

OBSERVATIONS OF CHILDREN'S INTERACTIONS AT PLAY

By Selena A. Morrow

Advisor: Dr. Benita Howell

For Fulfillment of Completion in the Honors Program and requirements for a degree of
Honors in Anthropology

Department of Anthropology
University of Tennessee, Knoxville
May 2000

Abstract

Children from two different socioeconomic backgrounds and differentiated by sex and age were observed in order to note differences in aggressive and nurturant behaviors in play. Literature on child's play and child behavior has suggested that there is a strong correlation between these differences in regard to sex and age. Studies on the influence of environment have not explicitly shown that social environment causes more aggression or less nurturance in play. Results of the observations indicate that there is a strong connection between sex and play behaviors, not a statistically significant relationship between age and play behaviors, and a lack of significance between social environment and behaviors.

Acknowledgments

The author would like to thank her advisor for the great amount of help and support provided. She would also like to thank the two sites for their cooperation in allowing her to observe the children. Finally, she would like to thank the children without whom the research would not have been able to be conducted.

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Observations of Children's Interactions at Play

PROBLEM

Introduction

Violence, children, and influences on child behavior have been topics of increasing concern in the United States over the past decade. What has typically been emphasized relating to this are the extreme behaviors of children such as weapon carrying and emotional and behavioral problems due to media influences or community influences. To take this topic into another perspective, the relation between certain influences, such as violence and economic conditions, along with gender and age influences could be examined to note effects on child behavior, notably in the realm of play. Play is a significant part of a child's behavior in that it is often indicative, as has been shown in the past, of certain patterns relating to sex and age. It further gages influences due to its highly occurring imitative nature. Behavior overall of children is known to be influenced culturally; therefore, it is possible that social environments within cultures could have a significant enough role to alter certain behaviors in a child's play. Children generally exhibit uniform aggressive play behaviors such as pushing or kicking in a sportish manner. However, could this extent of behavior be altered into higher or lower levels depending upon social environments, or are behaviors more strongly related to simply sex or age?

This study was conducted to address the connection that may or may not be present between levels of aggression and nurturance in play and socioeconomic backgrounds. Studies have suggested that community violence may have some effect on

the play behavior of children (Osofsky, et al 1993). Further, child behavior studies have noted that parents of middle-class and lower-class demarcations often practice methods of child-rearing that may increase the likelihood of aggression in behavior (Bandura and Walters 1963). In this analysis, sex influences and age influences on the different types of play behavior will be measured. With these, absences of nurturance and/or aggression within social environments, age, and sex will be examined in order to note if these factors may cause deficiencies in certain behavior types. If a lack of nurturance is found to be significant environmentally, this could be explained by the isolated behaviors associated with higher levels of environmental violence (Campbell and Schwarz 1996). In such, the strongest influence on a child's play behavior will be determined, and the amount of correspondence between social environment, age, and sex and play behaviors will be tested.

Statement of Problem

This study will examine the relationship between socioeconomic environments and aggressive and nurturant behaviors expressed during the play of elementary-school aged children. Differences in aggressive and nurturant behavior between the sexes and ages of children will also be investigated.

Assumptions

The assumptions underlying the study will be in the following. First, it is assumed that all participants are representative of the areas from which they come. Secondly, it is assumed that all participants are not aware of the variables noted in observations in a manner in which they would alter their natural play behavior. Finally, it

is assumed that demography reported by the researcher--age, gender, and environment--is sufficiently free of error.

Hypotheses

Children in the middle-income, suburban setting will show less aggressive behavior than children from the low-income, inner city setting. There will also be slightly more nurturant behaviors from the middle-income suburban setting. Males will show more aggression than females; females will be more nurturant than males. Older children will show more nurturant behavior, and younger children will have slightly more aggressive tendencies. Hence, there will be a correlation between settings and behavior, age and behavior, and sex and behavior.

Significance

Studies in the past such as the Whiting's *Children of Six Cultures* study have focused on differences in cross-cultural patterns of child behavior, which includes among others, aggressive and nurturant behaviors (1975). Studies also have focused on the impact of violence emotionally more than behaviorally on children's behavior. Therefore, an examination of two intra-cultural environments in which factors of violence differ in the community will be looked at in order to determine if aggressive and nurturant behaviors do not only differ culturally by a significant amount. It will then also be an assessment of differences in behavior that are a product of a more violent environment, instead of just an account of psychological effects. Further, the influence of sex and age on play behavior will either be supportive or opposing to earlier research.

Definitions

(From Whiting and Child 1966)

Nurturance: trying to alleviate the state of need in someone else; this would include helpful, supportive, or caring behaviors. The behaviors that will be noted are both physical and verbal in nature. Physical nurturant behaviors include: hugging, gentle patting on heads, touching shoulders or cheeks, giving or sharing something, and helping with a task. Verbal nurturant behaviors include thanking, smiling, greeting, encouraging, and complimenting.

Smiling: only in reference to smiling as a greeting, sign of affection, or signal of enjoyment or pleasure. Smiling will not include smirking or smiling after hurting someone or thing.

Aggression: behaviors that hurt someone or are intended to hurt someone.

Physical aggression includes: hitting with a closed fist, slapping, kicking, pushing, biting, pinching, pulling hair, aggression with objects, and tripping others. Verbal aggression includes verbal assaults and profane gestures.

Aggression with objects: will include throwing objects such as rocks, pencils, etc. at another child, hitting someone with an object, or tripping someone with something such as a stick.

Slapping: Includes a hit to any part of the body with an open hand.

Verbal assaults: will include cursing, threats, and ill-meant taunts.

LITERATURE REVIEW

Play Literature

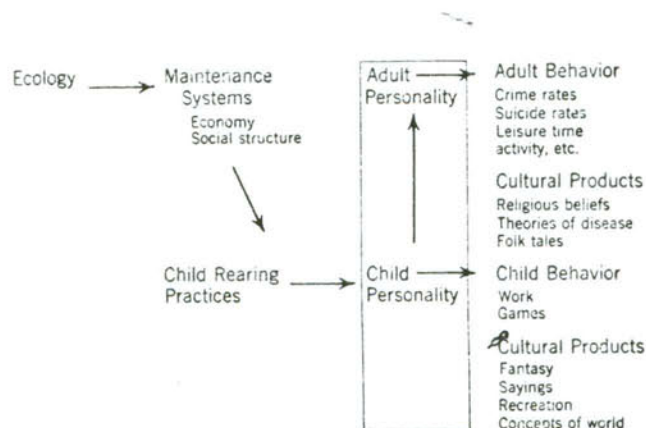
Aspects of children's play—what it is comprised of, what behaviors are a part of it, and its significance culturally—are important to examine in order to provide a background for exploring children's behavior at play. Thus, before the actual behaviors that children undertake are looked at, what defines and forms play will be introduced.

The specific definition of what play is has been contemplated by many without definite resolution (Schwartzman 1978, Schwartzman 1980, Levy 1978, and Stevens 1977). Play has been viewed as the result of many different factors: surplus of energy, form of socialization, need for relaxation, need to emulate adults, contorting reality into a simplistic form, need for stimulation, and as a method of social learning among other theories (Levy 1978). With all of the different perspectives on play, there is an underlying foundation that with whatever causes play, there is a cultural component that makes play different in different areas. Schwartzman develops this in discussing how an evaluation of play must include an evaluation of the cultural context of the play (1978). Cultures do not exhibit the same trends towards play globally. For example, as seen in the *Children of Six Cultures* studies by Beatrice and John Whiting, children who have to play a role in home labor often do not participate as frequently in play behavior. In Nyansongo, Kenya, the children were seen to work four times as frequently as children of other cultures and were observed to play less. On the adverse, in Taira, Okinawa, children played more than children of the other cultures are shown to have far less chores than the children of Nyansongo (Whiting and Whiting 1975). Children in the American

sample also had a high frequency of playtime compared with a low tendency for work. Work from Mouldoux demonstrates that while play varies by individuals, it is overall a product of the culture (1977). Hence, culture provides the framework from which behavior of children at play is constructed.

What a culture includes in the definition of play may vary as much as the cultural influences on play behavior. Schwartzman says that the Western definition of play specifically entails generally what play is not. It is not work, nor real, nor serious, nor productive (1978). Hence it is construed as a casual, pleasantry undertaken for inconsequential purposes. Although play seems like a whimsical undertaking from the Western definition, it is important in its influences and its outcomes. Not only is it a bearer of cultural norms, it also contains important components leading to the defining of social skills. It is important, to begin with, in instrumenting the child's ability to learn about his social environment. Through this process, a child is able to develop his social and cognitive systems (Schwartzman 1978). Whiting demonstrates the ecological breakdown of the influence of play in the figure below (1963):

Figure 1



Play is an important part of the child's socialization because the environment from which a child learns play behavior is what behavior the child is processing in his play (reword). Children also do more than just process behavior around them; they also may directly be imitative of it in their play. Situations such as playing house, cops and robbers, or playing as if at an office all can be readily seen in everyday child behavior; these demonstrate that play is a mechanism for emulation of adult behavior. In the *Culture of Childhood*, Goodman states that play culture includes mimicry, observation, and an overall imitation of the world (1970). Hence, play is important in latent and conspicuous functions of introducing and helping a child practice for social roles. It helps a child to replicate society. As Stone notes, play is recreation due to its re-creation of society (1971). A final summary of different definitions from different researchers from diversified fields as found in Schwartzman's book produces the following:

Play is an orientation or framing and defining context that players adopt toward something, which produces a text characterized by allusion, transformation, and purported imitation of the object, person, role, etc. Play gives shape as well as expression to individual and societal affective and cognitive systems while reflecting the systems of which the player is a part (1978).

