THESIS

GIRLS, BOYS AND A TOP: GENDER / ENVIRONMENTAL DIFFERENCES AND A TEST OF PLAYFULNESS RESEARCH VERSION 2

Submitted by

Rebecca Elin-Geis Tyler

Occupational Therapy Department

In partial fulfillment of the requirements

for the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Summer 1996

COLORADO STATE UNIVERSITY

July 3, 1996

WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY REBECCA ELIN-GEIS TYLER ENTITLED GIRLS, BOYS AND A TOP: GENDER / ENVIRONMENTAL DIFFERENCES AND A TEST OF PLAYFULNESS RESEARCH VERSION 2 BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN OCCUPATIONAL THERAPY.

Committee on Graduate Work

Advisor

Department Head

ABSTRACT OF THESIS

GIRLS, BOYS AND A TOP: GENDER / ENVIRONMENTAL DIFFERENCES AND A TEST OF PLAYFULNESS RESEARCH VERSION 2

The effects of gender and the environment on children's playfulness scores using the ToP were examined. Videotapes of 124 children, ages 19 to 118 months were scored by trained raters. One hundred and seven were typically-developing children, seventeen of the children had known disabilities.

Results revealed that gender does not appear to be a factor that affects the scores. Also, age does not seem to produce any differences in the scores. However, playfulness scores do appear to differ between the indoor versus the outdoor environment. Six items (Pretends (Ext), Challenges (Ext), Challenges (Int), Exuberance, Plays with Others, and Plays Interactively) seem to account for the difference found between the settings.

This research suggests that the ToP appears to transcend gender, age and activity. Further research is needed to determine if the ToP in fact, needs to be given in both the indoor and outdoor environments.

Rebecca E. Tyler
Occupational Therapy Department
Colorado State University
Fort Collins, CO 80523
Summer 1996

ACKNOWLEDGMENTS

A heart felt thank you to my family, especially my husband Dave, for his encouragement, computer expertise, and undying patience with this process.

Many thanks to Anita Bundy for her "red pen," dedication, and her belief in me. Further thanks to committee members, Peggy Short-DeGraff and Karen Barrett for their input and support.

I cannot forget to thank Lori Brooks, for sharing her ideas and friendship with me, and the many other Master's students whose comments and papers inspired me to excel with my own project.

And now, I'm going out to play!

RET

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

TABLES PAGE

FIGURES

INTRODUCTION

Bundy (1993) believed a playful way of approaching the world is more important than the play activity itself. Thus, she created the Test of Playfulness (ToP) in an effort to provide occupational therapists with a tool for assessing children's playfulness.

In 1995, Brooks assessed the reliability and validity of the Test of Playfulness with a sample of 124 children. She provided evidence that the ToP was a reliable and valid assessment of playfulness for children as young as 15 months. Further, the ToP appeared to not be constrained by the variable of disabilities as the pattern of responses for the 17 children with disabilities did not differ from that of the typically-developing subjects. Although most of the children with disabilities scored in the lower half of the sample, one child with cerebral palsy whose means of locomotion was a power wheelchair, ranked second most playful.

Even with these positive results, Brooks (1995) suggested further research to improve the ToP. Specifically, 5 of the 68 items failed to conform to the expected response pattern (i.e., fit the Rasch model). These were: extent of mischief (indoors), extent of pretending (indoors and outdoors), extent of sharing (indoors and outdoors).

There is ample reason to believe that the failure of these items to fit the model might be explained through gender or environmental differences. Thus, for this

investigation, videotapes were scored and Brooks' (1995) data was reanalyzed and reinterpreted.

Many researchers have examined the effects of gender and environment on play. Lever (1975) is among the most well known of these researchers. Lever used observation, interviews, questionnaires and student diaries to gather information regarding daily play activities of fifth grade children in suburban Connecticut. She reported that boys and girls differed in where they played, with whom and what they played, and how long their play lasted. Specifically, Lever found evidence for the following differences: boys play outdoors more; boys play in larger, more age-heterogeneous groups; girls play more boys' games than boys play girls' games; boys play more competitive games; and boys' games last longer than girls'. More recently, other researchers (cf. Shapio, 1990; Thorne, 1993) have supported Lever's results, suggesting they apply equally well to the children of the nineties. Hence, Lever's categories were selected to organize this literature search.

Lever's (1975) finding that boys spend more time than girls playing outdoors is well accepted (Harper & Sanders, 1977; Shapio, 1990; Thorne, 1993). Further, when girls engage in outdoor play, the activities and play materials they choose differ from those of boys. Tizard, Philips, and Plewis (1976) indicated that:

> Girls spent considerably more time than boys playing with fixed physical equipment such as climbing frames and swings, whilst boys more often played with wheeled vehicles, and larger outdoor constructional material such as crates, tires and ladders"(p. 260).

The preferred locations of boys' and girls' play seem to interact with their toy selection. Girls enjoy playing dress-up, dolls, and house indoors. Boys choose guns, blocks and other building materials and often play with these outdoors (Barnett, 1991; Cohen, 1987; Garvey, 1977; Harper & Sanders, 1977; Paley, 1984). Additionally, Garvey concluded that boys are less apt to center their play on toys, as they prefer to run and socialize in groups, and to focus on each other.

Boys' play consistently requires more space, both indoors and outdoors (Garvey, 1977; Paley, 1984; Shapio, 1990). This is not surprising as boys' play often includes team sports that require large areas for numerous players (Thorne, 1993). Boys' outdoor activity often is associated with rough-and-tumble play (R&T), a type of play in which girls rarely engage (Cole & La Voie, 1985; Garvey, Maccoby & Jacklin, 1974; Pellegrini, 1989).

DiPietro (1981) explained that for R&T play to occur, both parties must consent to the activity. She contended that boys both emit more cues that are invitations to roughhouse and are more likely to respond to such signals with play. Girls might perceive the identical cues as threatening. For example, a boy taking a toy from the hand of a playmate may be signaling R&T play. For girls, this same act usually is not followed by play.

Male pretend play also is supported by the outdoor environment (Harper & Sanders 1977; Paley, 1984; Rubin, Fein and Vandenberg, 1983). Specifically, Paley noted that boys often run and chase in groups assuming roles such as

"monster" and scaring girls. In support, Rubin et al. (1983) stated that the nature of pretense play also differs between the genders; boys tend to "enact fictional, superhero roles, while females are more likely to portray familial characters" (p. 739). While this stereotyping frequently holds true, girls are allowed more freedom than boys in their fantasy play (cf. Fein, 1981). Girls often assume roles in boys' fantasy scenarios; however, it is not acceptable for boys to enter into girls' fantasy play arenas. For example, Paley (1984) observed that boys must invent "masculine" or neutral roles to be able to play in the doll corner without shame.

Theorists and researchers disagree about the relative quantity of girls' and boys' pretend play. Some reports have favored girls (Jones & Glenn, 1991; Wall et al., 1988; Werebe & Baudonniere, 1991), others boys (Rubin et al., 1983; Sanders & Harper, 1976); still others have found no significant differences (Birns & Sternglanz, 1983; Cole & LaVoie, 1985). Fein (1981) maintained "these discrepant findings might be a function of where pretend play is observed, the availability of sex-typed materials, or other setting factors" (p. 1105).

Researchers often rely on verbalizations to detect the presence of pretense. Thus, because their play often includes structured conversations, girls may be found to engage in more fantasy play (Jones & Glenn, 1991; Perlmutter & Pellegrini, 1987). For example, Werebe & Baudonniere (1991) found preschool girls engaged in more productive, varied and complex pretense play than boys. They concluded that girls' pretend play was more developmentally advanced and

suggested that the skills required for social pretense play (i.e., role-taking, complex sustained play) may develop later in boys than girls.

In contrast, Cole & LaVoie (1985) found no gender differences in the pretend play of children ages 2 to 6 years. Here, "the boys had a batcave, a batmobile and city hall, and they went through the process of capturing several robbers, with each plot building in intensity, while girls played with little physical movement; confined to one corner" (p. 239). Cole & LaVoie suggested that other researchers (cf. Harper & Sanders, 1977) may have attended more readily to the louder and more active boys, thus concluding they engage in more fantasy play.

Perhaps related to the environment and types of activities they prefer, boys tend to play in larger groups than girls (Benenson, 1993; Lever, 1975; Lloyd, 1989). Lever found that the majority of boys' play activities (i.e., team sports) require four or more participants. The indoor environment thus becomes too restrictive. In contrast, girls' games, even outdoors (e.g., hopscotch or jumprope) are played in groups of two or three.

When engaging in group play, children tend to play with same sex playmates (Lloyd, 1989; Maccoby, 1988; Maccoby & Jacklin, 1974; Rubin, 1980; Thorne, 1993). Further, Rubin noted boys and girls view their social groups differently as girls see the group as a source of closeness and intimacy, and boys focus on being a participating team member. Lever (1975) believed that these childhood trends trained boys for the work force and girls to be nurturing mothers.

Even when they are very young, boys reject playing with feminine objects (Lloyd, 1989). Parents and other influential adults may contribute to this inflexibility (Fein, 1981; Lloyd; Paley, 1984). Boys who participate in the girls' play activities often encounter jeering and are questioned about their motives. Perhaps to avoid ridicule, boys enter the girls' play realm by teasing or interrupting. In this way, boys can play girls' games without negative consequences (cf. Lever, 1975; Thorne, 1993).

Lever (1975) and others (cf. Garvey, 1977; Shapio, 1990; Thorne, 1993) also described that boys tend toward competitive games and girls toward cooperative play without rules or winners. This reaffirms the point that girls value the intimacy of close friendships whereas boys enjoy "being the best." However, Huges (1988) stated that girls are not without their own competitiveness. He referred to this feminine competition as being "nice mean." When they are being nice mean, girls can assert themselves but remain in good standing with their friends. Further, Gruber (1992) found when children played in mixed gender groups, girls typically played games-with-rules in a competitive style. Thus, unquestionably, girls compete but they do so differently than boys.

Finally, Lever (1975) suggested that boys are more likely to play in age heterogeneous groups and their games tend to last longer than girls' games. The former finds ample support in less recent research than Lever's (cf. Maccoby & Jacklin, 1974). Yet the latter is not well documented. Both notions seem logical;

since boys tend to play organized sports that require many players, the game may be more important than the characteristics of the players (e.g., if a team needs one more player anyone available is good enough). Also, sports require extended time to complete as compared with less structured girls' games that have no preordained beginning or ending (Emmott, 1985).

In summary, boys' play differs in numerous ways from girls' play and, the social and physical environments appear to affect play behavior differently for boys and girls. The outdoors, cars, blocks, and large groups promote playfulness in boys while girls tend to be more playful indoors in small intimate groups engaging in domestic role playing activities.

Since current research proposes that gender differences must be considered whenever evaluating play and playfulness, the primary purpose of this study was to examine the effects of gender and environment on the ToP items. Specifically, the following questions were addressed: 1) Do girls and boys of various ages differ on their overall ToP scores? Is there an interaction between age and gender? 2) Do overall ToP scores of boys and girls differ in indoor and outdoor environments? 3) Do difficulties of ToP items differ in indoor and outdoor environments?

METHOD

Subjects

The same data set was used in this research project as in Brooks' (1995) study of the reliability and validity of the ToP: Research Version 2 (see Appendix B). A total of 124 subjects participated in the research. One hundred and seven were typically-developing children (55 females, 69 males) ranging in age from 19 to 118 months (M = 54.97) for whom no concerns in any area of development had been expressed by parents or other significant others (e.g., teachers, day care providers). Seventeen of the children (4 females, 13 males) had known disabilities: 8 children were diagnosed with cerebral palsy, 7 with unspecified special needs (both were independently ambulatory and verbal), 1 with a hearing impairment, and 1 with pervasive developmental disorder (PDD). Subjects were white (n=116), black (n= 1) and Asian (n=7), middle-class children from across the United States and the Toronto area. Subjects were recruited by research team members through personal acquaintance. All subjects volunteered to participate and signed consent forms.

Instrumentation

The ToP was used to score the subjects' playfulness (see Appendix C). The ToP is comprised of items that define a construct of playfulness. Thirty-four descriptors are scored as the child plays both indoors and outdoors (68 individual items). As appropriate, each item is scored for its extent (proportion of time

engaged), intensity (degree of presence), and skill (ease of performance) using a 0-3 point scale.

Procedures

All subjects had been videotaped for previous studies (Hutchinson, 1994; Metzger, 1993); the tapes were re-used for this study. Subjects were videotaped for 15-20 minutes in both indoor and outdoor environments during spontaneous free play. Twenty-six raters (9 OT professional master's students, and 17 OTRs) each independently rated between 10 and 20 videotapes. Each tape was scored by at least 2 trained raters.

Data Analysis

The FACETS computer program (Linacre, 1989) was used to convert raw ordinal scores into equal interval data (logits) that describe a line. This line represents a continuum of the items', subjects', and raters' scores ordered in sequence from easiest \ most playful \ most lenient to most difficult \ least playful \ most severe. Since all three variables fall along the same line, they are directly comparable.

The Rasch measurement model generated by the FACETS program was used to interpret the ToP scores. Rasch analysis provides a Mean Square (MnSq) and a standardized (t) statistic for all items to allow for determination of fit to the model. Fit is derived from a ratio of the observed score and the model's expected score. Ideally, the MnSq value should be 1.0; the t value should be 0. Items, subjects, and

raters that have MnSq values of $\pm$ 1.4 and t statistics of $\geq +2$ were identified as "failing to fit" the model and were examined further (Fisher, 1993; Wright & Stone, 1979).

Three assumptions underlie use of the Rasch model with the ToP. First, easier test items are easier for all children. Second, the more playful child is more likely than the less playful child to pass harder items. Third, more lenient raters are more apt than more severe raters to award higher scores on items. When the above criteria are met, statistics are in the acceptable range and the items fit the model.

