

To the Graduate Council:

I am submitting herewith a dissertation written by Arlene Anne Ignico entitled "Development and Verification of a Gender-Role Stereotyping Index for Physical Activities." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Physical Education.

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DEVELOPMENT AND VERIFICATION OF A GENDER-ROLE
STEREOTYPING INDEX FOR
PHYSICAL ACTIVITIES

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ABSTRACT

The purpose of this study was to develop a valid and reliable instrument to measure the degree to which parents, teachers, and children (4-1/2 to 7) label physical activities according to gender. The research design involved two phases: (a) development/validation of the instrument, and (b) reliability/stability assessment.

Participants for the development/validity assessment were 12 experts in the area of motor and psychosocial development of children who were divided into two groups of six judges (three females, three males). Both groups of judges rated 45 research-based, gender-specific and gender-neutral physical activities according to the degree to which each activity involved each of 14 (nine male, five female) research-based gender-specific physical activity characteristics. Based on the ratings of the Group I judges, 30 physical activities, representative of 10 male, 10 female, and 10 gender-neutral physical activities, were identified and combined to make up the preliminary questionnaire.

Minor modifications were made in the preliminary questionnaire due to unfamiliarity with items and inconsistent response patterns. This modification reduced the final instrument to 24 items, representative of eight male, eight female, and eight gender-neutral physical activities.

In order to assess the construct validity of the instrument, two steps were taken. First two Pearson product-moment correlations were calculated comparing the ratings of the two groups of judges for the

total list of activities for: (a) male activity characteristics ($\underline{r} = .98$, $\underline{p} < .01$) and female activity characteristics ($\underline{r} = .82$, $\underline{p} < .01$). Second, six one-way ANOVA's were calculated to determine if there were a significant difference between the two groups of judges on their ratings of the underlying constructs of gender-related activity characteristics for the three categories of physical activities. The results substantiated construct validity as the two sets of judges were not significantly different ($\underline{p} > .05$) on any construct.

To assess the reliability/stability of the instrument, ninety participants from each of the three population groups responded to the questionnaire on two occasions, three days apart. Reliability coefficients were calculated using the Pearson product-moment method and descriptive statistics were obtained for each population group. Results indicated that the instrument has high reliability/stability ($\underline{r} = .94$ and $\underline{r} = .95$, $\underline{p} = .0001$) for the parents and teachers respectively, and moderate but acceptable reliability/stability ($\underline{r} = .77$, $\underline{p} = .0001$) for children between the ages of 4-1/2 and 7.

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CHAPTER I

INTRODUCTION

Although gradual social changes have evolved over the past several years, informal observation indicates that girls and boys still live in different social worlds (Greendorfer, 1980; Housner, 1981). In the area of physical activity, boys are frequently encouraged while girls generally are not. Numerous studies examining gender-role socialization reveal that several mechanisms and factors contribute to this differential socialization (Fagot, 1977; Greendorfer, 1980; Herkowitz, 1980; Lever, 1978; Minuchin, 1965; Moss & Kagan, 1961; Oglesby, 1978).

Regarding gender roles, biological factors can create certain limitations and predispositions. Most researchers concur, however, that sociocultural factors primarily determine a child's gender-role perception (Ruble, 1984; Wells & Plowman, 1983). Social learning theory suggests that children are shaped by external forces, particularly "reference groups," toward female or male roles (Bandura, 1971). Broadly defined, "reference group" refers to a group that provides an orientation for one's attitudes and actions (Mead, 1934; Smith, 1979). The three primary reference groups in a child's environment are parents, peers, and teachers. Taken together, these influences contribute important information for gender-role learning by way of two primary mechanisms: (a) what the reference group says, and (b) what this group does.

During the early school years, children become increasingly aware of gender-role stereotypes. It is a well-documented fact that children label toys, objects, and occupations according to gender (Bridges & Del Ciampo, 1981; Corbin & Nix, 1979; Edelbrock & Sugawara, 1978; Lee, 1981; Wolf, 1973). Furthermore, they perceive individuals performing a gender-appropriate activity as more competent than individuals performing a gender-inappropriate activity (Lee, 1981; Stein & Smithells, 1969; Thompson, 1975; Wolf, 1973). Evidence indicates that children even avoid objects and activities labeled as being inappropriate for the opposite sex (Montemayor, 1974; Perry & Bussey, 1979).