Many aspects are comprised in the deep examination of what play truly encompasses. From this can be taken that play is indeed a leisure activity that can have important influences on social and cognitive skills of children and is influenced by the environment of which the participant is a part. Therefore, in further mentions of play, it will be referring to the play aspects concerning children, and play will entail the leisure pursuits

of children that are either directly or indirectly evidenced as simulations of their environments.

Play, in helping laying a framework for social roles, shows strong evidence of influence by sex. If play does as Stone says and tests identity, than the roles of masculinity and femininity are tested early in childhood (1971). As evidenced by various studies, at age five children do not have appreciative difference in sex roles during play times, whether in playing with children of the opposite sex or having drastic differential preferences in toys. At this age, boys seem to be as fascinated by dolls as girls (Hartley and Golenson 1963, Gesell et al 1977, Goodman 1970). However, starting at age six, girls and boys begin preferring their own sex for playmates, and girls and boys begin to play at more gender specific roles (Hartley and Golenson 1963, Gesell et al 1977, Goodman 1970). Differences in play between boys and girls are seen throughout the ages of 5-10 in-group formation and types of play. Girls more typically play in small groups of roughly two, while when boys begin forming groups, theirs comprise more than three (Hartley and Golenson 1963). The older the children are, the more pronounced their sex differences are, and the likelihood of groups comprised of a single sex increase (Gesell et al 1977). As far as sex differences in types of play, female play is less exciting and more peaceful than the more active and motion-oriented boys play according to Erikson (1971). Boys tend to be more competitive and aggressive physically, while girls tend to be less aggressive, typically showing high tendency for aggression primarily verbally (Levin and Wardwell 1971, Goodman 1970). Sex differences in play gradually become more pronounced with age, and there are definite distinctions between the two,

whether it is the manner in which the child plays or what type of activity they participate in more usually.

With age, as demonstrated in some of the above references to sex differences, behavior of different types are generated in modes of play as well. At age five, children play without serious aggression or combativeness. They are learning how to become cooperative, and play is a means by which they learn how to do so, among other things; they also do not typically form groups. Play is a time for exploration (Hartley and Golenson 1963, Gesell et al 1977). By age six, children have taken a step away from their parents, and a step towards forming groups. Six-year-olds play is defined by teasing, tattling, roughness in play, kicking, fighting, pulling hair, pushing, and calling names (Hartley and Golenson 1963, Gesell et al 1977). By age seven, children seem to grow out of the previous year's roughhousing, with playing tag, hide and seek, and ball more characteristic forms of play. Boys still partake in wrestling, however. At this age, children are learning more how to play with others, sometimes forming small cliques, but they also have the appreciation of playing alone (Hartley and Golenson 1963, Gesell et al 1977). By age eight, the beginnings of cliques evidenced at seven become to be stronger. Strong friendships are formed at this age, usually with those of the same sex. The drive to be part of a group becomes apparent, as does the appeal of rebelling against parents. This age shows the beginning of organized group activity, with informal club playing and the attempt at organizing sport-type games. There is a high level of gross motor activity in their play, which may result in chasing and wrestling (Hartley and Golenson 1963, Gesell et al 1977). By ages nine and ten, children are forming clubs, having a higher levels of organization in their group play, forming teams, playing sports,

and becoming more competitive. The fighting at this age is more verbal than anything else (Hartley and Golenson 1963, Gesell et al 1977). Gradual, yet variable changes are seen at each age in a child's development. With growing and learning come more intricate forms of play and activity. With age it seems that aggression wanes, with it being more verbal as the child gets older.

Age and sex both influence what type of play is being carried out by the child. These changes are based on variables that are uniform among children. All children are of male or female sex, and all are a particular age. All children do not share the same influences that could result in other differences in play. As was earlier described, culture plays a part in determining patterns associated with play. From this, to look within a culture into specific community cultures, would these environments have a profound impact on children's play behavior? While age and sex are constant markers of what typifies a child's play, the environment from which the child comes could possibly alter the impacts of the other two variables. One factor that will be examined in the research is a correlation between more violent environments and more aggressive play behavior. The connection between these two has been noted by studies such as one by Osofsky et al. This study notes that play behavior may include repetition of violent behavior children have witnessed in the form of aggression. Further, their behavior may also be the result of protecting themselves in lieu of traumatic events happening around them (1993). Whether or not there is a significant correlation between these occurrences and play behavior remains to be seen, however.

Different types of play are found among societies, within a society, within a community, within a sex, and within an age. As Gesell, et al state in their study of

children's play, "Children reveal themselves mostly clearly in play life"(1977, p. 347). What play entails specifically is variable, but that it is important in social and cognitive learning as well as a pleasurable activity is widely accepted among researchers. Play seems to follow specific patterning between differentiations of sex and age. It also is highly reliant upon the culture from which the child comes to determine to what degree the child has the opportunity to play, and what roles are included in mimicry aspects of play. Within a culture, variability may be caused by specific environmental situations from which the children are surrounded. What a child plays follows patterns while also indicating patterns of the child's life as a whole.

Child Social Behavior Literature

Children's behavior, as noted in the previous section with regard to play, is in many ways a product of the culture of which they are a part. Children who are of a very young age in India react accordingly to their role in the caste system; early on, children may look down upon those of the sweeper caste. One feature seen as dominant in Chippewa values is kindness; at a young age, the observation of and participation in group social settings reinforce this practice (Goodman 1970). What makes a child act as they do? Looking at play variables, it seems as if sex plays a large role in determining the level of aggressive or docileness of behavior. Age also shows a variant among these two types of behavior. How high is the impact of culture on these two variables, however? Within a country, within a state, within a city, there can be variable social environments. What type of environments can produce more aggression or less in behavior? In the previous section, the play behavior of children answered some of these queries; this section will look more specifically at differences in aggressive and nurturant

behavior and what factors into differentiations between the two in child behavior. These behavior types are opposing in nature; therefore, they provide insight into the variance in different child behaviors. In such, it will be determined if in child behavior patterns fall along the line of one sex having more of one behavior tendency than the other, and likewise with age and socioeconomic background.

To begin with socioeconomic background, different factors may influence the behavior of children according to this difference. As noted previously, violence in the community may have an effect on children's play. It is noted in many studies that violence has strong influence on emotional and behavioral problems of children. These studies indicate increased depression, anxiety, and loss of interest in activities among others (Campbell and Schwarz 1996, Martin et al 1995, Osofsky et al 1993). Martin et al notes behavioral and aggressive problems of children exposed to violence in a study of seasonal migrant workers' children. In this study, children exposed to violence were over six times as likely to have externalized behavioral problems and four times as likely to carry weapons as children not exposed to violence (1995). Further influence from these differing environments comes by way of how aggressive behavior is punished by parents. In studies, Bandura and Walters reveal that middle-class parents are most typically demonstrative of aggression through discipline. These parents, when using aggression in punishment, punish the children's aggression, but it is also a model by which children may assume aggressive tendencies. They further go on to state that lower-class parents encourage, reward, and do not discourage aggression more frequently which causes higher instances of aggression in their children (Bandura and Walters 1963). From this,

more frequent emotional and behavioral problems and, in some cases, higher incidence of aggression has been recognized in relation to socioeconomics.

Many studies have been performed relating to differences in child behavior between the sexes. In two analysis conducted by Whiting and Whiting with data collected from their, and other researchers, studies of six cultures, the conclusion was that girls express more nurturant tendencies, while males are more aggressive (1975). Behaviors that were included in high levels in the girls' behavior included touching and offering help and support. For boys, they tended to have high levels of assaults, insults, and horseplay (Whiting and Whiting 1975). Other studies include different views of the differences between the types of behavior in which the two sexes partake. Bassey and Bandura show that males model aggression more than females. With this, females also are more likely to resist peer pressure, which would make their aggression modeling even slighter than that of males (Bassey and Bandura 1999). Bjorkquist and Niemela conclude from comparisons of findings that males are more likely to be physically aggressive, while females are more verbally aggressive (1992). This is corroborated earlier by play studies by Levin and Wardwell that suggest the same thing (1971). Just as Bussey and Bandura found reasoning behind the different behaviors in models children use, Goldstein goes further and says that children's aggressive behavior is based on social modeling. He indicates that boys are expected to be more aggressive and girls are expected to be more obedient and nice (1992). From this, not only would children have a higher tendency just to pick up on certain behaviors, but also these behaviors are actually encouraged by societal expectations. Hausmann, et al further shows that along with males being more physically aggressive, they also approve of aggression more when

being witness to it (1992). Therefore, males have tendencies for aggression early in their lives that are reinforced by others. As a result, they reinforce the behavior in others. Also, because males model aggression more, it would tend to be males that pick up with higher frequency the reinforcement of this behavior. Besides aggressive and nurturant differences in behavior, it is interesting to note that girls model the behavior of boys more than boys do of girls. For example, boys would heartily object to a room full of "girl's toys" such as dolls, kitchen setups, and other household items, but girls would more readily adopt action figures as toys (Bussey and Bandura 1999). Goodman notes that although male and female roles in American culture are relatively equal in comparison with other cultures, the interests of males and females are decidedly different, and these differing preferences become more divergent with age (1970). Hence, there is a distinct difference seen in patterns of aggression, nurturant, and just basic likes and dislikes of boys and girls.