Brooks (1995) found that 5 ToP items, Pretends (both indoor and outdoor); Shares (both indoor and outdoor); and Mischief (indoor only) failed to conform to the expected response pattern. There was reason to believe that the failure of the above items to fit the model could be related to gender or environment. We hypothesized that sharing might be easier for girls than boys, and that mischief might be easier for boys than girls. We also hypothesized that pretending might seem easier indoors than outdoors since, because of the videotapes it may not have been possible to correctly identify outdoor pretend play. Thus, we analyzed the data separately both by gender and environment to determine whether or not Pretends, Shares, and Mischief would then conform to the Rasch model (see Appendix D).

RESULTS

When we separately analyzed the data by gender and environment, the items of

concern continued to lie outside the statistical model, except for Pretends (ext) which fit outdoors for girls (see Table 1). Thus, except where noted, we completed further analyses with the combined data set. Because they do not fit the Rasch model, any conclusions regarding Pretends, Mischief and Shares must be made with caution.

To answer the question, "do girls and boys differ on their overall ToP scores" a 2 X 4 ANOVA (gender X age) was performed. The four age groups were as follows: 15-41 mo.; 42-83 mo.; 84-107 mo.; and 108+ mo. Means and standard deviations for each group shown in Table 2. There was no significant difference from age (F= 2.32; p= .08), or gender (F= .33; p= .57). Because the differences for age approached statistical significance, a Pearson Product Moment Correlation between age (in months) and ToP scores was computed. The resulting coefficient was r = .29 (p = .001). While this coefficient is statistically significant, the clinical relevance seems questionable since less than 10% of the variance is explained. Further investigation of age groups is warranted.

To establish if there was an interaction between gender and environment (indoor \ outdoor), a 2 X 2 ANOVA was computed. There was no significant interaction between gender and environment (F= 1.618 ; p= .205) and no significant difference between males and females (F= .589 ; p= .444). However, there was a significant difference between the means of the scores in the two environments (F= 3.908 ; p= .049) (see Table 2).

To further examine differences in individual variables contributing to the environmental differences noted above, the interaction of the ToP items was graphed. For convenience, items were grouped according to the four elements of playfulness (Bundy, in press) (see Figures 1-4). To establish which specific items differed between the indoor and outdoor environments, each item's indoor and outdoor measure, plus or minus 2 standard errors was graphed. The measure, plus or minus 2 standard errors provides a 99% confidence interval in which the actual item score is likely to fall (Wright & Stone, 1979). When two confidence intervals overlap the items do not differ significantly.

As seen in Figures 1-4, six of the 34 pairs of items differed significantly: Exuberance, Challenges (extent) and Challenges (intensity), were found to be easier outdoors. While Pretends (extent), Plays with Others (extent), and Plays Interactively, are easier indoors. These items seem to be responsible for the differences seen between the indoor and outdoor environments. Specifically, Pretends appears to account for most of the difference.

Table 1

Fit for items of concern.

Item	Boys		Girls		Indoor		Outdoor	
	Infit	Outfit	Infit	Outfit	Infit	Outfit	Infit	Outfit
Pretends ext in	*	*	*	*	*	*	----	----
Pretends ext out	*	*	----	----	----	----	*	----
Mischief ext in	----	*	----	*	----	*	----	----
Shares ext in	*	*	*	*	*	*	----	----
Shares ext out	*	*	*	*	----	----	*	*

Key

* Failure to fit
(Standardized statistic ≥ 2
and Mn Sq Statistic ≥ 1.4)

Table 2

Descriptive Statistics for ToP scores by Environment, Age and Gender.

Category	N	Mean	SD
Indoors		-.16	.98
Outdoors		-.13	.82
Boys		-.13	.81
Girls		.08	.64
Age (15-41 mo.)	36	-.41	.67
Age (42-83 mo.)	68	-.05	.76
Age (84-107 mo.)	14	.23	.66
Age (+108)	3	.49	.57

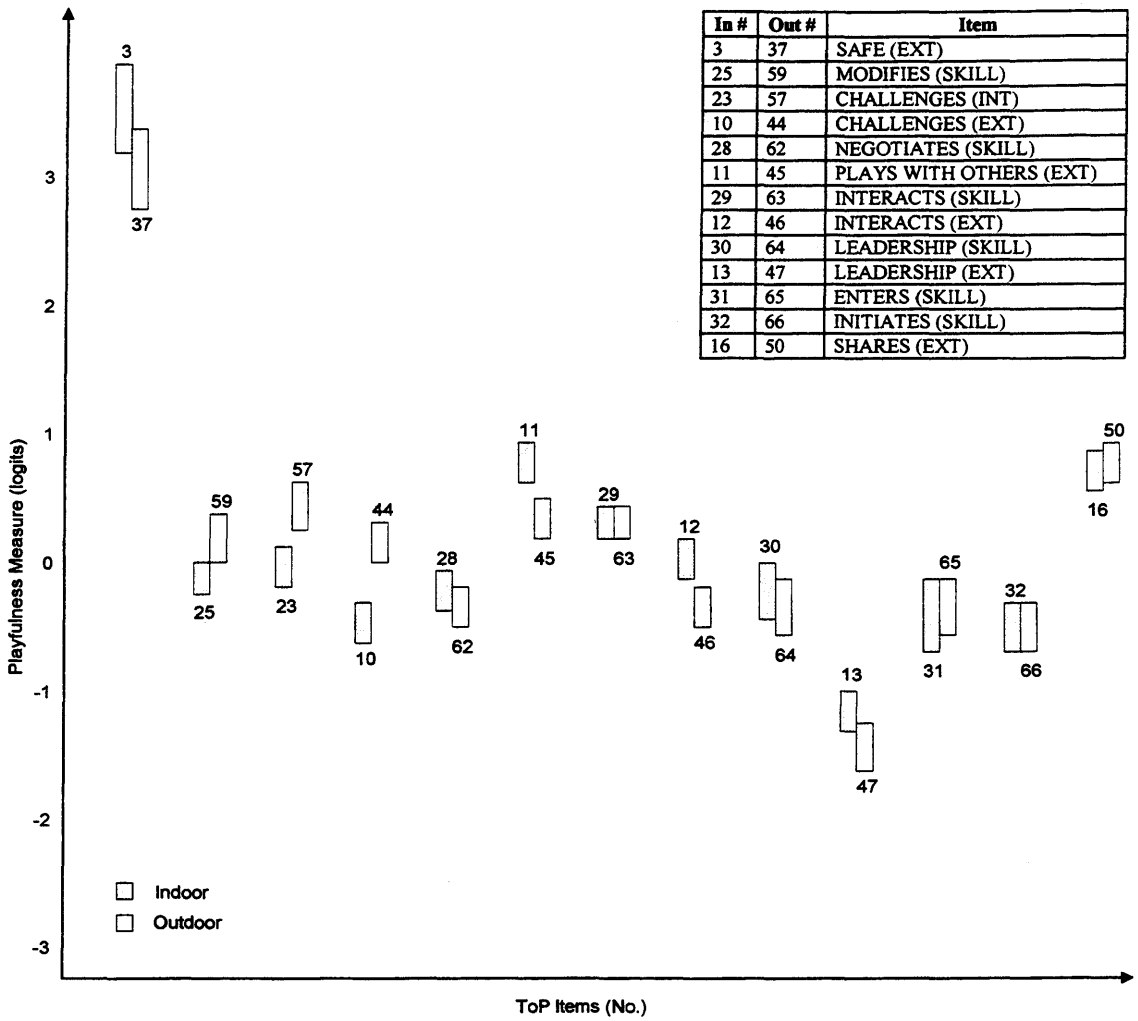


Figure 1. Comparison of indoor and outdoor item measures (Internal control).

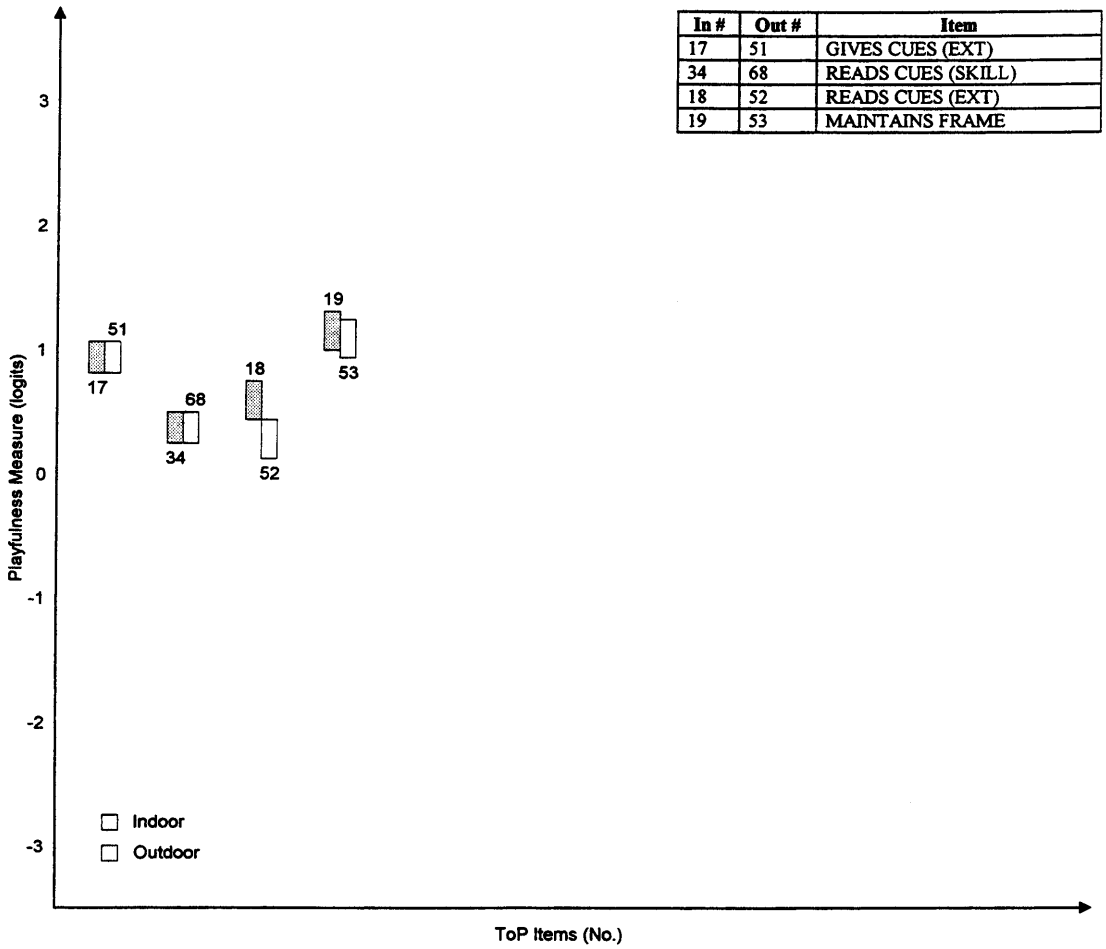
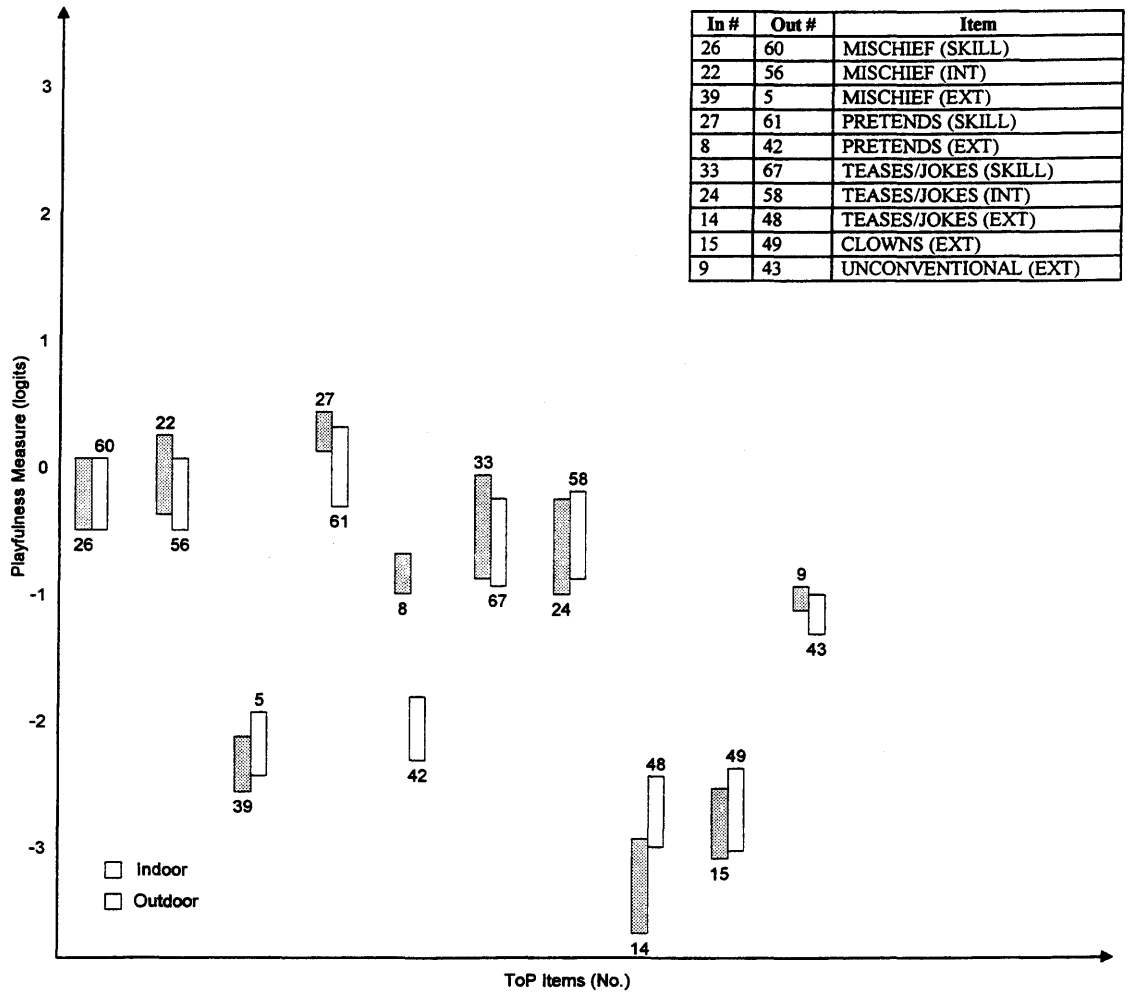
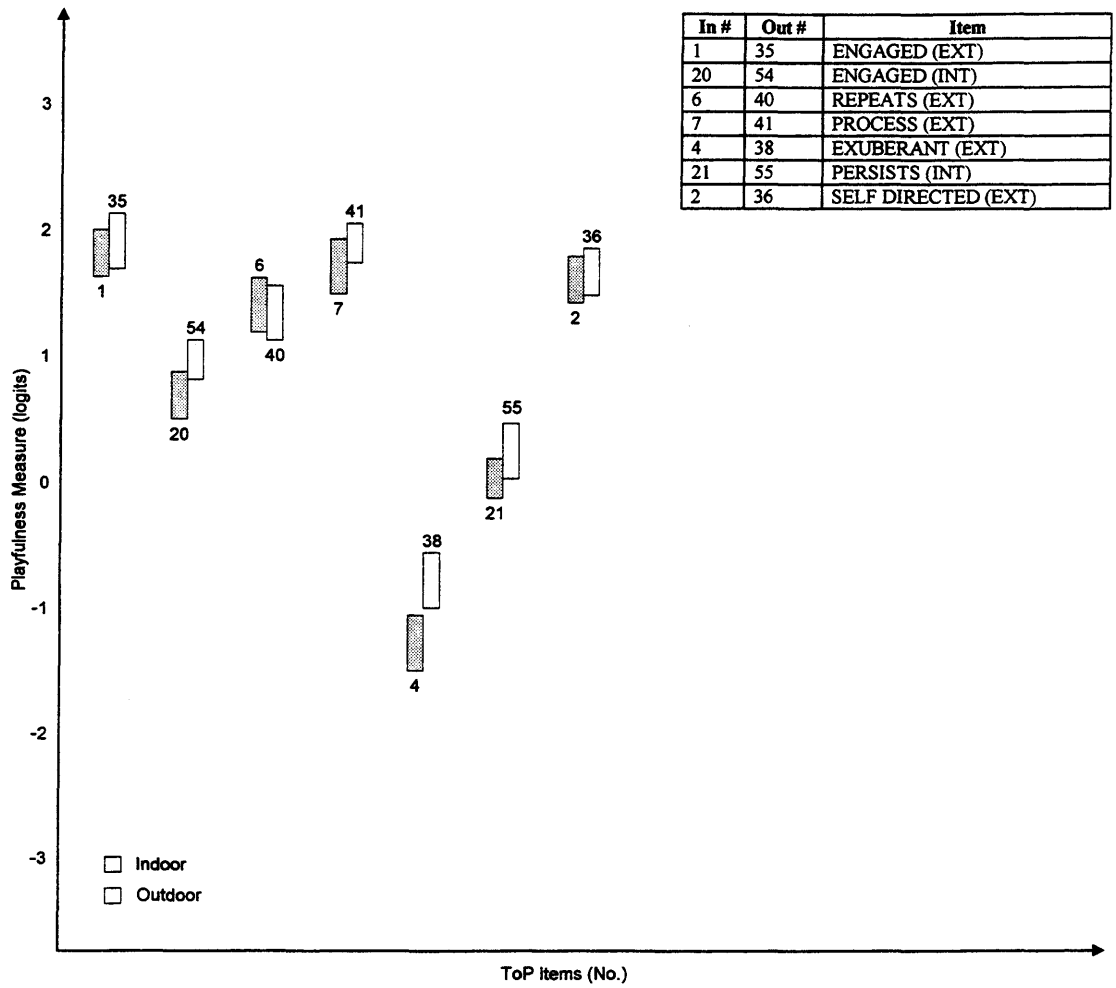