Although some attempts have been made to measure how children label objects depicting various activities and roles according to gender (Edelbrock & Sugawara, 1978), progress in the assessment of how children label physical activities has been minimal. Since many social skills are learned through participation in games and sports (Lever, 1978; Sutton-Smith, 1979), it follows that children should be given the opportunity to choose from among a wide variety of activities rather than from a narrow list compiled by social norms. Among the consequences of adopting stereotypic activity preferences is the exclusion of boys and girls from many potentially satisfying activities. Questions regarding the identification of such labeling of physical activities not only by children but also by parents and teachers, therefore, deserve attention.

Construct validity is appropriate when a test measures an abstract attribute or quality that is not directly observable (Baumgartner &

Jackson, 1982; Safrit, 1973). A number of researchers have conducted studies in an effort to identify the factors or constructs that contribute to the labeling of physical activities according to gender (Brawley, Landers, Miller, & Kearns, 1979; Corbin & Nix, 1979; Eiferman, 1979; Hartley & Hardesty, 1964; Herkowitz, 1980; Lever, 1978; Oglesby, 1969; Oglesby, 1978; Rosenberg & Sutton-Smith, 1959). A summary of the gender-labeling research (Ignico, 1986) suggests that activities are categorized based on their characteristic elements (Table A-1). Male activity characteristics, for example, often include the elements of speed, strength, and strategy; female activity characteristics, in contrast, are characterized by few players, few rules, and turn-taking (Table A-1). Therefore, when developing an evaluation instrument to assess gender-labeling of physical activities, the degree to which these established gender-specific activity characteristics are present in the activities must be used as the foundation.

Statement of the Problem

The purpose of this study was to develop an instrument to measure the degree to which children and adults label physical activities according to gender. The following subproblems were addressed:

1. Does the instrument have construct validity for gender-labeling of physical activities?
2. Does the instrument have reliability/stability for the populations of:

- a. parents of preschool and/or elementary school children,
- b. full time, salaried teachers of preschool and elementary school children,
- c. children between the ages of 4-1/2 and 7.

Definition of Terms

The following terms are defined theoretically and, where appropriate, operationally as they are used in this study:

Activity characteristic: An activity component that has been classified by experts as either descriptive of male activities or descriptive of female activities; within this study, those activity characteristics that have been identified by at least two researchers (Table A-1).

Competition: A component of an event which is characterized by a goal and an end point that produces a winner; a male characteristic.

Complex team formation: A group structure which involves two or more teams where players have multiple roles; a male characteristic.

Explicit rules: Guidelines that are universally known and accepted, constant from one situation to the next, and that carry sanctions for their violations (Lever, 1978); a male characteristic.

Expression: A perceptual-motor activity component that has as a primary goal the depiction of emotional mood or feeling; a female characteristic.

Few participants: A game/activity component involving less than four participants; a female characteristic.

Few rules: A game/activity component involving few or no guidelines; a female characteristic.

Fine-motor activity: A perceptual-motor task component requiring primarily fine-motor manipulation; a female characteristic.

Gross-motor activity: A perceptual-motor task component requiring primarily total body movement; a male characteristic.

Physical contact: A game/activity component involving body contact; a male characteristic.

Propulsion of objects: A game/activity component involving the throwing, rolling, striking, or kicking of objects; a male characteristic.

Speed: A game/activity component requiring propulsion of the body or body parts through space as fast as possible (Johnson & Nelson, 1974); a male characteristic.

Strategy: A game/activity component requiring interdependent decision making; a male characteristic.

Strength: A game/activity component requiring muscular force exerted against a movable or immovable object; a male characteristic.

Turn-taking: A game/activity component requiring participation by each individual in a specified, sequential order (Lever, 1978); a female characteristic.

Construct validity: The extent to which a test reflects abstract attributes or qualities presumed to underlie test performance (Ary, Jacobs, & Razavieh, 1972; Baumgartner & Jackson, 1982; Safrit, 1973).

In this study, the degree to which the ratings of two panels of experts agree.

Gender-labeling: Classifying a physical activity as female or male.