The influence of not only sex, but also age, is noted by Whiting and Whiting, as they found that there are distinct similarities among the cultures looked at in their studies, and much of this can be accounted for by patterns of sex and age behavior in children (1975). Behavior in children shows marked differences throughout the progression of ages. At age five, children still show quite a marked dependency upon adults. They demonstrate low levels of aggression in any type of behavior (Gesell et al 1977). As age increases there is an upward climb of aggression and competitiveness. However, at age eight or nine, aggressiveness begins to decline in behavior. Madsen notes that there is an increase in competitiveness among 7-9 year olds (1971). At age six and seven, children are becoming more aggressive as well. However, as the child passes this age, they

become more cooperative once again. Whiting and Whiting note this, and determine that aggression begins to decrease with age, and nurturant behavior becomes more prevalent (1975). This would include older children helping younger ones and cooperating in organized activities, decisions, et al. In such, older children learn to compete as they get older, but they also learn the value of cooperation and helping in attaining their goals.

Summary

While child behavior can be determined by many variables concretely such as sex and age, the predominate studies of environmental influence on behavior, and specifically play behavior, is lacking in sufficient research. While some studies suggest more aggressive behavior occurring in the presence of violent environments or certain assumptions of socio-economic parental behavior, these relationships may be variable. More certainty seems to be placed upon emotional factors that result from these environments. Certainty also seems to be evident in relaying sex and age as markers of certain types of behaviors. Males and females throughout different cultures differ along the same lines in regards to gender roles exhibited in play and behaviors that typify each gender. This also seems the case with age, for as children mature, differences in types of aggression, nurturance, need, and independence become apparent. Therefore, child behavior falls along seemingly natural lines when influences of sex and age are examined. However, there is more uncertainty with regards to outside environmental influencing certain behaviors. Further, play is a child behavior that replicates patterns of overall child behavior. Hence, play behavior is a worthy measure by which to examine influences on children for it is often imitative, and if outside influences resulting in higher levels of aggression or nurturance are to be exhibited, the play behavior of

children is a favorable study of examining how influential certain environments may be on a child. With the seemingly stable variables of sex and age, these variables can also be taken into account and reflected upon in relation to outside influences.

PROCEDURES

Restatement of Hypotheses

1. Children in the middle-income, suburban setting will show less aggressive behavior than children from the low-income, inner city setting. There will also be slightly more nurturant behaviors from the middle-income suburban setting.
2. Males will show more aggression than females; females will be more nurturant than males.
3. Older children will show more nurturant behavior, and younger children will have slightly more aggressive tendencies.

Participants

The participants include sets of males and females from two socioeconomic settings and differentiated by age. In observations, children are divided into two age groups: Grades K-2 (approximately 5-7 years old) and grades 3-5 (approximately 8-10 years old). They are also divided into two settings. These include an after-school child care in the Farragut, 37922 zipcode area of Knoxville, TN, and an after-school program in the Lonsdale/Western Heights, 37921 zipcode area of Knoxville, TN. The first setting, Farragut, is located in the Southwest sector of Knoxville. The number of occupied households within this zipcode is 9,509. Fifty percent of household incomes of this area or higher than \$50,000 annually; the median income is \$49,761. Eighty-five percent of residents of this area own their home. The second setting, Lonsdale/Western heights, is

in the Northwest-Central sector of Knoxville. The number of occupied households in this area is 10,480. Thirty-five percent of household incomes are less than \$15,000 annually; the median income is \$23,173. Fifty-seven percent of residents of this area own their home (*Demographic Profile*, 1993). These demographics can be further viewed in Appendix A. According to reports by the Knox County police department, there were no murders in the Farragut area and two murders in the Lonsdale/Western Heights area in 1998. Further, the violent crime rate in the two areas in 1998 is drastically different; violent crime includes murder, rape, robbery, and aggravated assault. Farragut is in the range of 1-20 crimes, and Lonsdale/Western Heights is in the 58-76 range. These two mapped reports can be seen, and their information presented more explicitly, in Appendix B.

Sampling Procedures

Participants were selected nonprobabilistically within the two settings. A sample size of thirty participants was selected from each site. Within each site, children were randomly selected by the researcher to be observed. After all observations were conducted, the numbers of children from different school grades and genders were counted. From the Farragut site, 12 females and 18 males were observed; 16 of the children were from grades K-2 and 14 were from grades 3-5. From the Lonsdale/Western Heights site, 14 females and 16 males were observed; 12 of the children were from grades K-2 and 18 were from grades 3-5. From the Farragut site, 7 of the K-2 children were female; 9 were male; 5 of the children from grades 3-5 were female and 9 were male. From the Lonsdale/Western Heights site, 8 females were from

grades K-2, 4 of children this age were male; 12 children from grades 3-5 were male, and 5 were female.

Instrument

The instrument used in collecting data was a chart constructed to note age, gender, location and aggressive and nurturant behaviors exhibited by the children. Columns are used to tabulate and total numbers of the behavior types exhibited by the children. There are eleven aggressive and eleven nurturant behaviors identified. These behaviors were chosen because of their representative coverage of behaviors typically found in children of these ages and as effective expressions of the two types of behavior. This chart can be seen in Appendix C.

Variables/Coding

The two sites are coded according to their official name; hence, the codes are shortened forms of the daycare name and the program name respectively. The Farragut site is coded as "Club", and the Lonsdale/Western Heights site is coded as "VA." The variables of aggressive and nurturant behavior as well as age, gender, and site are seen on the chart utilized in data collection in Appendix C. The aggressive and nurturant variables are noted previously in the definitions section. In data analysis, aggressive and nurturant are denoted by "agg" and "nurt" respectively.

Data Collection

Direct observation was made of the children during various times of play. At the Club site the play settings were either in a designated classroom or on the playground, with the majority on the playground (Appendix D). At the VA site, the children were observed at a nearby park, a gym, and a playground outside the program's main site

(Appendix E). The observations took place in the fall of 1999 and spring of 2000.

Observations were mainly conducted between the times of 3:30-6:30pm, with the times falling mainly during 4:00-6:00pm, since this was after the children usually arrived at the play locations and/or had snacks and before parents arrived to get them. The researcher sat on the perimeter of the play setting in an area where the entire play site was in clear view; this spot is designated on the illustrations of the play areas in Appendices D and E. The children were aware of the researcher's presence to the effect that she was there to take notes for homework. Some children were inquisitive, but most disregarded her. Children that did not want to play or were in "time out" often sat by the researcher, and these children helped to identify the grade level of children playing. One child was observed at a time for the length of five minutes. This time was lengthened if the child exhibited no interaction during that time or left the area for some reason. The time may have been shortened if a parent came to retrieve the child. Five minutes was used in order to ensure accuracy in observation and prevent loss of concentration on behalf of the researcher. Behaviors were noted on the chart by placing a mark in the row of a specific behavior each time it occurred. After observations were collected, total numbers of aggressive and nurturant behaviors were tabulated for each child in the rows provided on the chart.

Statistical Techniques

The Chi-Square Test of Independence was used in order to determine if there was or was not a statistically significant relationship between the two behaviors and site, gender, and age. The null hypothesis H_0 was that the behaviors were independent of the three variables. The test statistic used was $\chi^2 = \sum (f_o - f_e)^2 / f_e$; f_o = the specific number of

behaviors per variable, and $f_e = (\text{row total})(\text{column total})/n(\text{total overall number})$. With $\alpha=.05$, and the degrees of freedom as 1, H_0 will be rejected if $\chi^2 > 3.841$.

Limitations

Prior to the study, a third age group—preschool children ages 2-4—were to have been included; however, at the two observed sites there was an insufficiency in children of these age group. Therefore, this group has been eliminated, and the groups are only inclusive of elementary-aged children.

Further, some observations of certain children were cut short due to uncontrollable variables. As time progressed in daily observations, children were picked up by their parents, and a few participants' observation times were cut short.