Figure 2. Comparison of indoor and outdoor item measures (Framing).



In #	Out #	Item
26	60	MISCHIEF (SKILL)
22	56	MISCHIEF (INT)
39	5	MISCHIEF (EXT)
27	61	PRETENDS (SKILL)
8	42	PRETENDS (EXT)
33	67	TEASES/JOKES (SKILL)
24	58	TEASES/JOKES (INT)
14	48	TEASES/JOKES (EXT)
15	49	CLOWNS (EXT)
9	43	UNCONVENTIONAL (EXT)

Figure 3. Comparison of indoor and outdoor item measures (Freedom- Suspension of reality).



In #	Out #	Item
1	35	ENGAGED (EXT)
20	54	ENGAGED (INT)
6	40	REPEATS (EXT)
7	41	PROCESS (EXT)
4	38	EXUBERANT (EXT)
21	55	PERSISTS (INT)
2	36	SELF DIRECTED (EXT)

Figure 4. Comparison of indoor and outdoor item measures (Intrinsic motivation).

DISCUSSION

Results revealed the means of the overall playfulness scores of boys and girls did not differ. Thus, ToP scores of boys can be interpreted in the same way as those of girls. These results are in contrast with other research that has promoted the differences in play and playfulness between boys and girls (Barnett, 1991; Lever, 1975). So, although boys and girls may choose to engage in different forms of play, they approach the activity of play with a similar array of playful characteristics as reflected in the items of the ToP.

Like gender, age was not a significant factor in these results. That is, there were not significant differences between the means of the test scores of the four groups. While the correlation between age and ToP scores was statistically significant, the clinical meaningfulness of the relationship is questionable since less than 10% of the variance is explained. A certain amount of relationship is expected between ToP scores and age since some of the more difficult items (e.g., teases/jokes) are heavily influenced by cognitive and language development. However, many other items (e.g., safe, challenge) seem much less age dependent. Further, one knows very young children who are extremely playful and much older children who are presently, and always have been, very solemn or very concrete.

In contrast with age and gender, statistically significant results were found in the area of environment. The results of the ANOVA suggest that the two environments (indoor/outdoor) are not interchangeable. These results are similar to

those from a previous study on a earlier version of the ToP (McNicholas, 1995). In her report of environment and the ToP, McNicholas also found that "children's playfulness differs between the indoor and outdoor settings" (p. viii). As with the current study, the items of Pretends and Challenges were found to have pronounced differences between the indoor and outdoor environments.

Further analysis (via bar graph), revealed that the difference between the environments is largely explained by six items. Of the three items of original concern (Shares, Mischief, Pretends), Shares and Mischief did not contribute to the difference as we had expected. Neither item differed between settings. However, as previously predicted, Pretends was found to be easier in the indoor environment by a large margin.

It is not surprising that pretense was found to be easier indoors. The majority of children in this study are younger than 6 years of age. The large discrepancy in Pretends scores may be a reflection of this age difference. The literature suggests that older children engage in more pretense play in the outdoor environment (Sanders and Harper, 1976). Furthermore, younger children (under age 5) tend to rely on realistic props for their pretend play, which are more likely to be found in an indoor setting (Tarwick-Smith, 1990).

Several other items contributed significantly to the differences between the two settings. First, Exuberance was easier in the outdoor environment. This difference is likely due to the increased physical activity of the children outdoors. Many of

the children who were videotaped playing outside were on a recess break. Perhaps the children were "blowing off extra steam." It is not surprising that this item would appear to be easier outdoors, as the increase in space and freedom is likely to lead to more rough-and-tumble type play (cf. Rubin et al.,1983). Outdoor environments typically promote increased physical activity which is often associated with more exuberance. Further, rules are different outdoors and children are often allowed to be exuberant (Thorne, 1993).

Both items reflecting Challenge (Extent and Intensity) were easier outdoors. Overall, it may be that occupational therapists to judge non-motor than motor challenges. Thus, raters may have focused their observations on the children challenging themselves physically on the outdoor play equipment. Many of the videotapes showed children playing outdoors on climbing equipment, swings, and slides. Since learning and experiencing motor challenges are at a prime during the early childhood years, it is to be expected that the children would try their skills on the play equipment. Outdoor play equipment allows children to practice their developing motor skills and they continue to pursue activities that provide them with success (Short-DeGraff, 1988).

Plays with Others (extent), and Plays Interactively (extent) were both easier indoors. These results may be directly due to the videotaping and the nature of the activities. Not being able to hear the voices of the children clearly, especially outdoors, may have affected the scoring. Raters may not have always been able to

tell the level at which the children were playing together. Additionally at times, the person operating the camera could not follow every move of a child, and turned off the camera momentarily until she had the child back in view. These deletions sometimes made it difficult to interpret the children's play. Within the indoor environment it was much easier to hear and see the children and their interactions. Most indoor play scenarios included only a few children playing in a relatively confined environment. This allowed raters to monitor the play closely and hear the verbalizations to help confirm their interpretations of the interactions.

Even when analyzed separately by gender and environment, Shares, Mischief and Pretends continue to fail to fit the Rasch measurement model, so overall conclusions regarding these items must be made with caution. Clearly, there are difficulties associated with these items.

Regarding Mischief, the raters may not agree on the definition. Brooks (1995) theorized that this item failed to fit because some raters may have confused mischief with "being bad." She believed the definition of mischief may be confusing and in need of revision.

Sharing also failed to fit in both environments. Brooks (1995) noted that this item is difficult to perceive, since it "is more than a child's offering to share by actively handing a toy to a playmate. It also encompasses using playground equipment or preschool play areas in a cooperative way" (p. 22). To expand on the ideas of Brooks, the concept of sharing includes not only space and toys but also

other people and even ideas. All of the former can be "shared." The raters may not be recognizing the breadth of this definition.

Pretends continues to be an enigma. The literature supports this item as an integral part of playfulness (cf. Barnett, 1991; Lieberman, 1977; Rubin et al., 1983). Given that pretending is widely accepted as a trait of playfulness, it is not to be readily discarded.

It is possible that the problem with Pretends may lie in its definition. That is, raters may not be evaluating the same construct secondary to the lack of consensus surrounding the definition. Brooks (1995) explored this possibility as Pretends also failed to fit in her study. She offered as one possible explanation that raters' focus on evaluating if a child is pretending that they are someone or something they are not or that an object is something that it is not. They may fail to consider other aspects of pretends (e.g., that a child may be pretending to be doing something she is not actually doing or that an object does something that it actually cannot do by itself.) For example, when a child is pushing a toy car across the floor while vocalizing "vroom, vroom," is she pretending to be the driver of the vehicle, or the car itself, making the noise of the car? Maybe the child is not pretending at all and is merely pushing the toy as she has seen others do. The problem of definition becomes apparent in this situation, as some may score the child high on pretense, while another may not even recognize this as a pretend scenario.

Although most of us may believe we understand it, pretends is deceptively complex since it is a manifestation of imagination. In other words, a child imagines a scenario ("what if") and then acts upon that thought via pretending (acting "as if") (Weininger et al., 1992). For example, a child may wonder, "what if I were a doctor?" Based on her experiences she imagines what that role entails, then plays "as if" she were a doctor. This playing "as if" is pretending. The child may use objects such as blocks for medicine bottles to cure her doll "patients."

Since raters cannot look inside a child's mind to measure imagination, we must rely on the actions they share through their pretense play. We have to hope that a child's behaviors are a good enough reflection of imagination so that raters can interpret those actions. Further, raters must have enough imagination and knowledge of the complexity of pretense to accurately score this item.

In short, assuming the difficulties with the above items (Shares, Mischief, and Pretends) are largely the result of artifact, differences between the environments should be resolved and the ToP could be given in either the indoor or outdoor environment. Because the reliability of both subsets of items by themselves is high, it would not be necessary to assess a child in both settings. Certainly, this has important clinical implications as it would save time and money to assess playfulness in only one environment.

On the contrary, if after further investigation, several items continue to differ between the two environments, a decision must be made. The ToP may be given in

separate settings (indoor/outdoor), or a method developed so scores could be easily adjusted based on whether the test is given indoor or outdoors. At present, the ToP must be given in two environments. Without further investigation, it seems premature to assume the environments are different, although that is what our findings suggest.

SUMMARY, CONCLUSIONS AND IMPLICATIONS FOR FURTHER STUDY

The purpose of this study was to examine the effect of gender and environment on children's ToP scores. Neither gender nor age seemed to produce differences in the overall scores. Yet, ToP scores did differ between the indoor and outdoor environments. As discussed, the six items: Pretends (ext), Challenges (ext), Challenges (int), Exuberance, Plays with Others, and Plays Interactively seem to account for the difference; Pretends emerged as the most significant contributor.

The finding that gender did not affect the ToP scores is important for clinicians, as they do not need to orient the child towards a given type of play. The child simply can engage in any play of his / her choice and the ToP will report an accurate account of playfulness. Also, related to gender, it might prove interesting to discover if male raters would have a different perspective of playfulness.

This project encourages further revisions of the ToP. Foremost, the definitions of Pretends, Mischief and Shares need revision. Once these items fit the Rasch model, investigation into the environmental aspect needs to be reconsidered. Are

the indoor and outdoor environments interchangeable? The answer to this question could effect the usefulness of the ToP in the clinic environment.