In this study, the score on the Physical Activity Gender-Role Stereotyping Index, which includes three categories of physical activities: (a) male, (b) female, and (c) gender-neutral. Specifically, the score on the Physical Activity Gender-Role Stereotyping Index is the sum of scores for: (a) male physical activities, and (b) female physical activities.

Male physical activity: More suitable or acceptable for males than for females due to the presence of male activity characteristics and/or the absence of female activity characteristics as determined by a panel of experts. In this study, those items with scores which were: (a) below the female median (7.1) for female characteristics, and (b) among the top twelve items for male characteristics.

Female physical activity: More suitable or acceptable for females than for males due to the presence of female activity characteristics and/or the absence of male activity characteristics as determined by a panel of experts. In this study, those items with scores which were: (a) below the male median (6.0) for male characteristics, and (b) among the top twelve items for female characteristics.

Gender-neutral physical activity: Equally suitable or acceptable for females and males due to the presence of a relatively equal number of female and male activity characteristics as determined by a panel of experts; in this study, those items with a difference of 2.08 or less between female and male characteristic scores.

Physical activity: A perceptual-motor task involving object and/or body control.

Reliability/stability: The degree to which an individual's scores are varied from day to day (Barrow & McGee, 1971); measured in this study by test-retest method for each of three groups: (a) parents, (b) teachers, and (c) children.

Assumptions

The following conditions were assumed:

1. During testing, the participants understood the instructions given.
2. During testing, participants responded to questions in a manner consistent with their beliefs.
3. Each participant tested had some general familiarity with the physical activities that were depicted.

Limitations

Limitations regarding this study were:

1. This study was limited to adult participants who were either (a) parents with children enrolled in a Knoxville preschool or elementary school, or (b) preschool and elementary school teachers in the Knoxville, Tennessee area.
2. This study was limited to 4-1/2 to 7 year old participants drawn from one elementary school and two preschools in the Knoxville, Tennessee area. Schools with students from primarily middle-class

families were selected in order to obtain a stable (homogeneous) population.

Significance of the Study

Although some attempts have been made to measure how children label toys and objects depicting various activities and roles according to gender (Edelbrock & Sugawara, 1978; Thompson, 1975), progress in the assessment of how children label physical activities has been minimal. Since many important social skills are learned through participation in games and sports (Lever, 1978; Sutton-Smith, 1979), children should be given the opportunity to choose from among a wide variety of activities rather than from a narrow list compiled by social norms.

Because teachers have a unique opportunity to provide children with information about the gender-appropriateness of various physical activities, they play a prominent role in a child's evolving gender-role perception. Being able to assess a child's perception about the gender-appropriateness of various physical activities might provide teachers with the necessary information to design specific situations to expand the child's list of activity choices.

Among the consequences of adopting stereotypic activity preferences is the exclusion of boys and girls from many potentially satisfying activities. Questions regarding the identification of labeling of physical activities not only by children but also by parents and teachers, therefore, deserve attention. In order to address these

issues, a valid and reliable measure that can be utilized across age groups is needed.

CHAPTER II

REVIEW OF LITERATURE

In comparison to other areas of research in gender-role learning, the measurement of children's labeling of physical activities as female- or male-appropriate has prompted only a minimal amount of investigation. In order to provide each child with the widest variety of activity choices, however, teachers and parents need a knowledge of how children label various physical activities according to gender. This knowledge would then enable them to provide learning experiences that might expand a child's list of activity choices.

The purpose of this study was to develop an instrument to measure the degree to which children, parents, and teachers label physical activities according to gender. The following review of the literature is presented under five major headings: (a) socialization into physical activities; (b) gender-labeling of physical activities by children; (c) gender-differentiated learning experiences; (d) instruments designed to measure how children label physical activities according to gender; and (e) summary.

Socialization into Physical Activities

In discussing the process of socialization into physical activities, several factors that differentiate boys and girls are apparent. These gender differences appear to be products of social and

environmental influences and varied treatment. Specifically, (a) parents, (b) peers, (c) the media, and (d) teachers provide gender-specific information for children regarding the gender-appropriateness or inappropriateness of various motor activities (Greendorfer, 1980). Research evidence (Fagot, 1977; Greenberg, 1978; Greendorfer, 1977; Greendorfer, 1978; Greendorfer, 1980; Herkowitz, 1978; Hoferek, 1981; Hoferek, 1982; Oglesby, 1969) consistently indicates that the influences of each of these groups are major factors in a child's evolving perception of gender role.