RESULTS

With N=30 from both Club and VA, the following breakdown of sex and age follow. Club had N=12 for females, N=18 for males, N=16 for grades K-2, and N=14 for grades 3-5. VA had N=14 for females, N=16 for males, N=12 for grades K-2, and N=18 for grades 3-5. The following is a breakdown of specific aggressive and nurturant behaviors for site, sex, and age:

		Aggressive behaviors	Nurturant behaviors
Club: Female	K-2	2	18
	3-5	7	9
Male	K-2	11	10
	3-5	13	16
VA: Female	K-2	5	15
	3-5	3	10
Male	K-2	2	5
	3-5	13	12

Also noted was the total absence of either aggressive or nurturant behaviors:

No Aggressive Behaviors Noted No Nurturant
Behaviors Noted

Club: Female	K-2	5	0
	3-5	2	1

	Male	K-2	3	3
		3-5	3	1
VA:	Female	K-2	5	0
		3-5	5	1
	Male	K-2	3	1
		3-5	3	5

To determine whether or not type of behavior is dependent upon site, sex, or age, chi-square tests were then applied using this data.

Test of Hypothesis #1

H_0 : Type of behavior is independent of socio-economic differences as differentiated by site.

Degrees of Freedom=1

$\alpha=.05$

Original Sample Data (f_o)

Site	Type of Behavior		Total	%
	Agg	Nurt		
Club	33	53	57%	
VA	23	42	65	43%
Total	56	95	151	
%	37%	63%		

Expected Counts (f_e)

Site	Type of Behavior		Total
	Agg	Nurt	
Club	31.89	54.11	86
VA	24.11	40.89	65
Total	56	95	151

Since $\chi^2 = 3.841$, H_0 will be rejected if $\chi^2 > 3.841$. From calculations on the above data, $\chi^2 = .1426$. Since $\chi^2 < 3.841$, H_0 is accepted, and it is determined that type of behavior is independent of site/socioeconomics.

Test of Hypothesis #2

H_0 : Type of behavior is independent of sex.

Degrees of Freedom=1

$\alpha = .05$

Original Sample Data (f_o)

Sex	Type of Behavior		Total	%
	Agg	Nurt		
Male	39	43	82	54
Female	17	52	69	46
Total	56	95	151	
%	37%	63%		

Expected Counts (f_e)

	Type of Behavior	
--	------------------	--

Sex	Agg	Nurt	Total
Male	30.41	51.59	82
Female	25.59	43.41	69
Total	56	95	151

Since $\chi^2=3.841$, H_0 will be rejected if $\chi^2>3.841$. From calculations on the above data, $\chi^2=8.1592$. Therefore, $\chi^2>3.841$, and H_0 is rejected. This demonstrates that type of behavior is dependent upon sex.

Test of Hypothesis #3

H_0 : Type of behavior is independent of age.

Degrees of Freedom=1

$\alpha=.05$

Original Sample Data (f_o)

Age	Type of Behavior		Total	%
	Agg	Nurt		
K-2	20	48	68	45%
3-5	36	47	83	55%
Total	56	95	151	
%	37%	63%		

Expected Counts (f_e)

Age	Type of Behavior		Total
	Agg	Nurt	

K-2	42.78		68
3-5	30.78	52.22	83
Total	56	95	151

Since $\chi^2=3.841$, H_0 will be rejected if $\chi^2>3.841$. From calculations on the above data, $\chi^2=3.1244$, H_0 is almost not rejected. Therefore, by a small margin, type of behavior is not dependent upon sex.

Now it will be noted if an absence of aggressive or absence of nurturant behaviors is dependent upon site, age, or sex.

H_0 : An absence of aggressive or nurturant behaviors is independent of site/socioeconomic background.

Degrees of Freedom=1

$\alpha=.05$

Original Sample Data (f_o)

Site	Absence of behavior type:		Total	%
	No Agg	No Nurt		
Club	13	5	18	45%
VA	16	6	22	55%
Total	29	11	40	
%	72.5%	27.5%		

Expected Counts (f_e)

	Absence of behavior type:	
--	---------------------------	--

Site	No Agg	No Nurt	Total
Club	13.05	4.95	18
VA	15.95	6.05	22
Total	29	11	40

Since $\chi^2=3.841$, H_0 will be rejected if $\chi^2>3.841$. From calculations on the above data, $\chi^2=.0013$, which is <3.841 . This demonstrates that lack of behavior types is not dependent upon site/socioeconomic background.

H_0 : An absence of aggressive or nurturant behaviors is independent of sex.

Degrees of Freedom=1

$\alpha=.05$

Original Sample Data (f_o)

Sex	Absence of behavior type:		Total	%
	No Agg	No Nurt		
Male	12	10	22	54%
Female	17	2	19	46%
Total	29	12	41	
%	71%	29%		

Expected Counts (f_e)

Sex	Absence of behavior type:		Total
	No Agg	No Nurt	

Male	6.44		22
Female	13.44	5.56	19
Total	29	12	41

Since $\chi^2 = 3.841$, H_0 will be rejected if $\chi^2 > 3.841$. From calculations on the above data, $\chi^2 = 6.004$, and the H_0 is rejected. This shows dependence between lack of either aggressive or nurturant behaviors and sex.

H_0 : An absence of aggressive or nurturant behaviors is independent of age.

Degrees of Freedom=1

$\alpha = .05$

Original Sample Data (f_o)

Age	Absence of behavior type:		Total	%
	No Agg	No Nurt		
K-2		4	20	49%
3-5	13	8	21	51%
Total	12		41	
%	71%	29%		

Expected Counts(f_e)

Age	Absence of behavior type:		Total
	No Agg	No Nurt	
K-2	14.15	5.85	20

3-5	14.85	6.15	21
Total	29	12	41

Since $\chi^2 = 3.841$, H_0 will be rejected if $\chi^2 > 3.841$. From calculations on the above data, $\chi^2 = 1.62$; therefore, H_0 is not rejected. Absence of aggressive and nurturant behaviors is independent of age.

From the determined dependent variables—behavior types and sex—a breakdown of the highest three frequency types of both aggressive and nurturant behaviors will be presented. A complete table of aggressive and nurturant behaviors for sex, age, and site are located in Appendix F for further reference.

Female:	Male:
Aggressive--	Aggressive--
1. Pushing—9 incidents	1. Pushing—23 incidents
2. Kicking—3 incidents	2. Aggression with objects—8 incidents
3. Aggression with objects—2 incidents	3. Kicking—4 incidents
Nurturant--	Nurturant--
1. Smiling—23 incidents	1. Smiling—26 incidents
2. Encouraging—6 incidents	2. Helping w/task, homework—5 incidents
3. Touching(shoulder, cheek)—6 incidents	3. Sharing—3 incidents

Conclusions/Implications

Hypotheses 1 and 3 were discounted via Chi-Square testing. The only Hypothesis that was found to denote dependence between the behavior types and the variable was

Hypothesis 2; sex does have a distinct relationship between aggressive and/or nurturant behavior types. The two types of behaviors are marked strongly according to sex, as was suggested by the literature. Further, sex is also related to the absence of behaviors; it seems as if males may experience lack of nurturant behavior somewhat frequently. Factors that could have influenced the high or low amount of the two behaviors could be the sample numbers of sexes per age group. From both Club and VA, the 3-5 grade group had more males. Also, twice as many K-2 females as males were present in the VA sample. A larger sample with more attention to proportionate ratios of sexes per age may prove different results in relation to the dependency of age and the two behavior types, especially noting the χ^2 for age nearly refutes the null hypothesis. This would also more clearly support the literature that cites definite behavior lines among age groups, with older children becoming more nurturant. There may still be close totals for aggression, due to the aggressive nature of both 6-7 year olds and some 8-9 year olds as stated in the literature previously. As far as signifying a relationship between behaviors and sites, the data including types of behaviors and that which detailed absence of behaviors were insignificant in indicating a high volume of one behavior or another and does not signify a lack of nurturance by either group. In such, it seems that socioeconomic backgrounds do not provide a sufficient determinant for significantly higher or lower numbers of aggressive or nurturant behaviors.

Finally, it is notable that while all nurturant behaviors were noted at least once in all observations of the children, five of the aggressive behaviors were not produced at all. This could indicate an overall tendency for nurturant behaviors, or that other aggressive behaviors that are more widely practiced were eliminated from the data chart.

Therefore, the literature is corroborated well by the indication of distinct sex play behavior patterns for aggression and nurturance. It is slightly disputed by the age data, but above factors may be the cause of the discrepancy between the previous research and this research. Lastly, no further evidence of a connection between social background and two contrasting types of behavior was established.

Suggestions for Further Research

As a result of this study, different factors made themselves present in reference to further research that could determine different patterns in play in association with different social environments. Using the research stating that symptoms such as withdrawal and isolation occur from being subject to surrounding community violence, it is possible that further studies into child play behavior could remark upon the differences in number and frequency of children's interactions with others and the number of occurrences of solitary play exhibited in different social environments. Also, larger samples could provide a more effective view of typical aggressive and nurturant behaviors associated with age, most specifically. Age categories could be broken down even further to pinpoint certain changes in behaviors with relation to time.

Summary

Therefore, although this research was inconclusive in determining the presence and absence of aggressive and nurturant behaviors in play as a significant indicator for determining socially environmental influences, it did suggest other relationships. Sex is constant in its foretelling of the occurrence or absence of the two types of behavior, and these behavior types seem to be good markers to predict the behavior of both sexes of children. Age is less conclusive, but further research might determine the validity of

using aggressive and nurturant behaviors in play to characterize behaviors from certain ages with the use of a more balanced sample number with reference to both age and sex. Finally, the inconclusiveness of relating these behavior types with socioeconomics has suggested that other issues relating to children's play might be recognized and associated with more correlation present.