In an age of health care reforms, including monetary cuts directly affecting the amount of assessment and intervention time, the ToP provides occupational therapists with a tool to legitimately address the main occupation of children, play. More specifically, with extended research, the ToP can allow therapists to accurately assess boys and girls, in naturally existing environments, regardless of age or disability. Thus, future research to streamline the ToP clearly is warranted.

Finally, further clinical applications need to be explored, leading to the eventual development of intervention based on ToP scores. If, in fact, the ToP gives an accurate picture of a child's playfulness, is it possible to help children develop the skills to be playful? The ToP broadens the capabilities of pediatric OTs and allows the profession to expand into the occupational realm of play and playfulness.

APPENDICES

Appendix A

Extended Literature Review

Gender: Nature Versus Nurture

There are obvious differences between males and females. The term "sex" is used to distinguish biological differences between males and females while "gender" refers to the traits, attitudes and behaviors deemed appropriate for members of a given sex (Archer & Lloyd, 1982; Papalia & Olds, 1990; Scarr, Weinberg, and Levine, 1986).

Once the sex of the infant is known, "girls are wrapped in pink blankets and boys in blue." Society imposes "appropriate" gender behavior onto the child and he or she learns how to be male or female. Maccoby and Jacklin (1974) acknowledged that social shaping is of great importance for the acquisition of gender behavior, and that boys and girls may be biologically predetermined to receive social input differently. In support, Harway and Moss (1983) concluded that there is not a "clear-cut" basis for biological gender differences. They found that hormones do contribute to gender differences especially related to activity and aggression. However, the exact role and action of hormones is unclear. Further, it is difficult to discern what bodily changes "can occur as a result of early life experiences or as a result of these experiences combined with hormonal effects" (Harway & Moss, p. 40). Ultimately, they concluded the findings that convincingly support gender differences as due to socialization, rather than biology. In review of

the literature describing the biological basis for gender differences, Papalia & Olds (1990) also described the findings as inconclusive due to failure by researchers to explain the large differences seen in the behavior of males and females. They contended that the environment, culture, and parents are at least as important as the biological differences in determining gender differences.

There is ample evidence to support the notion that parents and other adults treat girls and boys differently (Etaugh & Liss, 1992; Johnson & Roopnarine, 1983; Lloyd, 1989; Maccoby & Jacklin, 1974; Rubin, Fein, and Vandenberg, 1983; Shapiro, 1990). Generally, boys are more intensely socialized than girls; they are not reinforced for engaging in cross-gender behavior, punished more, and given more attention. Parents also play more actively with boys and verbalize more with girls. They also tend to give boys more "gender-appropriate" toys (Etaugh, 1983; Maccoby & Jacklin, 1983; Papalia & Olds, 1990).

Unfortunately, there is limited research that addresses gender differences and playfulness specifically. Thus, differences in play will be examined to provide insight into boys' and girls' play. By exploring differences in the way children play, it is possible to make predictions about differences in playfulness.

Gender differences in play are displayed by the age of 2 years (Garvey, 1977; Gruber, 1992; Fagot & Leinbach, 1993; Maccoby & Jacklin, 1983; Rubin et al. 1983) and become pronounced by the preschool years (Garvey; Lloyd, 1989; Shapio, 1990). Maccoby & Jacklin (1973) explored these gender differences. In

their review of over 40 articles, they found only a few established gender differences. The differences included that girls have greater verbal ability while boys excel in visual-spatial ability and mathematics, and are more aggressive.

In contrast, several other postulated differences between girls and boys were unsupported. Specifically, girls are not more social, or more "suggestible." Further, girls do not have lower self-esteem or less achievement motivation than boys. Similarly, the notions that girls are better at rote learning, simple repetitive tasks, and auditory processing with less analytic and visual were not found to be true. Finally, that girls are more affected by biology and less by the environment also was unsupported. Further, they proposed that there was insufficient evidence to make conclusions about gender differences and levels of activity, fear, timidy, anxiety, competitiveness, dominance, compliance, and nurturance. These were monumental and controversial findings. Other authors (cf. Block, 1976) have criticized Maccoby and Jacklin (1974) for using findings that fit their personal hypotheses and ignoring others and the weak design of their study. Thus, although this work is frequently cited, its conclusions should be carefully contemplated.

Overall Gender Differences and Play

Shortly after Maccoby & Jacklin's (1974) controversial piece was published, Lever (1975) produced the most complete research up to that point on gender differences and play. In the mid 1970's Lever concluded that: "it is during play that we have an opportunity to observe the development of precisely those role

skills that are crucial for success in modern society" (p. 478). To examine her notion, Lever used observation, interviews, questionnaires and student diaries to gather information regarding daily play activities of fifth grade children in suburban Connecticut. Overall, she reported children spent more than 3/4 of their time playing. When engaged in play, boys and girls differed in where they played, with whom and what they played and how long play lasted. Specifically, Lever found evidence for the following differences: boys play outdoors more; boys play in larger more age-heterogeneous groups; girls play more boys' games than boys play girls' games; boys play more competitive games; and boys' games last longer than girls'. Lever concluded that such differences in play lead to differences in the socialization of girls and boys, ultimately perpetuating the stereotypical gender roles by preparing boys for the competitive work force and girls for family life. These data are supported by more recent findings (cf. Lloyd, 1989; Shapio, 1990; Thorne, 1993) and seem to apply equally well to the children of the nineties.

Lever's (1975) finding that boys spend more time playing outdoors than girls is universally accepted (Harper & Sanders, 1977; Shapio, 1990; Thorne, 1993). Further, when girls engage in outdoor play, the activities and play materials they choose differ from those of boys. Tizard, Philips, and Plewis (1976) observed free play episodes and described such differences:

> Girls spent considerably more time than boys playing with fixed physical equipment such as climbing frames, and swings, whilst boys more often played with wheeled vehicles, and larger outdoor constructional material such as crates, tires and ladders (p. 260).

The location of boys' and girls' preferred play environments seem to interact with their toy selection. Girls enjoy playing dress-up, dolls, and house indoors. Boys choose guns, blocks and other building materials and often play with these outdoors (Barnett, 1991; Cohen, 1987; Garvey, 1977; Harper & Sanders, 1977; Paley, 1984). Additionally, boys are less apt to center their play around toys as they prefer to run and socialize in groups, thus focusing on each other (Garvey, 1977). Boys' play consistently requires more space, both indoors and outdoors. (Garvey; Paley; Shapio, 1990). This is not surprising as boys' play often includes team sports that require large areas for numerous players (Thorne, 1993).

Boys' outdoor activity often is associated with rough-and-tumble play (R&T), a type of play in which girls rarely engage (Cole & La Voie, 1985; Garvey, 1977; Maccoby & Jacklin, 1974; Pellegrini, 1989) and which often causes concern for parents and researchers. However, concerns that rough play or "war toys" make children behave in a more violent manner seem unfounded. Sutton-Smith (1988) concluded toys do not cause aggression and that researchers often mistake play behaviors for aggression. Moreover, Pellegrini, found that R&T play often gives way to games-with-rules, a higher-level play activity. He explained:

> Chasing behavior, a component of R&T, and tag both involve running and dodging. Chasing behaviors, in turn, often turned into games of tag. Thus R&T may be functional to the extent that it provides physical skills practice and results in sustained cooperative games-with-rules (p. 256).

In a second study Lever (1978) concluded that boy's play is more complex than girls'. Using the same methodology she conceptualized "complexity" using the six attributes of role differentiation, interdependence between players, size of play group, explicitness of goals, number of rules and team formation. She scored children's play based on the degree to which these were present.

Lever's first attribute was role differentiation. Children received a low score when the same activity is required of all players. Likewise, a high mark indicates the presence of three or more distinct roles. Lever found girls engage in more "turn taking" games with dual roles, while more complex boys' games included team sports with hierarchical roles (e. g., captains and followers).

The second attribute was player independence. If a player does not "immediately and significantly affect the performance of other players" a low score is given (Lever, 1978, p. 473). A high score reflects significant influence. Several types of independence were noted. However when girls did play independently they played cooperatively, while their male counterparts played competitively in games requiring skill and strategy.

The third attribute related to size of play group. A count of all individuals in the play group quantified this element. In support of Lever's (1975) earlier findings, boys played in larger groups than girls.

The fourth attribute defined explicitness of goals. Girls played for the "fun of it," often avoiding goal setting games, unlike boys who declared "winners" and outcomes.

A fifth attribute included number and specificity of rules. Rules were defined as being known to all players prior to the game, constant from one game to the next, and sanctioned. Again, girls tended toward turn-taking games where rules are not as prevalent or complex. Boys engaged in more competitive games with distinct rules for play.

The sixth attribute was team formation. A team was defined as being a group working toward common goals. Boys were found to be on more teams and girls again played in less competitive turn-taking games.

Lever (1978) summarized her findings as: "Boys' play more frequently involves specialization of roles, interdependence of players, explicit group goals, and larger group membership, numerous rules, and team divisions" (p. 479).

From these findings Lever (1978) girls' play is more "spontaneous, imaginative, and free of structure and rules" (p.481). Lever (1975) boldly suggested that in fact girls play more while boys game more.

Lever's findings of basic gender differences in play are supported in the literature even into the 1990's (cf. Gruber, 1992; Shapio, 1990; Thorne, 1993). Although her studies focused on fifth graders playing games, her findings seem also to apply to younger children, and free play situations not necessarily involving

formal games. Her categories are convenient and allow for a comprehensive overview of gender differences and play. Overall, the literature on gender issues and play can be reviewed by answering where do children play, with whom do they play and what do they do in their play.

Boys Play Outdoors More Than Girls

According to Lever (1975), boys spend more of their time playing outdoors than girls. This finding is not surprising since boys' play is much more physical than girls and many of the activities and games boys play require large amounts of space (Shapio, 1990; Thorne, 1993). Girls, however, spend their play time with dolls, and other inside activities (Beeson & Williams, 1985; Gerschner & Moore, 1985; Henniger, 1985; Shapio; Wolfgang, 1985). Harper and Sanders (1977) observed middle-class 3- to 5-year-olds- year-olds in free play time at a nursery school once a week for 2 consecutive years. Overall both boys and girls spent about half of their time playing indoors. When observing across seasons, boys spent more time outdoors, and used from 1.2 to 1.6 times as much space as the girls. Boys also entered more areas on the playground than girls. Contrary to other research (Thorne,) they found no significant differences in time spent away from the building. Boys played more than girls outdoors in sand, on a tractor, on the climbing structure, and around an equipment shed (Harper & Sanders). Girls continued to play indoors more, engaging in craft activities and domestic play.

Even with a staff change that encouraged less gender-typed play and an influx of younger children in the second year, the trends remained the same as noted above.

In another study of children ages 3 to 5, Sanders and Harper (1976) discovered that boys and older children played more "make believe" outdoors than did girls or younger children. They maintained that large open spaces may be important in the facilitation of gross motor fantasy play for boys.

Rough and Tumble Play

Outdoor play often consists of shouting, running, and rough-and-tumble play (Garvey, 1977; Myers, 1985; Pellegrini, 1989). Garvey distinguished aggression from rough-and-tumble play (R&T) by explaining that R&T includes running, falling over, chasing, fleeing, laughing, and making faces. Overall, children's R&T is characterized by more exuberant contact with others and objects (DiPetro, 1981; Garvey). On the other hand, aggressive behavior includes: hitting, pushing, staring down, take-a-tug-grab, and frowning. It is important to make the distinction between R&T and aggression because they are often confused in observational research (Pellegrini). R&T behaviors are higher in frequency in boys than girls (Cole & La Voie, 1985; Garvey; Maccoby & Jacklin, 1974; Pellegrini; Sanders & Harper, 1976).

Females do engage in R&T, but it tends to center around outdoor stable play equipment (e.g., swings and slides) and occurs within smaller groups (Garvey, 1977; Myers, 1985; Tizard, 1976). This difference between male and female R&T

is noted to appear early in development, around age 2 or 3 years (DiPetro, 1981; Garvey). In agreement, Maccoby & Jacklin (1974) found support that boys were rated to be tougher than girls as early as nursery school. Also, their findings showed dominance hierarchies existed for both females and males but male groups remained more stable.

Pellegrini (1989), examined R&T in children in kindergarten, second and third grades. These children were observed at recess, when boys engaged in significant amounts of R&T on grassy, soft areas rather than on asphalt. While boys engaged in more R&T play than girls, there were no significant differences in the amount of aggression. Pellegrini contended that the presence of an adult may have discouraged boys from acting aggressively. In fact, he discovered that the probability of R&T leading to aggressive behavior was low. Further, the probability that R&T leads to games-with-rules was significant. Not surprisingly, the data suggested a positive correlation for girls between R&T and being labeled "antisocial" by teachers. Conversely, R&T is continually viewed as a positive aspect for males, adding to their social competence, and a social "no no" for girls. With regard to aggressive behavior in boys, Pellegrini found this attribute negatively correlated with popularity.

Toys and Aggression

Parents are often concerned that "war toys" promote aggressive behavior in their young boys. Sutton-Smith (1988), found the research on war toys and

aggression was inconclusive. However, there were consistent trends in the literature. First, girls do not respond with aggression when playing with war toys. Thus, Sutton-Smith concluded that the toys alone cannot be causing the aggressive behaviors. Second, the provoked aggressive behavior did not carry over to other settings. On this point, Sutton-Smith criticized the findings, claiming that researchers were not sensitive to the contexts in which the play occurred. For example, many studies had an adult present during the play scene. It is well documented that aggressive behavior decreases with the presence of an adult. Finally, the observation skills of the observers was questioned. Often "playfighting" was mistaken for aggressive behavior. Sutton-Smith summarized by advocating: "the predominant function of war toys is "to serve as instruments in boys' playfighting, more often of the symbolic and fantasy kind than of the rough and tumble variety"(p.67). Thus, war toys simply enhance the roles of "Superman and Batman" without changing boys into heathens!