Parental Influence

In her article discussing gender differences in physical activity, Greendorfer (1980) reviewed important social determinants which influence female sport involvement. She identified the family, especially parents as the primary and initial source of influence on a child's developing perception of gender role. Her review of the literature suggests that parents treat sons and daughters differently and that gender differences begin early in infancy.

A study undertaken by Thompson (1975) determined that even at the age of two years, children are able to use gender labels appropriately to guide behavior. The author designed a series of tests for 24-, 30-, and 36-month old children to measure: (a) their ability to use gender labels to guide preference behavior, and (b) their awareness of gender-role stereotyping. Participants for the study were 66 children ages: (a) 24- to 25 months, (b) 30- to 31 months, and (c) 36- to 37 months.

The gender-role stereotype test included 18 pictures from mail-order catalogues pasted on 3" x 5" cards. On each card was a picture of a toy, tool, appliance, piece of clothing, or other article that adult consensus defined as stereotypically masculine or feminine. There were nine masculine and nine feminine pictures and children sorted them into one of two cardboard receptacle boxes. One box lid had a picture of a man and a boy and the other box lid had a picture of a woman and a girl. Thompson's (1975) results showed that, although the older children were more consistent in applying gender labels properly and in being aware of gender-role stereotyping, even the two-year-old children were successful at both tasks.

Much of the socialization literature suggests that parents tend to foster different attitudes, behaviors, skills, and perceptions in girls and boys (Brooks-Gunn, 1979; Duncan & Duncan, 1978; Fling & Manosevitz, 1972; Gianini, 1976; Goldberg & Lewis, 1969; Greendorfer, 1980). Goldberg and Lewis (1969), for example, reported that while parents encourage and reinforce "rough and tumble" gross-motor activity in boys, they encourage and praise fine-motor activity in girls. According to Greendorfer (1980), parents communicate to their children that active movement is appropriate for their sons but inappropriate for their daughters.

In their study examining gender-labeling in children's play interests, Fling and Manosevitz (1972) observed 32 four-year-old children and 56 of their parents in a natural play setting. The children were given the opportunity to play freely in an environment offering

same-gender and cross-gender activities. The results indicated that: (a) parents discouraged cross-gender interests in boys more than girls, and (b) same-sex parents more strongly encouraged gender-stereotyped play behavior than opposite-sex parents.

Parent expectations impact greatly on the eventual achievements of children in the area of motor performance (Greendorfer, 1980). Few aspects of child rearing, in fact, are as powerful as the many pervasive and consistent cues from parents that gross-motor activity is appropriate behavior for boys and expressive or gentle movement is appropriate behavior for girls (Brooks-Gunn, 1979). Unquestionably, the labeling of activities by parents is a major factor influencing children's developing preferences for various games and sports (Greendorfer, 1980).

Peer Influence

A second and powerful factor in this socialization process is the influence of peers (Fagot, 1977; Herkowitz, 1980; Pitcher & Schultz, 1983). It appears, in fact, that peer relations alone create social rules that are different for the sexes (Pitcher & Schultz, 1983).

In a six-year observational study, Fagot (1977) examined the reactions of peers and teachers to gender-stereotyped behaviors of preschool children. The participants were 101 girls and 106 boys whose ages ranged from 37 months to 54 months. Observers rated the children's free-play behaviors using a checklist that consisted of thirty child behaviors and ten consequences. Analysis of the data revealed

that both boys and girls received little or no peer reinforcement for play in cross-gender behaviors and that boys received peer criticism for engaging in stereotypic female activities.

In a similar study, Pitcher and Schultz (1983) observed 63 nursery school and kindergarten-aged children in natural play sessions to examine peer reinforcement and criticism. Analysis of the results revealed that: (a) positively reinforced girl behaviors tended to involve little or no bodily contact and be gentle, while (b) positively reinforced boy behaviors tended to be very active and physical. The authors concluded that even at the youngest age of two, girls and boys were quite knowledgeable about the details and subtleties of gender roles.

