

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