Toy Preferences

Males and females are markedly different with regard to toy preference. While girls tend to play with dolls, doll houses, and domestic items, boys enjoy vehicles, blocks and construction materials (Barnett, 1991; Beeson & Williams, 1985; Cohen, 1987; Etaugh & Liss, 1992; Garvey, 1977; Paley 1984; Rubin et al. 1983). Etaugh & Liss studied gender differences and toy preferences in children in kindergarten, third and sixth grades via questionnaire administered before and after

Christmas. Their findings strongly supported traditional gender differences. Both genders asked for sex-appropriate toys. However, younger children asked for more traditionally female toys than older children. Additionally, children received the gender-appropriate toys they requested, but did not receive the gender-inappropriate toys. This suggests that parents play a role in perpetuating stereotypic gender differences. Boys preferred ball sports, cars and war games while girls liked dolls, outdoor games, and domestic activities. No significant differences were discovered for indoor games (i.e., board games).

Overall, girls also engage in more sedentary behaviors while playing with toys indoors. They are often attracted to creating projects with art materials (Garvey, 1977; Hutt & Bhavanii, 1972; Johnson & Erschler 1980; Paley, 1984). Conversely, young boys focus their attention on acquiring social contacts and running around outdoors. They are less likely to focus their activity toward toys (Garvey). In Myers (1985) study of second graders, she found "Eighty-seven percent of the boys played 'King of the Mountain' on the dirt mound, running around and rolling down the slope in their struggle to occupy the top" (pp. 160).

Age also is a factor when examining gender and toy preference. Maccoby and Jacklin (1974) estimated that children make choices about toy selection around the age of 12 months. Garvey (1977) suggested that the preference for sex-stereotyped toys appears at about the age of 2 years. As children grow, they spend a less significant amount of time with age-inappropriate toys. However, girls continue to

have broader preferences including playing with "masculine" toys. Yet this does not hold true for boys - they keep to their cars and legos.

Pretense Play

Much research is devoted to discovering if the fantasy worlds of boys and girls are different. There seems to be little consensus among researchers about pretense play overall. Some conclude boys pretend more; others find evidence to the contrary; still others find no differences at all (Connolly, 1983; Fein, 1981). However, within this realm of conflicting reports, researchers agree about the content of pretense play; girls prefer domestic and everyday situational play themes, while boys tend to engage in more active pretense play such as superhero or adventure roles (Duveen & Lloyd, 1988; Fein; Johnson and Roopnarine, 1983; Myers, 1985; Rubin et al., 1983). Within the literature, there are a number of elements that potentially separate boys from girls in pretense play. These include props, environment, and verbalizations.

Props

Garvey (1977) suggested that "Objects serve as a link between the child and his environment" (p. 41). She stated that through objects, children can express feelings, interests and concerns. Additionally, objects can serve as links for social interaction with others. Further, objects that are unfamiliar can promote the developmental sequence of exploration, familiarization to understanding. Garvey suggested by the age of 2 years, children are beginning to use objects in make-

believe play. Here, according to Garvey, the child is initially forming symbolic representation, which is needed for the development of language and abstract thinking.

The objects that children tend to incorporate into their pretend scenarios reflect stereotypical gender preferences. Girls use more dolls, and domestic toys to play "house." Boys prefer blocks, and transportation toys (Fein, 1981; Jones & Glenn, 1991; Rubin et al., 1983). Connolly, Doyle and Ceschin (1983) found preschool girls used realistic replicas of domestic items, such as toy irons. Conversely, Connolly et al. stated:

> Boys on the other hand, are rarely given replicas of the kinds of objects used in games of Batman and Monster. They are therefore compelled to substitute other objects. Wooden blocks, for example, are used as guns in "chase" games or as tools in play with bikes and cars (pp. 81).

Also, they compared age groups, younger ($\underline{M}$=48.3) and older ($\underline{M}$=60.1), and found differences in object use. Younger children tended to use objects in play scenarios that mimicked the real function of the toys e.g. a pretend iron was used for ironing not for other activities. The older children used more object substitutions in their pretend play. Like the younger children, older children tended to play with objects that resembled those in reality. Jones & Glenn reported that preschool boys tended toward object fantasy play, while girls engaged in more person fantasy play situations. Tarwick-Smith (1990) observed 32 preschool children to determine what toys elicit the best opportunity for pretense play. His

findings revealed boys of all ages and girls younger than age 5, preferred realistic play props. Interestingly, girls played more pretend roles with sticks and boxes while boys pretended more frequently with dolls and dishes. For this reason, the author cautioned adults not to limit the pretense media for boys or girls according to the gender-typed, traditional objects. This finding is contrary to prior research that indicated girls are more flexible in their fantasy play. However, Garvey (1977) noted that girls often have both male and female imaginary friends while boys tend to only have male "friends." Paley (1984) agreed that girls participate in boys' activities. As for the boys: "running and leaping are what they like best, and nothing else makes them feel more distinctly the opposite of girls" (pp. 21).

Environment

Not surprisingly, the outdoor environment supports boys' pretense play, and girls like to pretend indoors (Henniger, 1985; Naylor, 1985; Sanders & Harper, 1976; Thorne, 1993). Historically, the importance of the outdoor environment has been overlooked. The indoor environment has been given credit for stimulating dramatic, constructional, and solitary play. Since each component is important to the growth and development of both boys and girls, there is a renewed emphasis in the research on the contributions of the outdoor environment (Henniger). Sanders & Harper observed 3-to 5-year-olds in a preschool setting and found dissimilarities between the sexes. Their data suggested boys displayed more fantasy play in the outdoor environment due to the boys' physical mobility during play. They

concluded that providing large open spaces or equipment favoring gross motor movements may be important for increasing both solitary and fantasy play for boys. Likewise, Henniger found that the outdoor environment stimulated more dramatic play in boys and older children. He found such an environment was important as it provided greater activity and freedom, resulting in a wider variety of dramatic themes. Henniger reported that the outdoor environment supported all of same types of play as the indoor, plus it provided for physical movements that develop motor skills.

Paley (1984) also observed physical outdoor fantasy play in kindergarten boys: "Boys and girls are equally capable as walkers and runners; yet the characters in a girls' drama are more likely to walk or skip, while the boys' characters receive additional practice in running and falling" (pp. 20).

Verbalization

In the quest to determine who pretends more, girls or boys, researchers often utilize verbalizations to measure pretense play. Again, the data support a variety of findings which prevent an overall conclusion regarding pretense play.

Purlmutter & Pellegrini (1987) compared the verbal fantasy play of preschoolers with parents and peers. As a whole, children played in more fantasy episodes with their parents present. This finding is supported in the literature as younger children may require more props and prompting to engage in pretense play (Fein, 1981; Garvey, 1977). The amount of pretense play did not differ

significantly according to the presence of either parent. However, more fantasy play occurred in the presence of mothers than fathers, but not at a significant level. Purlmutter & Pellegrini noted that this finding may have been affected by the small sample size of the study.

Wall, Pickert and Gibson (1988) also concluded that girls made significantly more verbalizations during pretend play. Girls engaged in more verbalizations around fantasy play themes than boys. Boys tended to have times of non-pretend play. Wall noted when boys did pretend, they made "a significantly higher proportion of references to building, repairing, and riding in \ operating a vehicle, accounting for over half of their thematic utterances" (pp. 254).

Jones & Glenn (1991) found similar results as they observed preschoolers during free play episodes and reported that girls engaged in more fantasy play than boys. However, they did not conclude that girls verbalized more in their pretense play. During the pretend play activities there was not significant difference found between the amount of verbalizations of either gender. Both girls and boys played in cooperative groups than solitary play scenarios.

Contrary to these findings, Cole & LaVoie (1985) found no gender differences in pretend play in 2-to 6-year-olds. Yet, boys tended to engage in more intense object fantasy play than girls. Boys used more verbalizations to describe the details of their pretend play; they were more physical and louder as they built their pretend city hall and engaged in superhero roles. Girls spent their time in a corner

discussing. Interestingly, this study took place in a classroom, which supports girls' fantasy play.

Duveen & Lloyd (1988) utilized verbalizations to study pretense play and found different results as well. They reported that both girls and boys vocalized more when a girl was present in their play group. This seems to imply that both genders believe that girls promote more conversation. They continued by explaining young children have more access to gender socialization. They continued by explaining young children have more access to gender socialization. Over half of the play themes they observed revolved around stereotypic feminine duties, (e. g. cooking), perhaps this is due to the availability of female models. Children observe Mother and other females engaging in these activities and then imitate what they have seen.

Boys Play in Larger Groups

Social play is different for boys and girls. Boys play in larger groups than girls (Benenson, 1993; Lever, 1975-1976; Lloyd, 1989; Thorne, 1993). Boys' outdoor sports games naturally require larger numbers of participants. Girls' games or activities usually only include two or slightly more players. Girls prefer the intimacy of dyadic play (cf. Rubin, 1980). Lever investigated this tendency toward dyadic play. In her study, 72 percent of the boys claimed their neighborhood games needed four or more people. Only 52 percent of the girls' games required four or more players. In her second study, Lever (1978) again found girls playing in

smaller groups: "More often, girls participated in activities like tag, hopscotch, or jumprope, which can be played with as few as two or three participants and seldom involve more than five or six" (p. 478). Boys were seen in groups of 10 to 25, playing football, basketball or any other seasonal sport. More recently, Benenson found in two unique studies that younger girls (ages 4 and 5) also tended toward dyadic play while boys enjoyed group interaction. In the first study, puppeteers with one puppet enacted dyadic themes and three puppets represented group interactions. Smiling and eye contact were used as measurements of children's enjoyment. In this study, there were "marginally significant results; boys smiled more in the group compared to the dyadic puppet interactions.

The second study was a replication of the first, but controlled for content and presentation of puppets (Benenson, 1993). Girls made significantly more eye contact and smiled more than boys during the dyadic interaction.

Social Play

Observing any childhood play area will reveal that girls and boys play in same-sexed groups (Maccoby, 1988; Maccoby & Jacklin, 1974; Thorne, 1993). Boys like to move toward the periphery of their play area, while girls play within a more restricted area, usually close to an adult. Both DiPetro (1981) and Garvey (1977) maintained that the social contact of girls is more verbal, and boys engage each other in more physical contact. Johnson et al. (1980) found preschool-aged girls usually participated in constructive parallel play, such as art. Another difference

between female and male social play was found in non-verbal signaling. A child learns to smile and elicit laughter to cue his / her playmates. When inviting others to play, laughter is seen as a sign that "I am playing now; what is to follow is not real" (Bateson, 1972). There is evidence to suggest that females, regardless of age, are better able to read these playful cues and to perceive emotions without the help of verbalizations (Shapio, 1990).

In summary, Rubin (1980) theorized that "while boys tend to view the group as a collective entity, emphasizing loyalty and solidarity, girls are more likely to view the group as a network of intimate two-person friendships" (p. 106). These differing styles of play may reflect the demands of adulthood roles, (i.e., the nurturance required of a mother for her child's development). However, contrary to the above findings, Jones and Glenn's (1991) observational data of preschoolers revealed no support for the premise that boys play in larger groups than girls. They revealed no difference between the group size in boy and girl pretense play.

Girls Play Boys Games More Often Than Vice Versa

There is ample evidence to support that girls are more flexible in both toy selection, pretense, and play themes in general (Gruber, 1992; Jones & Glenn, 1991; Lloyd, 1989; Rubin et al., 1983). Lloyd analyzed videotapes of children playing with toys that had been gender-typed by parents. Lloyd concluded that children ages 18 months to 4 years approached and played with toys differently: "Boys avoid feminine toys and employ masculine toys to mark their membership

on a gender category, while girls do not use toys to mark their gender identities" (p. 62). She also asserted that girls are not willing to restrict the boundaries of their femininity, while boys cling to their "maleness."

Etaugh & Liss (1992) found that parents influenced the stereotypic toy preferences of girls and boys. They discovered that children were more likely to receive the gender-appropriate toys they asked for at Christmas than those toys labeled "gender-inappropriate." Girls were also found to be more flexible in their toy choices in this study. This data supports previous findings that parents and teachers discourage children from playing with gender-inappropriate toys (Fein, 1981; Lloyd, 1989; Paley, 1984).

An obvious example of society's acceptance of girls in masculine roles but not males in feminine roles is the use of the terms "tomboy" and "sissy." The label of "tomboy" elicits visions of girls wearing overalls, and playing sports with boys in the mud. Being a tomboy implies girls deviating from the female role, yet does not carry the embarrassing connotations that sissy implicates. "Put simply, a sissy is a person whose character, interests and behavior partake too much of qualities, such as timidy, passivity, and dependence, that are stereotyped as childish, and as female" (Thorne, 1993, p. 116). These boys are often teased and isolated from play groups. Conversely, tomboys are often respected by peers. To combat the social sanctioning of playing "girlie games," boys often interrupt the play of girls (Lever,

1975-1976; Paley, 1984; Thorne). This way, boys can safely expand their play boundaries.

Competitive Games

Piaget (1962) proposed three developmental stages of play: sensorimotor, symbolic, and games with rules, within his cognitive development theory. The child progresses through these stages in sequence. Thus, younger children engage in sensorimotor play while older children play games with rules. Piaget claimed intelligence developed through imitation and play behavior (Garwood, 1982). In his early work, Piaget emphasized the role of cooperation. He felt cooperation among peers was essential for cognitive development. Hughes' (1988) review of the literature, found a shift in trends since Piaget that focused on masculine competitiveness. Hughes claimed: "In the process, cooperation increasingly has been seen as an *impediment* to critical developmental processes" (p. 671).

Overall the literature supports boys being more competitive and, engaging in more conflict, while girls like intimate, cooperative play activities. Girls focus on take-turn games and boys enjoy sports and incorporate the role of "winners." (Garvey, 1977; Lever, 1975-1976; Rubin, 1980; Shapio, 1990; Thorne, 1993).