Media Influence

A third way in which children learn about social roles in physical activity is through the media (Miles, 1975; Williams, LaRose, & Frost, 1981). The results of a survey conducted by Miles (1975) provided evidence that television programs aired between 7:30 and 9:30 p.m. perpetuate stereotypic attitudes that: (a) men are more active and competent; and (b) women are more domestic and helpful. A summary of programs aired during this "prime time" indicates that almost twice as many men are present, that they work and play harder than women, and that they provide the voice of authority (Miles, 1975).

Williams et al., (1981) reported similar concerns about ways in which children learn about social roles from television. Their

examination of children's programs showed clearly that television:

(a) seriously underrepresents women, (b) shows them in few occupational roles, and (c) indicates that they typically draw their identity from relationships with others. In contrast, men: (a) give orders more frequently, (b) are obeyed more often, and (c) very rarely ask for emotional support. The authors reported also that children who watch a large amount of television tend to adopt more stereotypes than those who watch with less frequency.

The effects of television on a child's gender-role perception, therefore, are potentially powerful. Evidence suggests, in fact, that the traditional content of television is often a better predictor of a child's future gender-role expectations than the socialization practices of her/his parents (Williams et al., 1981).

An indication of how the media, again television in particular, can actually shape the motor behavior of children can be found in a study by Mead (1972). In this study, unlike observational learning studies subsequently done by others, modeling of the motor behavior was assessed by analyzing the process characteristics of performance which approximated the model rather than by inferring imitation by reference to the product of performance. In this study of the observational learning of overarm throwing by three- and four-year-old boys, Mead found significant differences in favor of televised versus live presentation of a model and in favor of imitative responses produced under "incidental" versus "intentional" circumstances. This latter finding is indicative of a child's tendency to imitate behaviors when viewing

models under conditions approximating daily life where there is no induced "intent" to learn observationally. Her study suggests, then, that under normal television viewing circumstances, and when subsequently given the opportunity to perform the same skills, young children may model their motor performance characteristics after those observed. Mead's (1972) findings are consistent with the theories and investigations of Bandura (1971) and other social psychologists who have demonstrated the power of models provided through a variety of media in shaping the behavior of children.

Teacher Influence

A final way in which children obtain information regarding appropriate and inappropriate gender-role behavior is through their teachers. Of the three reference groups, it appears that teachers may have the greatest impact on gender-role learning as it relates to movement. The findings of several studies indicate that teachers have gender-differentiated behavior patterns and furthermore, that they contribute to gender-role stereotyping (European Educational Research Workshop, 1981; Fagot, 1977; Greendorfer, 1980; Harrison, 1973; Hoferek, 1982; Housner, 1981).

Fagot (1977) examined the reactions of teachers and peers to gender-stereotyped behaviors of 207 preschool children over a six-year period. Fifteen observers rated the children using a checklist that consisted of thirty child behaviors and ten consequences. Analysis of the data revealed the following trends with regard to teacher

reactions: (a) both girls and boys received more teacher criticism for engaging in cross-gender activities; (b) boys and girls received more positive teacher reaction for engaging in same-gender activities (Fagot, 1977).

Rejeski and Hutsler (1980) addressed this same issue of teacher expectancies in relation to the acquisition and performance of sports skills. The authors reported that teachers' beliefs about students affect student performance in a chain of three events: (a) informational cues affect teacher expectancies; (b) these expectancies affect student performance; and (c) interpersonal interactions of teachers with students affect student performance. It is these biased expectancies, claim Rejeski and Hutsler (1980), that mediate several important interpersonal interactions and often result in sustained poor motor performance in children.

In his discussion of gender-role stereotyping in elementary school physical education, Housner (1981) identified several ways in which educators contribute to the perpetuation of gender-role stereotypes in sport and physical activity. He contended that gender-stereotyped labels in physical education class severely restrict opportunities for girls and boys to engage in activities considered gender-inappropriate. According to the author, the movement activities of teachers themselves also influence children's gender-role perceptions. By avoiding traditionally masculine-oriented activities, female physical educators clearly identify for their students the gender-inappropriateness of many activities for girls. Furthermore, states Housner,

by rarely or never participating in free play activities, female teachers reinforce the traditional gender-stereotypical behavior of inactivity.