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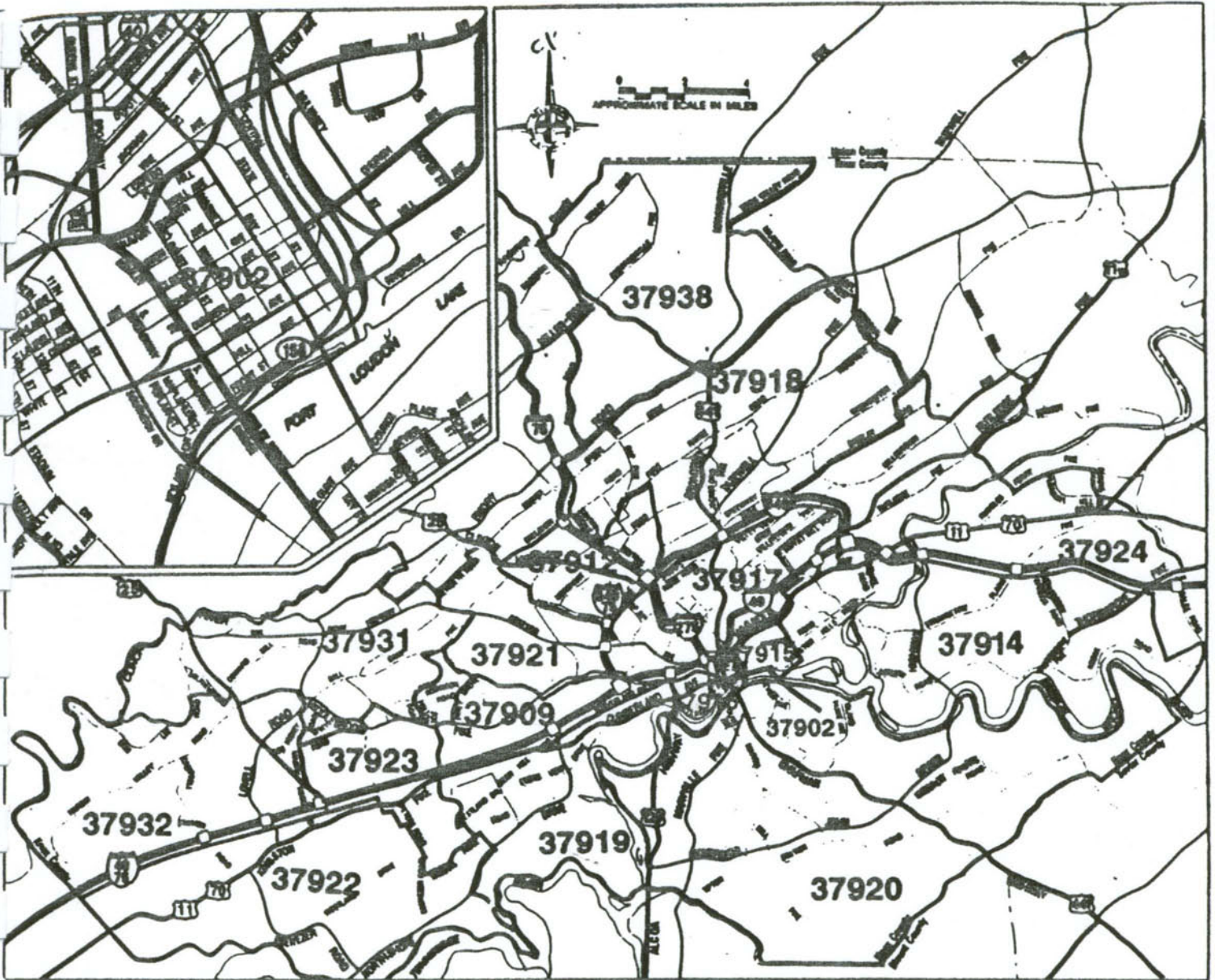
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Appendix A

Knox County Demographics (*Demographic Profile 1993*)



— KNOXVILLE AREA ZIP CODES —

Burlington Station	37914, 37924
Concord-Farragut Branch	37922, 37932, 37933
Downtown Station	37901, 37916
First Tennessee Bank	37995
Fountain City Station	37918, 37928, 37938
General Mail Facility	37909, 37921, 37923,
.....	37931, 37950
Johnson Bible College	37998
Karns Contract Station	37921
Lonsdale Station	37921

North Knoxville Station	37915, 37917, 37927
Norwood Station	37912
South Knoxville Station	37920, 37940
Ten Mile Center	37930
The Plaza Tower	37929
The Mail Box	37990
Third National Bank	37997
University of Tennessee	37996
Uptown Station	37902
West Knoxville Station	37919, 37939
For additional ZIP Code information, call 558-4528.	



Appendix A

KNOX COUNTY DEMOGRAPHICS BY ZIP CODE

	<u>37922</u>	<u>37923</u>	<u>37924</u>	<u>37931</u>	<u>37932</u>	<u>37938</u>	<u>37721</u>	<u>37806</u>
Occupied Households	9,509	8,062	4,148	4,755	2,315	3,361	2,290	566
Percent Male	49%	50%	48%	50%	49%	49%	49%	47%
Percent Female	51%	50%	52%	50%	51%	51%	51%	53%
Percent Persons Aged Under 18	26%	27%	23%	26%	27%	26%	25%	24%
18 - 24	6%	7%	9%	8%	7%	7%	8%	9%
25 - 34	16%	22%	18%	19%	18%	17%	17%	18%
35 - 44	18%	18%	15%	17%	18%	18	17%	16%
45 - 54	16%	13%	11%	13%	12%	13%	12%	11%
55+	18%	13%	24%	17%	18%	19	21%	22%
Household Income less than \$15,000	11%	10%	31%	18%	18%	22%	27%	30%
\$15,000 - \$19,999	5%	6%	13%	6%	6%	8%	12%	12%
\$20,000 - \$24,999	5%	80%	11%	8%	7%	8%	11%	12%
\$25,000 - \$34,999	10%	13%	16%	17%	16%	15%	17%	15%
\$35,000 - \$49,999	19%	25%	17%	22%	24%	24%	18%	19%
\$50,000+	50%	38%	12%	29%	29%	23%	15%	12%
Median Household Income	\$49,761	\$47,450	\$22,278	\$35,731	\$37,360	\$32,803	\$25,112	\$22,837
Home Ownership								
Own	85%	66%	77%	82%	86%	86%	81%	76%
Rent	15%	34%	23%	18%	14%	14%	19%	24%