To examine the difference between the competitiveness of girls and boys, Lever (1975-1976) distinguished play from games. Play occurs when an interaction has "no explicit goal, no end point and no winners" (Lever, 1975 p. 481). Formal games were defined as being competitive, rule driven interactions,

with specific goals, a predetermined ending point, and winners. In Lever's study, twice as many boys as girls reported activities that were labeled formal games. Lever noted that only 30 percent of the reported games were sports. She thus concluded that differences remain between boys' and girls' competitive play even without the inclusion of sports. Similarly, Gruber (1992) observed 143 play groups of children ages 5 to 12. Her interest was in "the influence of socialization of aggression among different gender and social class groupings and the influence of psychosocial stage on cognitive developmental play preferences among school children" (p. 35). She categorized play into three groups: (a) Practice-a new motor activity is learned and performed many times in different contexts; (b) Symbolic-object or person is perceived as real and is played with according to a child's whim; and (c) games with rules.

Gruber (1992) found that older girls played more cooperatively, while older boys were more competitive players, regardless of ethnicity. More importantly, her data provided evidence that the cognitive model has a masculine and middle class bias. Affluent and middle class children were more likely to play games with rules, which include a competitive edge. Lower class children and females chose practice play. Gruber's findings did not support those of Piaget's that older children play more games with rules. She found that middle and older children chose games with rules more often than younger, but the older groups did so less than the middle

group of children. Finally, her data revealed that mixed gender play groups tended to participate in masculine activities (i.e., playing competitive games with rules).

Contrary to the popular view of male competitiveness, Hughes (1988) found evidence that girls incorporate their own competitiveness into game play. She observed white, middle to upper-class fourth and fifth graders in games of Foursquare. The girls found ways to compete within their social structure by being "nice mean"

> Appropriate competition in this group, therefore, was a matter of 'being mean' without also "being *really* mean," and this was a matter of both appropriately targeting non-"friends" for elimination from the game *and* further managing those actions in ways perceived to concurrently help "friends" (p. 680).

In this way, girls could be aggressive and demanding within their play groups and remain focused on maintaining intimate relationships. The girls played in groups cooperatively as to be expected from prior research yet, Gruber's (1992) findings suggest girls are not passive and do compete within complex rule structures.

Heterogeneous Age Groups \ Boys Games Last Longer

Lever's (1975) finding that children ages 8 to 12 play in sex-segregated and age-homogeneous groups is widely supported in the literature (Maccoby & Jacklin, 1974; Rubin, 1980; Thorne, 1993).Further, since boys' games and play activities often require many players, boys are not particular about the age of the participant. Lever described this attitude of young boys, "The implicit understanding is that

you're better off with a little kid in the outfield than no one at all" (p.480). There is no direct evidence in the literature to support that boys games last longer. However, the fact that boys play games and sports with large numbers of people suggests intuitively that these activities would require more time.

Conclusion

Overall, play is the window to a child's world. Being able to view this world helps gain insight and knowledge about a child's thinking and ways of behaving. Occupational therapists are concerned with understanding children in order to assess their task performance. Children need free play time to explore and practice skills they will find helpful in the future. More importantly, children are demonstrating to their peers and to adults a style of playfulness that is solely their own. Girls and boys present themselves differently within different environments in terms of this playfulness. Thus, it becomes essential that both gender and environmental differences be explored in all assessments of play and playfulness.

ITEM	IN			OUT			COMMENTS
	EXT	INT	SKILL	EXT	INT	SKILL	
Gives facial, verbal, and body cues appropriate to the situation and that say, "This is how you should act toward me."							
Responds to others' facial or body cues.							
Maintains cohesiveness of play frame.							
OVERALL PLAYFULNESS							

	EXTENT	INTENSITY	SKILLFULNESS
	3 = Almost always 2 = Much of the time 1 = Some of the time 0 = Rarely or never NA = Not Applicable	3 = Highly 2 = Moderately 1 = Mildly 0 = Not NA = Not Applicable	3 = Highly skilled 2 = Moderately skilled 1 = Slightly skilled 0 = Unskilled NA = Not Applicable

ENVIRONMENT

Please comment on elements of the human (e.g., caretakers, playmates) and non-human environments (e.g., space) in terms of their relative promotion or detraction from this child's play/playfulness.

	PROMOTES	DETRACTS FROM
Intrinsic Motivation	human-- nonhuman--	
Internal Control	human-- nonhuman--	
Suspension of Reality	human-- nonhuman--	
Reading Cues	human-- nonhuman--	

Anita Bundy
Department of Occupational Therapy
Colorado State University
Do not reproduce without permission

Appendix C

TEST OF PLAYFULNESS (ToP)–DRAFT 3/3/94

Name:_____ Age: _____ Tape:____ Rater: _____	EXTENT 3 = Almost always 2 = Much of the time 1 = Some of the time 0 = Rarely or never NA = Not Applicable	INTENSITY 3 = Highly 2 = Moderately 1 = Mildly 0 = Not NA = Not Applicable	SKILLFULNESS 3 = Highly skilled 2 = Moderately skilled 1 = Slightly skilled 0 = Unskilled NA = Not Applicable

	IN			OUT			
ITEM	EXT	INT	SKILL	EXT	INT	SKILL	COMMENTS
Is actively engaged.							
Appears self-directed. Decides what to do & how to do it.							
Appears to feel safe.							
Demonstrates obvious exuberance, manifest joy.							
Tries to overcome difficulties, barriers, or obstacles to persist with an activity.							
Actively modifies complexity/ demands of activity.							
Engages in mischief or commits a minor infraction of the implicit or explicit rules.							
Repeats actions, activities; stays with same basic theme.							
Engages in process aspects of activity.							
Pretends.							
Incorporates objects or other people into play in novel, imaginative, unconventional, or variable ways.							
Engages in challenges (motor, cognitive, or social).							
Negotiates with others to have needs/desires met.							
Plays with others.							
Plays interactively with others.							
Assumes leadership role.							
Enters a group already engaged in an activity.							
Initiates play with others.							
Teases or jokes with others (verbal or nonverbal).							
Clowns.							
Shares playthings, play equipment.							

	IN			OUT			
ITEM	EXT	INT	SKILL	EXT	INT	SKILL	COMMENTS
Gives facial, verbal, and body cues appropriate to the situation and that say, "This is how you should act toward me."							
Responds to others' facial or body cues.							
Maintains cohesiveness of play frame.							
OVERALL PLAYFULNESS							

	EXTENT	INTENSITY	SKILLFULNESS
	3 = Almost always 2 = Much of the time 1 = Some of the time 0 = Rarely or never NA = Not Applicable	3 = Highly 2 = Moderately 1 = Mildly 0 = Not NA = Not Applicable	3 = Highly skilled 2 = Moderately skilled 1 = Slightly skilled 0 = Unskilled NA = Not Applicable

ENVIRONMENT

Please comment on elements of the human (e.g., caretakers, playmates) and non-human environments (e.g., space) in terms of their relative promotion or detraction from this child's play/playfulness.

	PROMOTES	DETRACTS FROM
Intrinsic Motivation	human-- nonhuman--	
Internal Control	human-- nonhuman--	
Suspension of Reality	human-- nonhuman--	
Reading Cues	human-- nonhuman--	

Anita Bundy
Department of Occupational Therapy
Colorado State University
Do not reproduce without permission

Appendix D
Girls Item Measurement Report (arranged by N)

Obsvd Score	Obsvd Count	Obsvd Average	Fair Avrge	Measure	Model S.E.	Infit MnSq	Infit Std	Outfit MnSq	Outfit Std	Nu	Item
342	132	2.6	2.7	2.10	0.15	0.7	-2	0.7	-1	1	engaged ext in
331	132	2.5	2.6	1.87	0.14	1.0	0	1.0	0	2	self directed ext in
382	132	2.9	2.9	3.63	0.28	0.8	0	0.7	0	3	safe ext in
88	132	0.7	0.6	-1.36	0.13	1.4	2	1.3	2	4	exuberant ext in
26	128	0.2	0.2	-2.82	0.21	1.3	1	2.2	3	5	mischief ext in
323	132	2.4	2.5	1.71	0.14	1.2	1	1.1	0	6	repeats ext in
334	132	2.5	2.6	1.93	0.14	1.3	1	1.3	1	7	process ext in
161	132	1.2	1.2	-0.38	0.11	1.9	6	1.8	5	8	pretends ext in
119	130	0.9	0.9	-0.88	0.12	1.3	2	1.3	2	9	unconventional ext in
148	130	1.1	1.1	-0.51	0.11	1.0	0	1.1	0	10	challenges ext in
291	131	2.2	2.3	1.23	0.12	1.4	3	1.3	2	11	plays with others ext in
221	130	1.7	1.8	0.36	0.11	1.2	1	1.1	1	12	interacts ext in
124	128	1.0	0.9	-0.80	0.12	1.2	1	1.3	2	13	leadership ext in
13	122	0.1	0.1	-3.52	0.29	1.3	1	1.0	0	14	teases/jokes ext in
15	122	0.1	0.1	-3.38	0.27	1.2	0	2.1	2	15	clowns ext in
256	120	2.1	2.2	1.03	0.12	1.5	3	1.4	2	16	shares ext in
280	131	2.1	2.2	1.07	0.12	0.9	0	1.0	0	17	gives cues ext in
250	127	2.0	2.0	0.76	0.11	1.0	0	1.0	0	18	reads cues ext in
292	131	2.2	2.3	1.25	0.12	1.0	0	1.0	0	19	maintains frame ext in
239	128	1.9	1.9	0.62	0.11	0.5	-4	0.6	-4	20	engaged int in
178	120	1.5	1.5	0.03	0.11	0.9	0	0.9	0	21	persists int in
40	24	1.7	1.7	0.35	0.25	1.1	0	1.2	0	22	mischief int in
153	106	1.4	1.4	-0.10	0.12	0.7	-2	0.8	-2	23	challenges int in
15	13	1.2	0.9	-0.83	0.35	0.7	0	0.7	0	24	teases/jokes int in
160	110	1.5	1.5	-0.03	0.12	0.9	0	1.0	0	25	modifies skill in
32	24	1.3	1.4	-0.14	0.25	0.8	0	0.8	0	26	mischief skill in
140	74	1.9	1.9	0.51	0.15	0.7	-2	0.7	-2	27	pretends skill in
178	116	1.5	1.5	0.06	0.11	0.7	-3	0.7	-2	28	negotiates skill in
195	103	1.9	1.9	0.52	0.12	0.6	-3	0.6	-3	29	interacts skill in
132	76	1.7	1.5	0.04	0.14	0.7	-2	0.7	-2	30	leadership skill in
47	40	1.2	1.3	-0.24	0.20	1.4	1	1.4	1	31	enters skill in
93	70	1.3	1.3	-0.22	0.15	0.7	-1	0.7	-1	32	initiates skill in
17	12	1.4	1.1	-0.50	0.36	0.8	0	0.8	0	33	teases/jokes skill in
199	110	1.8	1.8	0.45	0.12	0.8	-2	0.7	-2	34	reads cues skill in
280	111	2.5	2.6	1.89	0.16	0.8	-1	0.7	-1	35	engaged ext out
270	111	2.4	2.5	1.67	0.15	1.0	0	0.9	0	36	self directed ext out
306	111	2.8	2.8	2.71	0.21	0.7	-1	0.7	-1	37	safe ext out
105	111	0.9	0.9	-0.86	0.13	0.9	-1	0.8	-1	38	exuberant ext out
31	111	0.3	0.2	-2.49	0.19	1.0	0	0.9	0	39	mischief ext out
241	111	2.2	2.2	1.12	0.13	1.3	2	1.4	2	40	repeats ext out
276	111	2.5	2.6	1.80	0.15	1.1	0	1.1	0	41	process ext out
38	108	0.4	0.3	-2.22	0.18	1.3	1	1.1	0	42	pretends ext out
80	111	0.7	0.7	-1.28	0.13	1.1	0	1.1	0	43	unconventional ext out
165	111	1.5	1.5	0.00	0.12	0.9	0	1.0	0	44	challenges ext out
176	110	1.6	1.6	0.19	0.12	1.0	0	1.0	0	45	plays with others ext out
124	111	1.1	1.1	-0.57	0.12	1.1	0	1.1	0	46	interacts ext out
57	109	0.5	0.5	-1.73	0.15	0.8	-1	0.8	-1	47	leadership ext out
18	106	0.2	0.1	-3.07	0.25	0.9	0	0.7	-1	48	teases/jokes ext out
21	106	0.2	0.2	-2.90	0.23	0.9	0	1.2	0	49	clowns ext out
229	108	2.1	2.2	1.02	0.13	1.8	4	1.6	4	50	shares ext out
226	110	2.1	2.1	0.90	0.13	0.9	0	0.9	0	51	gives cues ext out
182	106	1.7	1.7	0.32	0.12	1.1	0	1.1	0	52	reads cues ext out
220	109	2.0	2.1	0.83	0.13	1.0	0	1.0	0	53	maintains frame ext out
219	107	2.0	2.1	0.88	0.13	0.7	-2	0.7	-2	54	engaged int out
169	104	1.6	1.7	0.24	0.12	0.8	-1	0.8	-1	55	persists int out
52	35	1.5	1.3	-0.30	0.21	0.8	-1	0.8	0	56	mischief int out
167	97	1.7	1.7	0.29	0.13	0.6	-3	0.6	-3	57	challenges int out
26	19	1.4	1.0	-0.65	0.28	0.8	0	0.8	0	58	teases/jokes int out
164	97	1.7	1.7	0.27	0.13	0.9	0	0.9	0	59	modifies skill out
53	35	1.5	1.3	-0.26	0.21	0.9	0	0.9	0	60	mischief skill out
44	25	1.8	1.5	0.05	0.25	0.9	0	0.9	0	61	pretends skill out
122	93	1.3	1.3	-0.28	0.13	0.8	-1	0.8	-1	62	negotiates skill out
134	76	1.8	1.6	0.16	0.14	0.5	-3	0.6	-3	63	interacts skill out
73	51	1.4	1.2	-0.41	0.17	0.6	-2	0.6	-2	64	leadership skill out
71	58	1.2	1.2	-0.41	0.16	1.0	0	0.9	0	65	enters skill out
79	72	1.1	1.0	-0.63	0.15	1.3	1	1.2	1	66	initiates skill out
28	19	1.5	1.1	-0.57	0.28	0.5	-2	0.5	-2	67	teases/jokes skill out
170	90	1.9	1.9	0.50	0.13	0.7	-2	0.7	-2	68	reads cues skill out
153.4	97.6	1.5	1.5	0.00	0.16	1.0	-0.3	1.0	-0.3	Mean (Count: 68)	
99.9	35.4	0.7	0.7	1.38	0.06	0.3	2.1	0.3	1.9	S.D.	