In her article addressing physical activity as a socializing agent, Hoferek (1982) reported that there is a "hidden curriculum" in schools that provides different experiences and programs for boys and girls. More specifically, because of their leadership role, teachers help define activities as gender-appropriate or inappropriate. The author suggested that the results of several research studies indicate that the gender-labeling of an activity is a major factor in children's development of preferences for specific activities. She provided evidence also that children prefer activities labeled gender-appropriate and perform better on tasks of this kind. According to Hoferek (1982), physical educators often label activities and/or games in their curriculum according to gender and, therefore, perpetuate gender-role stereotyping in elementary schools. She cited the structure of separate physical educational programs as another factor in reinforcing stereotyping. While boys' programs generally teach competition, aggression, strength, and leadership, girls' programs usually fail to teach these important social skills. Since successful motor performance requires competence in each of these areas, girls are severely restricted in their development of motor skill (Hoferek, 1982).

It is apparent that teachers play a consistently prominent role in children's developing gender-role perception as it relates to motor performance (Fagot, 1977; Hoferek, 1982; Housner, 1981). Two-way

interactions occur between teachers and students; both have acquired gender-role stereotypes and tend to reinforce each other's (Housner, 1981). Clearly, a child's evolving perception of gender role is greatly influenced by teacher behavior and expectancy (Housner, 1981). As gender-role models, physical education teachers provide children with important information regarding the gender-appropriateness of physical activities. In this respect, they have a unique opportunity to lead by example in reducing gender-role stereotyping in early education (Housner, 1981).

In summary of the literature on socialization into physical activities, it appears that societal expectations have a great impact on what young children believe is appropriate behavior for each sex (Fagot, 1977; Fling & Manosevitz, 1972; Miles, 1975; Pitcher & Schultz, 1983; Thompson, 1975). Since the process of socialization involves attitudes about expected behavior, it follows that individuals are guided by what they consider appropriate and inappropriate gender-role behavior. Certainly, a major factor in the socialization process is the acquisition of attitudes about gender-stereotyped activities (Herkowitz, 1980; Hoferek, 1982; Housner, 1981). It is a logical conclusion, then, that the socialization processes are responsible for many stereotypical attitudes regarding the gender-appropriateness of various physical activities (Herkowitz, 1980). Evidence that children do have stereotypical attitudes regarding the gender-appropriateness of various activities is provided in the next section.

- Gender-Labeling of Physical Activities by Children

One of the processes involved in early gender development concerns a child's use of gender-labels to guide her/his behavior. An understanding of the relationship between one's own gender identity and the gender-appropriateness of various activity choices begins between the ages of two and four (Morris, 1975). Based on the results of numerous studies examining the effects of a model on children's imitative behavior, it appears evident that modeling or imitating others is a major factor in gender-role learning (Anderson, 1983; Bandura, 1971; Gerstein, 1977; Minami, 1978; Perry & Bussey, 1979; Vaughn, 1981). Young children acquire gender-appropriate behavior by imitating the behavior of the same sex. Hartley and Hardesty (1964) claim that such imitative behavior is one of the earliest gender-stereotyping devices used. By viewing older individuals in various active roles, a child learns what males characteristically do and what females characteristically do. Over time, a child develops gender-stereotyped behavior (Kohlberg, 1966).

During the early school years, children become increasingly aware of gender-role stereotypes. It is a well-documented fact that children label occupations, toys, and certain physical activities according to gender (Corbin & Nix, 1979; Thompson, 1975). Furthermore, they perceive individuals performing a gender-appropriate activity as more competent than individuals performing a gender-inappropriate activity (Bridges & DelCiampo, 1981; Lee, 1981). Evidence even indicates that

children avoid objects and activities labeled as being appropriate for the opposite sex (Montemayor, 1974).

In his study involving six- to eight-year-old children, Montemayor (1974) investigated the effect of gender-stereotyped labels on both children's performance in a game and their attraction to it. Sixty boys and sixty girls played the same game which was labeled either gender-appropriate, gender-inappropriate, or gender-neutral. His results indicated that, for both girls and boys, performance was highest when the game was labeled gender-appropriate; intermediate when no gender-label was given, and lowest when the game was labeled gender-inappropriate. For attractiveness, the appropriate and neutral conditions were similar and both were higher than the inappropriate condition.