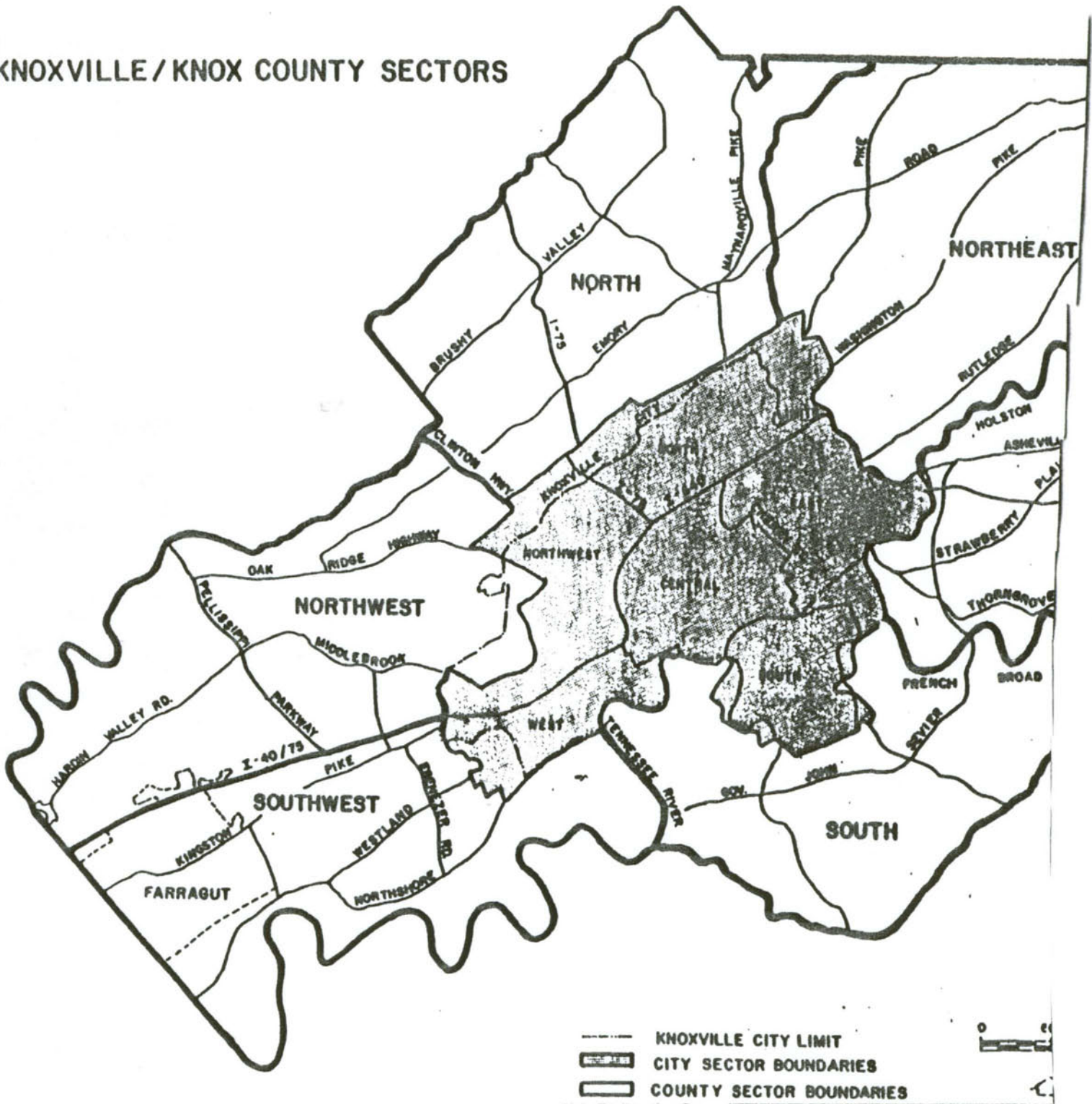
Appendix A

KNOX COUNTY DEMOGRAPHICS BY ZIP CODE

	<u>37914</u>	<u>37915</u>	<u>37916</u>	<u>37917</u>	<u>37918</u>	<u>37919</u>	<u>37920</u>	<u>37921</u>
Occupied Households	8,067	3,516	2,452	12,843	12,612	13,894	15,754	10,480
Percent Male	48%	44%	55%	45%	48%	48%	48%	48%
Percent Female	52%	56%	45%	55%	52%	52%	52%	52%
Percent Persons aged under 18	22%	29%	2%	21%	23%	19%	22%	28%
18 - 24	9%	14%	84%	10%	9%	12%	10%	11%
25 - 34	17%	17%	10%	17%	18%	21%	19%	19%
35 - 44	15%	12%	1%	14%	16%	15%	15%	14%
45 - 54	10%	6%	1%	8%	11%	10%	10%	9%
55+	27%	22%	2%	30%	23%	23%	24%	19%
Household Income less than \$15,000	31%	66%	61%	43%	25%	26%	35%	35%
\$15,000 - \$19,999	11%	11%	16%	12%	10%	10%	12%	10%
\$20,000 - \$24,999	9%	7%	8%	10%	9%	9%	9%	10%
\$25,000 - \$34,999	16%	9%	7%	16%	18%	14%	16%	16%
\$35,000 - \$49,999	16%	4%	4%	12%	20%	16%	14%	18%
\$50,000+	17%	3%	4%	7%	18%	25%	14%	13%
Median Household Income	\$24,408	\$10,502	\$11,794	\$17,642	\$28,339	\$28,339	\$21,661	\$23,173
Home Ownership								
Own	72%	55%	7%	55%	71%	50%	69%	57%
Rent	28%	45%	93%	45%	29%	50%	31%	43%