RMSE 0.17 Adj S.D. 1.37 Separation 7.90 Reliability 0.98
Fixed (all same) chi-square: 3893.8 d.f.: 67 significance: .00
Random (normal) chi-square: 66.5 d.f.: 66 significance: .46

Boys Item Measurement Report (arranged by N)

Obsvd Score	Obsvd Count	Obsvd Average	Fair Avrge	Measure	Model S.E.	Infit MnSq	Infit Std	Outfit MnSq	Outfit Std	Nu	Item
370	156	2.4	2.5	1.68	0.12	1.0	0	1.0	0	1	engaged ext in
355	156	2.3	2.4	1.46	0.12	1.2	1	1.2	1	2	self directed ext in
445	156	2.9	2.9	3.51	0.22	1.1	0	0.9	0	3	safe ext in
117	156	0.8	0.7	-1.23	0.12	1.1	0	1.0	0	4	exuberant ext in
59	149	0.4	0.3	-2.15	0.15	1.3	1	1.4	1	5	mischief ext in
345	155	2.2	2.4	1.36	0.11	1.1	0	1.1	0	6	repeats ext in
364	155	2.3	2.5	1.62	0.12	1.2	1	1.4	2	7	process ext in
112	154	0.7	0.7	-1.28	0.12	1.6	4	1.6	3	8	pretends ext in
125	149	0.8	0.8	-1.05	0.12	1.3	2	1.2	1	9	unconventional ext in
186	156	1.2	1.2	-0.41	0.10	1.0	0	1.1	0	10	challenges ext in
267	154	1.7	1.8	0.48	0.10	1.4	3	1.4	3	11	plays with others ext in
196	152	1.3	1.3	-0.24	0.10	1.1	1	1.1	1	12	interacts ext in
92	147	0.6	0.6	-1.54	0.13	1.2	1	1.1	0	13	leadership ext in
24	144	0.2	0.1	-3.21	0.22	1.0	0	1.5	1	14	teases/jokes ext in
44	150	0.3	0.2	-2.54	0.17	1.1	0	1.0	0	15	clowns ext in
232	132	1.8	1.8	0.47	0.11	1.6	4	1.5	3	16	shares ext in
308	154	2.0	2.1	0.93	0.11	0.9	-1	0.9	0	17	gives cues ext in
253	145	1.7	1.8	0.45	0.11	1.0	0	1.0	0	18	reads cues ext in
327	155	2.1	2.2	1.12	0.11	1.0	0	0.9	0	19	maintains frame ext in
286	152	1.9	2.0	0.73	0.11	0.7	-2	0.7	-2	20	engaged int in
206	139	1.5	1.5	0.07	0.11	0.9	-1	0.9	-1	21	persists int in
80	56	1.4	1.4	-0.17	0.17	1.1	0	1.2	0	22	mischief int in
190	126	1.5	1.5	0.02	0.11	0.8	-2	0.8	-2	23	challenges int in
35	27	1.3	1.1	-0.59	0.25	0.9	0	1.0	0	24	teases/jokes int in
159	118	1.3	1.4	-0.18	0.12	0.9	-1	0.9	-1	25	modifies skill in
76	56	1.4	1.3	-0.28	0.17	0.8	-1	0.9	0	26	mischief skill in
105	62	1.7	1.5	0.06	0.16	0.6	-2	0.6	-2	27	pretends skill in
161	139	1.2	1.1	-0.50	0.11	0.8	-2	0.8	-2	28	negotiates skill in
184	110	1.7	1.6	0.16	0.12	0.5	-4	0.5	-4	29	interacts skill in
93	67	1.4	1.1	-0.50	0.15	0.7	-2	0.7	-2	30	leadership skill in
44	44	1.0	1.1	-0.56	0.20	1.0	0	0.9	0	31	enters skill in
84	88	1.0	1.0	-0.78	0.15	0.7	-2	0.7	-2	32	initiates skill in
36	26	1.4	1.2	-0.45	0.25	0.9	0	1.0	0	33	teases/jokes skill in
197	118	1.7	1.7	0.28	0.12	0.7	-2	0.8	-2	34	reads cues skill in
339	137	2.5	2.6	1.99	0.14	0.7	-2	0.6	-2	35	engaged ext out
330	136	2.4	2.6	1.84	0.14	0.9	0	1.0	0	36	self directed ext out
389	137	2.8	2.9	3.48	0.23	1.1	0	0.9	0	37	safe ext out
128	135	0.9	1.0	-0.79	0.12	1.1	0	1.0	0	38	exuberant ext out
57	131	0.4	0.4	-2.01	0.15	0.9	0	0.9	0	39	mischief ext out
313	136	2.3	2.5	1.58	0.13	1.1	0	1.2	1	40	repeats ext out
343	137	2.5	2.6	2.07	0.14	1.1	0	1.6	3	41	process ext out
57	133	0.4	0.4	-2.01	0.15	1.7	4	1.4	2	42	pretends ext out
114	133	0.9	0.8	-0.99	0.12	1.3	1	1.2	1	43	unconventional ext out
223	137	1.6	1.7	0.35	0.11	0.9	0	0.9	0	44	challenges ext out
237	134	1.8	1.9	0.56	0.11	1.3	2	1.2	1	45	plays with others ext out
177	134	1.3	1.4	-0.15	0.11	1.2	1	1.1	1	46	interacts ext out
96	133	0.7	0.7	-1.26	0.13	1.3	2	1.2	1	47	leadership ext out
35	128	0.3	0.2	-2.59	0.19	1.1	0	0.7	-1	48	teases/jokes ext out
36	130	0.3	0.2	-2.57	0.18	1.3	1	0.9	0	49	clowns ext out
226	125	1.8	1.9	0.65	0.12	1.4	3	1.5	3	50	shares ext out
275	136	2.0	2.2	1.03	0.12	1.1	0	1.0	0	51	gives cues ext out
209	130	1.6	1.7	0.30	0.11	1.1	0	1.1	0	52	reads cues ext out
300	137	2.2	2.3	1.34	0.12	0.8	-1	0.8	-1	53	maintains frame ext out
277	133	2.1	2.2	1.12	0.12	0.7	-2	0.7	-2	54	engaged int out
211	122	1.7	1.8	0.48	0.12	0.9	0	0.9	0	55	persists int out
84	59	1.4	1.3	-0.22	0.16	1.3	1	1.3	1	56	mischief int out
230	126	1.8	1.9	0.62	0.12	0.8	-1	0.9	-1	57	challenges int out
49	35	1.4	1.1	-0.50	0.21	0.9	0	0.9	0	58	teases/jokes int out
197	123	1.6	1.7	0.26	0.11	0.8	-2	0.8	-1	59	modifies skill out
84	58	1.4	1.4	-0.17	0.17	0.7	-2	0.7	-2	60	mischief skill out
65	39	1.7	1.5	0.02	0.20	0.9	0	0.8	0	61	pretends skill out
142	118	1.2	1.2	-0.36	0.12	0.7	-2	0.8	-1	62	negotiates skill out
174	96	1.8	1.8	0.42	0.13	0.6	-3	0.6	-3	63	interacts skill out
102	68	1.5	1.3	-0.26	0.15	0.7	-1	0.7	-1	64	leadership skill out
69	56	1.2	1.3	-0.22	0.17	0.8	-1	0.7	-1	65	enters skill out
96	87	1.1	1.2	-0.44	0.14	0.9	-1	0.9	0	66	initiates skill out
47	35	1.3	1.1	-0.59	0.21	0.8	-1	0.7	-1	67	teases/jokes skill out
179	107	1.7	1.7	0.29	0.12	0.5	-4	0.6	-4	68	reads cues skill out
177.2	117.7	1.5	1.5	-0.00	0.14	1.0	-0.2	1.0	-0.2	Mean (Count: 68)	
108.8	38.5	0.6	0.7	1.29	0.04	0.3	2.0	0.3	1.9	S.D.	

RMSE 0.15 Adj S.D. 1.28 Separation 8.74 Reliability 0.99
Fixed (all same) chi-square: 4771.3 d.f.: 67 significance: .00
Random (normal) chi-square: 66.7 d.f.: 66 significance: .45

Outdoor Item Measurement Report (arranged by N)

Obsvd Score	Obsvd Count	Obsvd Average	Fair Avrge	Measure	Model S.E.	Infit MnSq	Infit Std	Outfit MnSq	Outfit Std	Nu	Item
619	248	2.5	2.6	2.16	0.11	0.8	-2	0.7	-2	35	engaged ext out
600	247	2.4	2.6	1.96	0.10	1.1	0	1.2	1	36	self directed ext out
695	248	2.8	2.9	3.40	0.16	1.0	0	1.0	0	37	safe ext out
233	246	0.9	0.9	-0.89	0.09	1.0	0	0.9	0	38	exuberant ext out
88	242	0.4	0.3	-2.39	0.12	1.0	0	0.9	0	39	mischief ext out
554	247	2.2	2.4	1.53	0.10	1.3	2	1.3	2	40	repeats ext out
619	248	2.5	2.6	2.16	0.11	1.2	1	1.8	5	41	process ext out
95	241	0.4	0.3	-2.27	0.12	1.6	4	1.3	1	42	pretends ext out
194	244	0.8	0.8	-1.21	0.09	1.2	2	1.1	1	43	unconventional ext out
388	248	1.6	1.6	0.23	0.08	1.0	0	1.0	0	44	challenges ext out
413	244	1.7	1.8	0.44	0.09	1.1	1	1.1	0	45	plays with others ext out
301	245	1.2	1.3	-0.37	0.09	1.1	1	1.1	1	46	interacts ext out
153	242	0.6	0.6	-1.58	0.10	1.2	1	1.1	0	47	leadership ext out
53	234	0.2	0.2	-2.98	0.15	1.0	0	0.7	-1	48	teases/jokes ext out
57	236	0.2	0.2	-2.91	0.15	1.1	0	1.0	0	49	clowns ext out
455	233	2.0	2.1	0.90	0.09	1.8	7	1.8	7	50	shares ext out
501	246	2.0	2.2	1.09	0.09	0.9	0	0.9	-1	51	gives cues ext out
391	236	1.7	1.7	0.34	0.09	1.1	0	1.1	1	52	reads cues ext out
520	246	2.1	2.3	1.24	0.09	1.0	0	0.9	0	53	maintains frame ext out
496	240	2.1	2.2	1.13	0.09	0.6	-4	0.6	-4	54	engaged int out
380	226	1.7	1.8	0.42	0.09	0.9	-1	0.9	-1	55	persists int out
136	94	1.4	1.2	-0.38	0.13	1.2	1	1.2	1	56	mischief int out
397	223	1.8	1.8	0.49	0.09	0.8	-2	0.8	-1	57	challenges int out
75	54	1.4	1.0	-0.71	0.18	0.8	-1	0.8	-1	58	teases/jokes int out
361	220	1.6	1.7	0.28	0.09	0.9	-1	0.9	-1	59	modifies skill out
137	93	1.5	1.3	-0.33	0.13	0.8	-1	0.8	-1	60	mischief skill out
109	64	1.7	1.5	-0.05	0.17	1.0	0	1.0	0	61	pretends skill out
264	211	1.3	1.3	-0.36	0.09	0.8	-2	0.9	-1	62	negotiates skill out
308	172	1.8	1.7	0.27	0.10	0.6	-4	0.7	-4	63	interacts skill out
175	119	1.5	1.2	-0.39	0.12	0.7	-3	0.7	-3	64	leadership skill out
140	114	1.2	1.3	-0.32	0.13	0.9	0	0.9	0	65	enters skill out
175	159	1.1	1.1	-0.55	0.11	1.1	0	1.0	0	66	initiates skill out
75	54	1.4	1.0	-0.75	0.18	0.6	-2	0.6	-2	67	teases/jokes skill out
349	197	1.8	1.8	0.40	0.09	0.7	-3	0.7	-3	68	reads cues skill out
309.0	201.8	1.5	1.5	-0.00	0.11	1.0	-0.2	1.0	-0.3	Mean (Count: 34)	
188.4	64.0	0.6	0.7	1.42	0.03	0.2	2.4	0.3	2.4	S.D.	