Several researchers have examined children's expectancy for success in various gender-stereotyped activities (Bridges & Del Ciampo, 1981; Corbin & Nix, 1979; Iso-Ahola, 1981; Lee, 1981). In their study involving eight- to eleven-year-old children, Corbin & Nix (1979) looked at how children label each of three different motor activities according to gender. They also determined the children's success predictions before and after cross-sex competition. Each of the following three activities was first demonstrated in a two-minute film: (a) a balance board game similar to a teeter-totter; (b) a television ping-pong game similar to games available to the public; and (c) a bicycle game designed to see who could ride the farthest distance. Following the film, subjects rated the activities as male or female and made

predictions about their expected success in each activity. Boys and girls then competed against each other in each activity and completed the questionnaire a second time. An analysis of the data indicated that both girls and boys labeled a motor task requiring strength, speed, and power (e.g., the bicycle activity) as a "boy" activity and rated the other two tasks as gender-neutral. Self confidence levels of girls for the bicycle game were lower than boys prior to competition. After cross-sex competition, however, in which girls succeeded as often as boys, self confidence levels of the two groups were equal.

In a similar study, Bridges and Del Ciampo (1981) investigated children's perceptions of the competence of girls and boys in activities previously classified as masculine, feminine, or neutral. Participants for the study were fifty-nine boys and thirty-nine girls in grades one and three. Each child viewed an equally skilled boy and girl performing each of the activities. The results indicated that both boys and girls perceived the child performing a gender-appropriate activity as more competent than the child performing a gender-inappropriate activity. Also, in neutral activities, boys showed a belief in the greater competence of males while girls indicated no gender differentiation in their perceptions.

In a third study investigating gender differences in expectancy for success in motor performance, Lee (1981) found that boys expect better performance and perform better on typically male-oriented tasks than do girls. Participants for the study were 180 children between the ages of seven and eleven who performed an underhand toss and an

overhand toss. Although both boys and girls were equal on the underhand toss in both expectation for success and actual performance, the boys had higher expectations and performance scores on the overhand toss.

Taken together, these three studies suggest that activities involving strength, speed, power, and overhand throwing are stereotypically masculine. It seems evident also that activities involving balance, eye-hand coordination, and underhand throwing are considered gender-neutral.

Much attention has been directed toward the measurement of children's perception of the gender-appropriateness of various physical activities (Hartley & Hardesty, 1964; Herkowitz, 1978; Rosenberg & Sutton-Smith, 1959; Rosenberg & Sutton-Smith, 1960; Sutton-Smith, Rosenberg & Morgan, 1963; Walker, 1964). Herkowitz (1978) used a picture instrument to classify children's and young adults' perceptions of 35 activities as either male or female. She asked 360 participants equally divided by age and sex among preschool, second grade, fifth grade, eighth grade, eleventh grade, and university sophomores, to view slides depicting androgynous stick figures participating in each of the 35 activities. Following each presentation, participants were asked to indicate whether they thought each activity was a boy's activity, a girl's activity, or a boys' or girls' activity (Herkowitz, 1978). As was evidenced in earlier studies, boys' activities involved strength, power, speed, and force production (Table A-1). There was evidence also that the majority of sex-typed activities were "boy"

activities and that girls were more likely to classify activities as neutral (Herkowitz, 1978).

Rosenberg and Sutton-Smith (1959, 1960, 1963) conducted a series of three studies designed to measure masculinity and femininity by children's games choices. In their first study (1959) the researchers provided a list of 181 games to 183 children in grades four through six. Participants checked like or dislike for all the games they knew. This initial questionnaire yielded 115 items known to all participants. Sixty-seven were useful in differentiating girls and boys ($p > .10$), twenty-seven of which are still popular (Table A-2). An inspection of the results revealed that distinctive boys' games involved forceful physical contact, conflict, propulsion of objects, and complex team organizations; girls' games, in contrast, involved static activity, non-competitive situations, choral activities, and rhythmic activities (Rosenberg & Sutton-Smith, 1959).