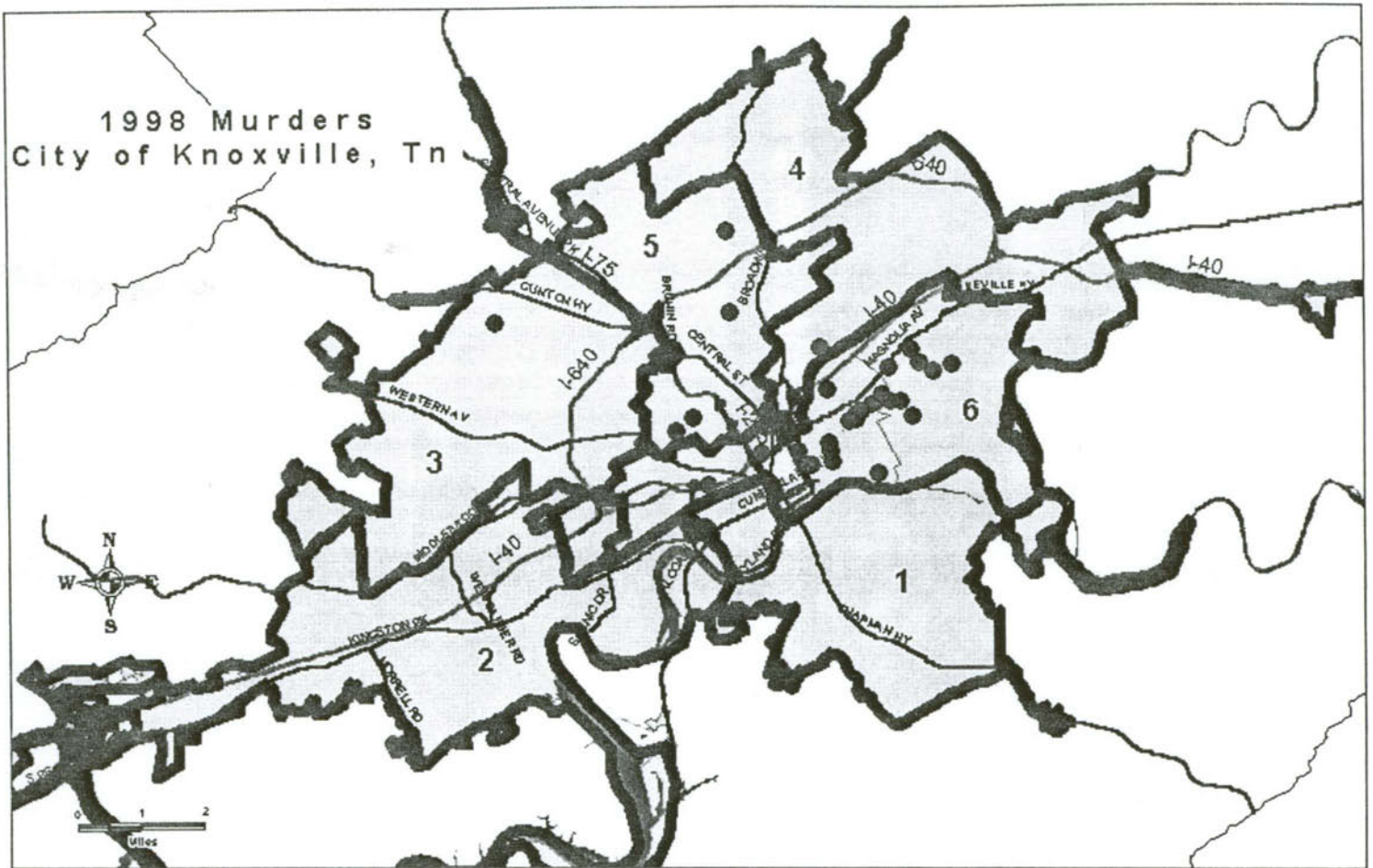
Appendix A

KNOXVILLE / KNOX COUNTY SECTORS

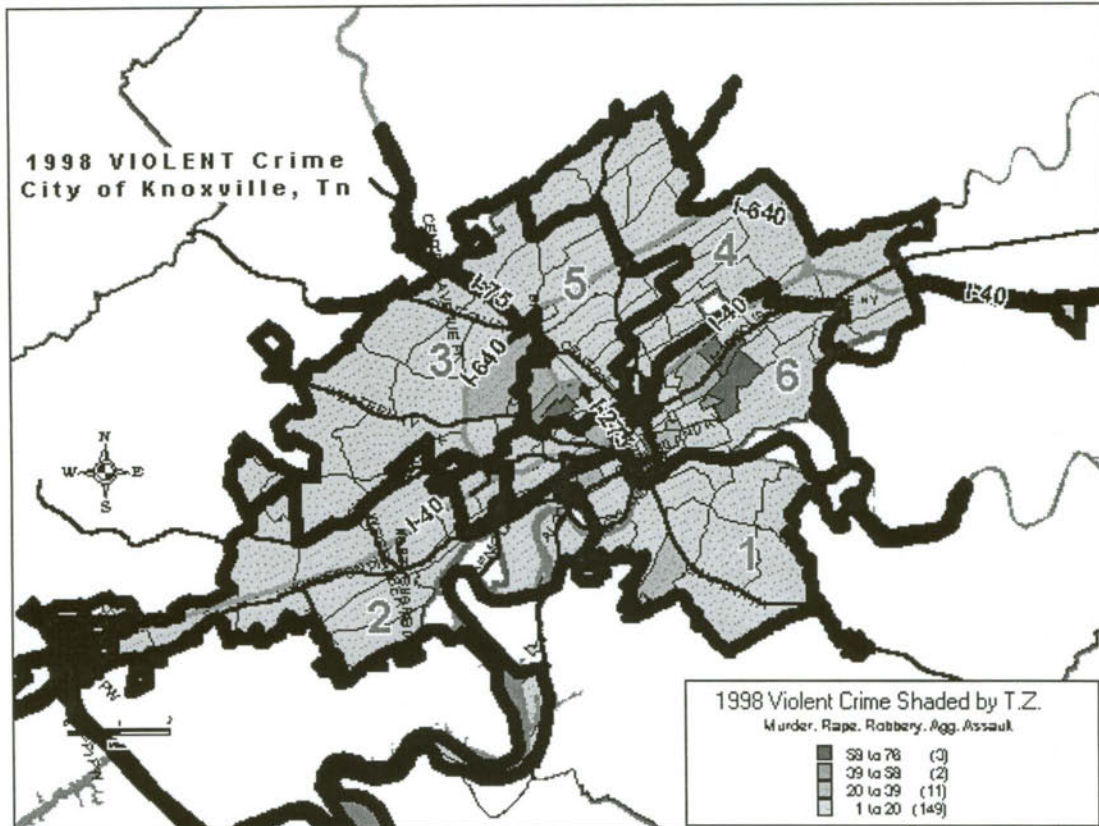


Appendix B

Knox County Police Department Crime Statistics



Appendix B



Appendix C

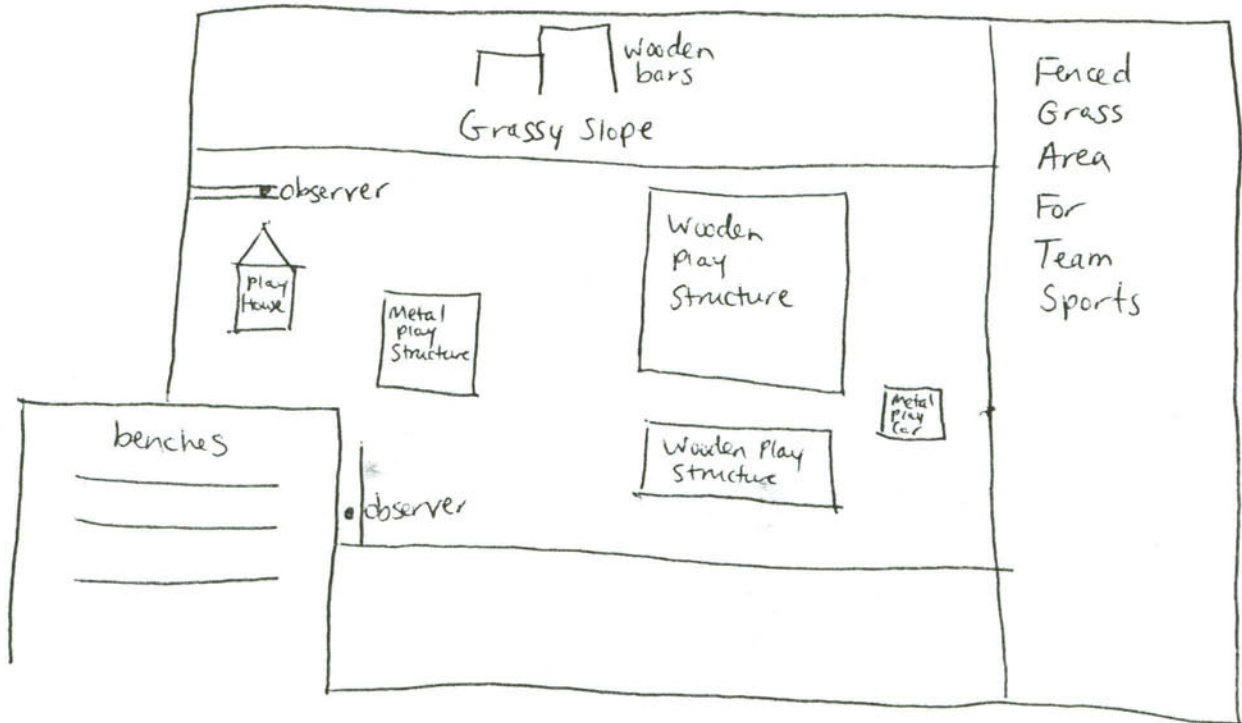
Data collection sheet

	Virginia Ave. or Club	K-2—3-5	Female or Male
physical aggressive beh:			
hitting w/closed fist			
Slapping			
Kicking			
Pushing			
Biting			
Pinching			
pulling hair			
aggression with objects			
tripping others			
Verbal aggressive beh:			
Verbal aggression(cursing, et al)			
profane gestures			
TOTAL # Aggressive beh.			
Physical nurturant beh:			
Hugging			
patting on heads(gently)			
touching(shoulder/cheek)			
giving something to playmate			
sharing (plaything, food)			
helping with task/homework			
Verbal nurturant beh:			
Thanking			
smiling at others			
greeting others			
Encouraging			
complimenting others			
TOTAL #Nurturant beh.			