RMSE 0.11 Adj S.D. 1.41 Separation 12.27 Reliability 0.99
Fixed (all same) chi-square: 4686.3 d.f.: 33 significance: .00
Random (normal) chi-square: 32.9 d.f.: 32 significance: .42

Indoor Item Measurement Report (arranged by N)

Obsvd Score	Obsvd Count	Obsvd Average	Fair Avrge	Measure	Model S.E.	Infit MnSq	Infit Std	Outfit MnSq	Outfit Std	Nu	Item
712	288	2.5	2.6	1.88	0.10	0.8	-2	0.8	-2	1	engaged ext in
686	288	2.4	2.5	1.65	0.09	1.0	0	1.0	0	2	self directed ext in
827	288	2.9	2.9	3.59	0.17	1.0	0	0.8	0	3	safe ext in
205	288	0.7	0.7	-1.30	0.09	1.1	1	1.1	0	4	exuberant ext in
85	277	0.3	0.3	-2.45	0.12	1.3	2	1.6	3	5	mischief ext in
668	287	2.3	2.4	1.53	0.09	1.1	1	1.1	1	6	repeats ext in
698	287	2.4	2.5	1.77	0.09	1.2	1	1.2	2	7	process ext in
273	286	1.0	0.9	-0.83	0.08	1.8	8	1.7	6	8	pretends ext in
244	279	0.9	0.8	-0.98	0.08	1.2	2	1.2	1	9	unconventional ext in
334	286	1.2	1.2	-0.46	0.08	1.1	0	1.1	1	10	challenges ext in
558	285	2.0	2.1	0.82	0.08	1.3	3	1.2	2	11	plays with others ext in
417	282	1.5	1.5	0.05	0.07	1.0	0	1.0	0	12	interacts ext in
216	275	0.8	0.7	-1.17	0.09	1.1	1	1.1	0	13	leadership ext in
37	266	0.1	0.1	-3.36	0.17	1.1	0	1.2	0	14	teases/jokes ext in
59	272	0.2	0.2	-2.86	0.14	1.1	0	1.3	1	15	clowns ext in
488	252	1.9	2.0	0.74	0.08	1.5	5	1.5	4	16	shares ext in
588	285	2.1	2.2	1.00	0.08	0.8	-2	0.8	-2	17	gives cues ext in
503	272	1.8	1.9	0.60	0.08	1.0	0	1.0	0	18	reads cues ext in
619	286	2.2	2.3	1.20	0.08	0.9	0	0.9	-1	19	maintains frame ext in
525	280	1.9	2.0	0.68	0.08	0.6	-5	0.6	-5	20	engaged int in
384	259	1.5	1.5	0.05	0.08	0.9	-1	0.9	0	21	persists int in
120	80	1.5	1.5	-0.01	0.14	1.1	0	1.1	0	22	mischief int in
343	232	1.5	1.5	-0.02	0.08	0.8	-3	0.8	-2	23	challenges int in
50	40	1.3	1.0	-0.76	0.20	0.7	-1	0.8	0	24	teases/jokes int in
319	228	1.4	1.4	-0.11	0.08	0.8	-2	0.8	-2	25	modifies skill in
108	80	1.4	1.3	-0.24	0.14	0.8	-1	0.8	-1	26	mischief skill in
245	136	1.8	1.7	0.27	0.11	0.7	-3	0.7	-3	27	pretends skill in
339	255	1.3	1.3	-0.23	0.08	0.8	-3	0.8	-3	28	negotiates skill in
379	213	1.8	1.7	0.32	0.09	0.6	-5	0.6	-5	29	interacts skill in
225	143	1.6	1.3	-0.24	0.10	0.7	-3	0.7	-3	30	leadership skill in
91	84	1.1	1.2	-0.44	0.14	1.2	1	1.1	0	31	enters skill in
177	158	1.1	1.1	-0.52	0.10	0.8	-2	0.8	-2	32	initiates skill in
53	38	1.4	1.1	-0.55	0.21	0.7	-1	0.8	0	33	teases/jokes skill in
396	228	1.7	1.7	0.36	0.08	0.8	-2	0.8	-2	34	reads cues skill in
352.1	228.9	1.5	1.5	-0.00	0.11	1.0	-0.4	1.0	-0.4	Mean (Count: 34)	
221.7	79.5	0.6	0.7	1.34	0.04	0.3	2.9	0.3	2.6	S.D.	

RMSE 0.11 Adj S.D. 1.34 Separation 12.01 Reliability 0.99
Fixed (all same) chi-square: 4472.9 d.f.: 33 significance: .00
Random (normal) chi-square: 32.9 d.f.: 32 significance: .42

REFERENCES

Archer, J. & Lloyd, B. (1985). Sex and gender. Cambridge: Cambridge University Press.

Barnett, L. A. (1991). The playful child: Measurement of a disposition to play. Play and Culture, 4, 51-74.

Barnett, L. A. (1990). Playfulness: Definition, design, and measurement. Play and Culture, 3, 319-336.

Barnett, L. A. & Kleiber, D. A. (1982). Concomitants of playfulness in early childhood: Cognitive abilities and gender. The Journal of Genetic Psychology, 141, 115-127.

Bateson, G. (1972). Toward a theory of play and fantasy. In G. Bateson, Steps to an ecology of the mind (pp. 14-20). New York: Bantam.

Beeson, B. S. & Williams, R. A. (1985). The persistence of sex differences in the play of young children. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Benenson, J. F. (1993). Greater preference among females than males for dyadic interaction in early childhood. Child Development, 64, 544-555.

Birns, B.,& Sternglanz, S. H. (1983). Sex-role socialization: Looking back and looking ahead. In M. B. Liss (Ed.), Social and cognitive skills: Sex roles and children's play (pp. 235-251). New York: Academic Press.

Block, J. H. & King, N. R. (1976). School play: A source book. New York: Garland Publishing, Inc.

Block, J. H. (1976). Debatable conclusions about sex differences [Review of the book The psychology of sex differences]. Contemporary Psychology, 21, 517-522.

Brooks, L. (1995). Reliability and validity of the revised Test of Playfulness. Master's Thesis. Colorado State University.

Bundy A. C. (1993). Assessment of play and leisure: Delineation of the problem. American Journal of Occupational Therapy, 47, 217-222.

Bundy A. C. (in press). Play and playfulness: What to look for. In L. D. Parham, Play and occupational therapy. Philadelphia: F. A. Davis.

Cohen, D. (1987). The development of play, New York: New York University Press.

Cole, D., & LaVoie, J. C. (1985). Fantasy play and related cognitive development in 2-to 6-year-olds. Developmental Psychology, 47, 233-240.

Connolly, J., Doyle, A., & Ceschin, F. (1983). Forms and functions of social fantasy play in preschoolers. In M. B. Liss (Ed.), Social and cognitive skills: Sex roles and children's play (pp. 235-251). New York: Academic Press.

DiPietro, J. A. (1981). Rough and tumble play: A function of gender. Developmental Psychology, 17, 50-58.

Duveen, G., & Lloyd, B. (1988). Gender as an influence in the development of scripted play. British Journal of Psychology, 6, 89-95.

Emmott, S. (1985). Sex differences in children's play: Implications for cognition. International Journal of Woman's Studies, 8, 449-456.

Etaugh, C. (1983). Introduction: The influences of environmental factors on sex differences in children's play. In M. B. Liss (Ed.), Social and cognitive skills: Sex roles and children's play (pp. 1-15). New York: Academic Press.

Etaugh, C., & Liss, M. B. (1992). Home, school, and playroom: Training grounds for adult gender roles. Sex Roles, 26, (3), 129-147.

Fagot, B. I. & Leinbach, M. D. (1993). Gender-role development in young children: From discrimination to labeling. Developmental Review, 13, 205-224.

Fein, G. (1981). Pretend play in childhood: An integrative review. Child Development, 52, 1095-1118.

Garvey, C. (1977). Play, Cambridge, MA: Harvard University Press.

Garwood, S. G. (1982). Piaget and play: Translating theory into practice. Topics in Early Childhood Special Education, 9 (2), 1-13.

Gershner, V. T. & Moore, L. (1985). Girl play: Sex segregation in friendships and play patterns of preschool girls. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Gruber, C. (1992). Naturally occurring play patterns in groups of latency aged children. Child and Adolescent Social Work, 9, 35-51.

Harper, L. V., & Sanders, K. M. (1975). Preschool children's use of space: Sex differences in outdoor play. Developmental Psychology, 11, 119.

Harper, L. V., & Sanders, K. M. (1977). Preschool children's use of space: Sex differences in an indoor and outdoor environment. In R. C. Smart & M. S. Smart (Eds.) Readings in Child Development and Relationships. New York: Macmillan.

Harway M. & Moss L. T. (1983).Sex differences: The evidence from biology. In M. B. Liss (Ed.), Sex differences: The evidence from biology. (pp. 1-15). New York: Academic Press.

Henninger, M. L. (1985). Preschool children's play behaviors in an indoor and outdoor environment. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Hughes, L. A. (1988). "But that's not really mean": Competing in a cooperative mode. Sex Roles, 19, (11\12). 669-687.

Hutt, C. & Bhavnani, R. (1972). Predictions from play. Nature, 237, 171-172.

Johnson, J. E., & Erschler, J. (1980). Sex differences in preschool play as a function of classroom program. In J. W. Loys (Ed.), Proceedings of the 69th Annual Meeting of the Association for the Anthropological Study of Play (pp. 141-149). Ann Arbor, MI: Leisure.

Johnson, J. E. & Roopnarine, J. L. (1983). The preschool classroom and sex differences in children's play. In M. B. Liss (Ed.), Social and cognitive skills: Sex roles and children's play (pp. 193-218). New York: Academic Press.

Jones, A. & Glenn, S. M. (1991). Gender differences in pretend play in a primary school group. Early Child Development and Care, 72, 61-67.

Kielhofner, G. W. (1985). A model of human occupation: Theory and application. Baltimore: Williams & Wilkins.

Knox, S. (in press). Play and playfulness of preschool children. In Clark, F. & Zemke, R.(Ed.), Occupational Science. Philadelphia: F. A. Davis.

Kramer, P. & Hinojosa, J. (1993). Frames of reference for pediatric occupational therapy. Baltimore: Willams & Wilkins.

Leiberman, J. L. (1977). Playfulness: It's relationship to imagination and creativity. New York: Academic Press.

Lever, J. (1975-1976). Sex differences in the games children play. Social Problems, 23, 478-487.

Lever, J. (1978). Sex differences in the complexity of children's play and games. American Sociological Review, 43, 471-483.

Linacre, J. M. (1989). FACETS: Computer program for many-faceted Rasch measurement. Chicago: Mesa.

Lloyd, B. (1989). Rules of the gender game. New Scientist, December, 60-64.

Maccoby, E. E., & Jacklin, C. N. (1974). The psychology of sex differences. Stanford: Stanford University Press.

Maccoby, E. E. (1980). Social Development. New York: Harcourt Brace & Jovanovich Inc.

Maccoby, E. E. (1988). Gender as a social category. Developmental Psychology, 24, (6), 755-765.

Mc Nicholas, B. (1995). Test of playfulness indoors versus outdoors. Master's Thesis. University of Illinois at Chicago.

Myers, J. (1985). Perceived and actual playground equipment choices of children. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Naylor, H. (1985). Design for outdoor play: An observational study. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Norusis, M. J. (1993). SPSS For Windows Base System Users Guide (Version 6.0) [Computer software]. SPSS Inc.

Paley, V. G. (1984). Boys and girls: Superheros in the doll corner. Chicago: The University of Chicago Press.

Papalia, D. E. & Olds, S. W. (1990). A child's world infancy through adolescence (5th ed.). New York: Mc Graw-Hill.

Pellegrini, A. D. (1989). Elementary school children's rough-and-tumble play. Early Childhood Research Quarterly, 4, 245- 260.

Perlmutter, J. C. & Pelligrini, A. D. (1987). Children's verbal fantasy play with parents and peers. Educational Psychology, 7, 269-281.

Piaget, J. (1962). Play, dreams, and imitation in childhood. New York: Norton.

Rubin, K., Fein, G. & Vandenberg, B. (1983). Play. In P. H. Mussen (Ed.), Handbook of child psychology (4th ed.): Vol. 4 Socialization, personality and social development, (pp. 693-774). New York: Wiley.

Rubin, Z. (1980). Children's Friendships. Cambridge: Harvard University Press.

Sabonis-Chafee, B. (1989). Occupational therapy introductory concepts. St. Louis: The C. V. Mosby Company.

Sanders, K. M., Harper, L. V. (1976). Free play fantasy behavior in preschool children: Relations among gender, age, season, and location. Child Development, 47, 1182-1185.

Scarr, S., Weinberg, R. A., & Levine, A. (1986). Understanding Development. San Diego: Harcourt Brace Jovanovich.

Shapio, L. (1990, May). Guns and Dolls. Newsweek, pp. 56-65.

Short-DeGraff, M. (1988). Human development for occupational and physical therapists. Baltimore: Williams and Wilkins.

Sutton-Smith, B. (1988). War toys and childhood aggression. Play and Culture, 1, 57-59.

Tarwick-Smith, J. (1990). The effects of realistic versus non-realistic play materials on young children's symbolic transformation of objects. Journal of Research in Childhood Education, 5, 27-36.

Thorne, B. (1993). Gender play: Girls and boys in school. New Brunswick: Rutgers University Press.

Tizard, B., Philips, J., & Plewis, I. (1976). Play in preschool centers: Play measures and their relation to age, sex, and I.Q. Journal of Child Psychology and Psychiatry, 17, 251-264.

Wall, S. M., Pickert, S. M., & Gibson, W. B. (1988). Fantasy play in 5- and 6- year-old children. The Journal of Psychology, 123, 245-256.

Weininger, O., & Daniel, S., (1992). Playing to learn: The young child, the teacher and the classroom. Springfield: Charles C. Thomas.

Werebe, M. J., & Baudonniere, P. (1991). Social pretend play among friends and familiar preschoolers. International Journal of Behavioral Development, 14, 411-428.

Wolfgang, C. H. (1985). Preschool children's preferences for gender-stereotyped play materials. In J. L. Frost & S. Sunderlin (Eds.) When Children Play: Proceedings of the International Conference on Play and Play Environments. Wheaton, MD, Association for Childhood Education International.

Wright, B. D.,& Stone, M. H., (1979). Best test design. Chicago: Mesa.