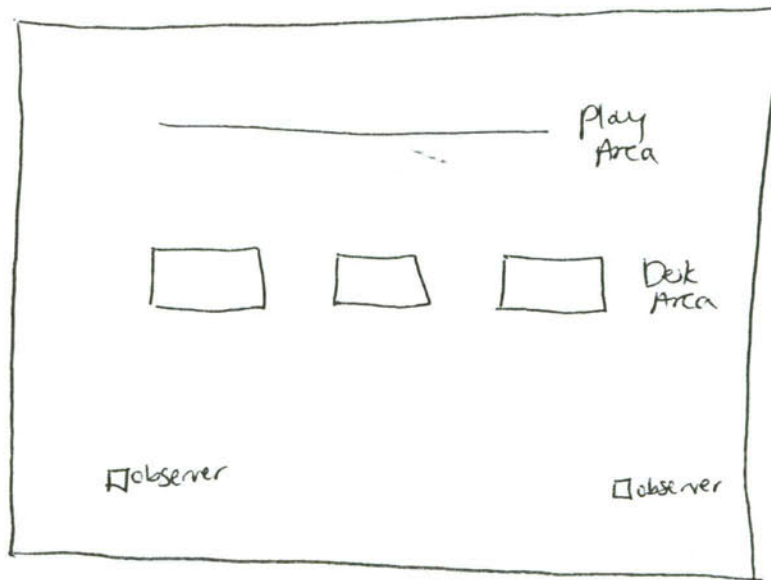
Appendix D

Diagrams of Play Settings at Club and Location of Observer

Playground

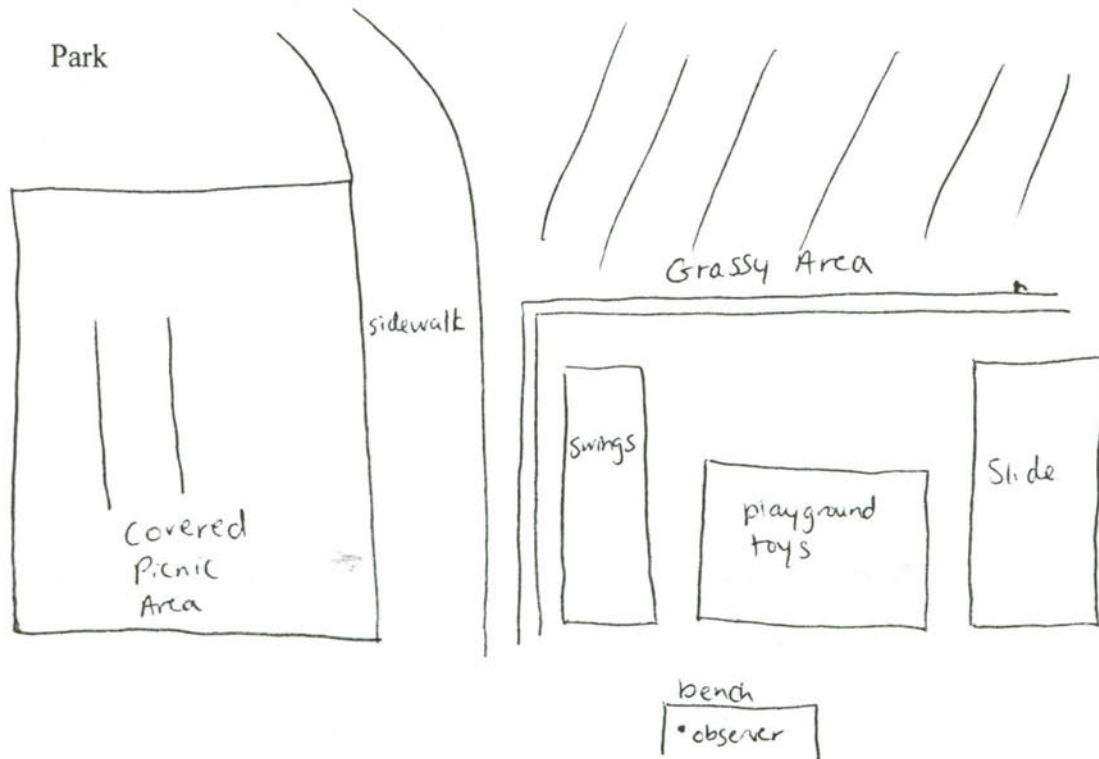


Classroom

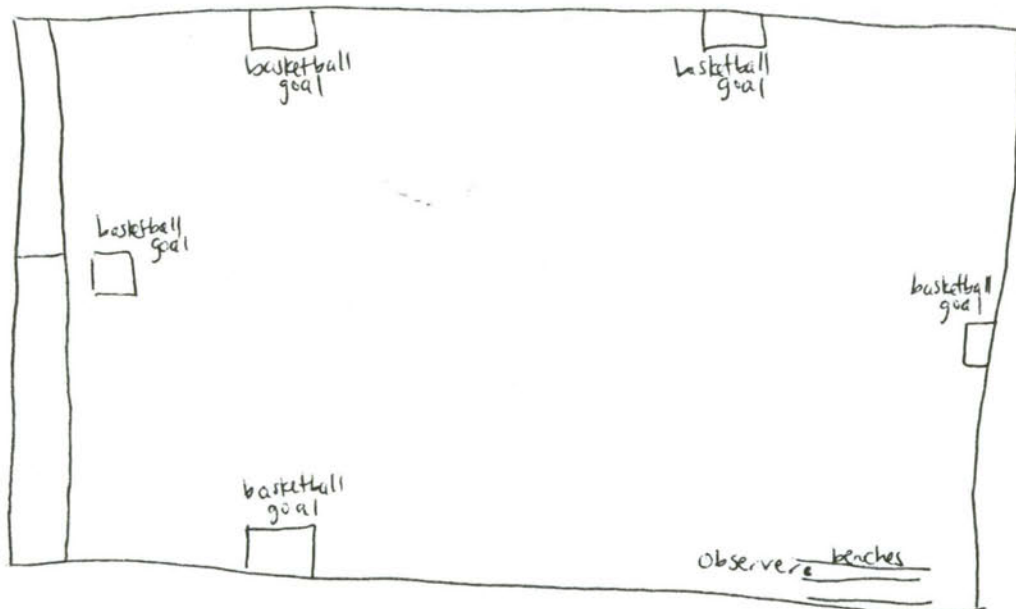


Appendix E

Diagrams for Play Settings at VA and Location of Observer

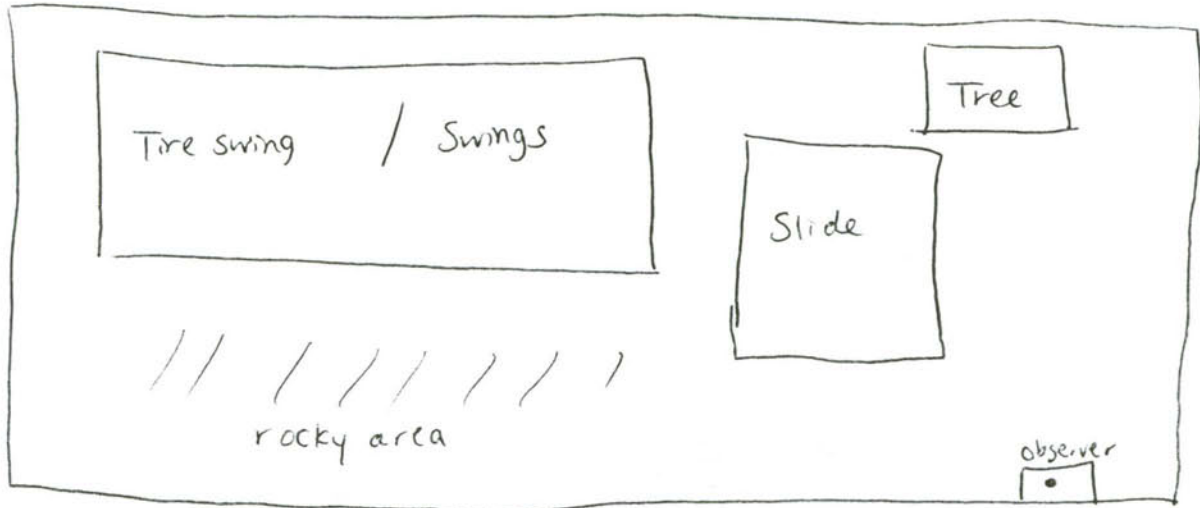


Gym



Appendix E

Playground



Appendix F

Frequencies of Aggressive and Nurturant Behaviors by Site, Age, and Sex

Club:	VA:
Aggressive--	Aggressive--
1. Pushing—17 incidents	1. Pushing—15 incidents
2. Kicking—6 incidents	2. Kicking—1 incident
3. Aggression w/objects—7 incidents	3. Aggression w/objects—3 incidents
4. Slapping—1 incident	4. Slapping—2 incidents
5. Hitting w/fist—1 incident	5. Hitting w/fist—1 incident
6. Verbal Aggression—1 incident	6. Verbal Aggression—1 incident
7. Biting—0	7. Biting—0
8. Pinching—0	8. Pinching—0
9. Pulling hair—0	9. Pulling hair—0
10. Tripping others—0	10. Tripping others—0
11. Profane gestures—0	11. Profane gestures—0
Nurturant--	Nurturant--
1. Smiling—25 incidents	1. Smiling—24 incidents
2. Touching(shoulder/cheek)—5 incidents	2. Touching(shoulder/cheek)—3 incidents
3. Encouraging—1 incidents	3. Encouraging—5 incidents
4. Thanking—2 incidents	4. Thanking—4 incident
5. Sharing—6 incidents	5. Sharing—1 incidents
6. Helping w/task—5 incidents	6. Helping w/task—2 incidents

7. Giving to playmate—4 incidents	7. Giving to playmate—0
8. Hugging—2 incidents	8. Hugging—1 incident
9. Complimenting—1 incident	9. Complimenting—2 incidents
10. Patting gently on head—2 incidents	10. Patting gently on head—0
11. Greeting—0	11. Greeting—1 incident

K-2: Aggressive--	3-5: Aggressive--
1. Pushing—15 incidents	1. Pushing—17 incidents
2. Kicking—1 incident	2. Kicking—6 incidents
3. Aggression w/objects—2 incidents	3. Aggression w/objects—8 incidents
4. Slapping—2 incidents	4. Slapping—1 incident
5. Hitting w/fist—0	5. Hitting w/fist—2 incidents
6. Verbal Aggression—0	7. Verbal Aggression—2 incidents
7. Biting—0	7. Biting—0
8. Pinching—0	8. Pinching—0
9. Pulling hair—0	9. Pulling hair—0
10. Tripping others—0	10. Tripping others—0
11. Profane gestures—0	11. Profane gestures—0
Nurturant--	Nurturant--
1. Smiling—20 incidents	1. Smiling—29 incidents
2. Touching(shoulder/cheek)—5 incidents	2. Touching(shoulder/cheek)—3 incidents

3. Encouraging—3 incidents	3. Encouraging—3 incidents
4. Thanking—3 incidents	4. Thanking—3 incident
5. Sharing—4 incidents	5. Sharing—3 incidents
6. Helping w/task—4 incidents	6. Helping w/task—3 incidents
7. Giving to playmate—4 incidents	7. Giving to playmate—0
8. Hugging—2 incidents	8. Hugging—1 incident
9. Complimenting—3 incident	9. Complimenting—0
10. Patting gently on head—0	10. Patting gently on head—2 incidents
11. Greeting—0	11. Greeting—1 incident

Female:	Male:
Aggressive--	Aggressive--
1. Pushing—9 incidents	1. Pushing—23 incidents
2. Kicking—3 incidents	2. Kicking—4 incidents
3. Aggression w/objects—2 incidents	3. Aggression w/objects—8 incidents
4. Slapping—1 incident	4. Slapping—2 incidents
5. Hitting w/fist—1 incident	5. Hitting w/fist—1 incident
6. Verbal Aggression—1 incident	8. Verbal Aggression—1 incident
7. Biting—0	7. Biting—0
8. Pinching—0	8. Pinching—0
9. Pulling hair—0	9. Pulling hair—0
10. Tripping others—0	10. Tripping others—0

11. Profane gestures—0	11. Profane gestures—0
Nurturant--	Nurturant--
1. Smiling—23 incidents	1. Smiling—26 incidents
2. Touching(shoulder/cheek)—6 incidents	2. Touching(shoulder/cheek)—2 incidents
3. Encouraging—6 incidents	3. Encouraging—0
4. Thanking—5 incidents	4. Thanking—1 incident
5. Sharing—4 incidents	5. Sharing—3 incidents
6. Helping w/task—2 incidents	6. Helping w/task—5 incidents
7. Giving to playmate—2 incidents	7. Giving to playmate—2 incidents
8. Hugging—2 incidents	8. Hugging—1 incident
9. Complimenting—1 incident	9. Complimenting—2 incidents
10. Patting gently on head—1 incident	10. Patting gently on head—1 incident
11. Greeting—1 incident	11. Greeting—0

Appendix G

Request for Participation/Consent of Sites to Observe

Consent for Observation of Children in Care Programs

I give permission to Selena Morrow, anthropology student at the University of Tennessee, Knoxville, to observe elementary-aged children at Knoxville area Virginia Avenue Youth Foundation facilities for the purpose of collecting information on the behavior of these children at play.

I understand that the children will not be identified nor disturbed during these observations.

Signed: _____