To compile a list of games for the second study, Rosenberg and Sutton-Smith (1960) asked 402 participants in grades one through eight to name all the games that they knew. This survey resulted in a pool of several hundred items. The children in grades four through six then rated these items by preference. Analysis yielded eighteen items chosen more frequently by boys than by girls ($p > .05$) and forty items chosen more frequently by girls than by boys ($p > .05$). Although this questionnaire resulted in a much larger pool of items, only twenty-nine modern games differentiated the sexes with $p > .05$ (Table A-2). Eighteen games were chosen more frequently by girls and eleven games were chosen more frequently by boys. Again, further analysis revealed that boys'

games often involve forceful physical contact, propulsion of objects in space, and complex team organizations. In contrast, girls' games involve static activity and non-competitive activity. In light of the results, the researchers concluded that "an extension of the female role perception might be occurring" (Rosenberg & Sutton-Smith, 1960, p. 169).

In a study similar to the first one, Sutton-Smith, Rosenberg and Morgan (1963) administered an inventory of 180 games to 1900 children in grades three through six. As is evident in Table A-2, the results are similar to those of the previous two investigations. Twenty-eight modern games were useful in differentiating boys and girls.

Walker (1964) revised Rosenberg and Sutton-Smith's list in his investigation involving 419 eight- to twelve-year-old children. His questionnaire yielded forty games that were useful in differentiating the sexes (Table A-2). Twenty items were chosen more often by boys and twenty items were chosen more often by girls ($p > .05$).

Using a different instrument, Hartley and Hardesty (1964) studied eight- to eleven-year-old children in New York City. This instrument consisted of 56 different activities that sampled aspects of play and recreation, "cultural" interaction, and intra-family relationships. The children were interviewed in individual sessions. The interviewer presented three groups of pictures that represented (a) places where girls and boys play; (b) things boys girls play with; and (c) things girls and boys do. As she introduced each group of pictures, she explained to the participants that she was "going to show them

some pictures of places where boys and girls play (things that girls and boys play with, things that boys and girls do)" (Hartley & Hardesty, 1964, p. 46). Each picture was then followed by a verbal description such as, "Here is a jump rope . . . who mostly plays with that?" (Hartley & Hardesty, 1964, p. 46). The results of the interviews provided evidence that children have definite opinions regarding the gender-appropriateness of many activities (Table A-2). Among the findings were that 92% of the boys and 71% of the girls considered jumprope a female activity and 79% of all subjects defined jacks as a female activity. Not too surprisingly, playing with a ball and bat was considered a male activity by 93% of the participants.

As is evidenced by the findings of these and other similar investigations, children acquire notions about appropriate gender-role behaviors early and use this knowledge to label numerous games and sports according to gender (Hartley & Hardesty, 1964; Herkowitz, 1978). By second grade, in fact, both boys and girls classify sports as a masculine activity (Stein & Smithells, 1969).

To summarize, games generally labeled as gender-appropriate for boys usually involve the elements of throwing, endurance, power, strength, speed, and complex team organization (Corbin & Nix, 1979; Herkowitz, 1978; Rosenberg & Sutton-Smith, 1959) (Table A-1). In contrast, games generally labeled as gender-appropriate for girls involve static activity, fine-motor activity, few players, and few rules (Corbin & Nix, 1979; Herkowitz, 1978; Rosenberg & Sutton-Smith, 1959)

(Table A-1). Metheny (1970) reported also that activities involving light resistance, use of a light implement, and a barrier such as a net are generally perceived as acceptable for females.

Gender-Differentiated Learning Experiences

In reviewing the findings summarized in Tables A-1 and A-2, the question of stereotypical personality traits becomes apparent. In other words, what traits do these various games develop or enhance in girls and boys? A few researchers (Lever, 1978; Sutton-Smith, 1979) have compared the characteristics developed in girls' games with those developed in boys' games.

In two separate studies, Lever (1976, 1978) examined gender differences in the organization of children's activities and games. She collected the data over a one-year period using the following four techniques: (a) observation of schoolyards; (b) informal interviews; (c) written questionnaires; and (d) diary records. Participants for the studies were 181 fifth-grade children from a population of mainly middle-class, white students. For the purpose of measuring the complexity of the activities, Lever developed the following operational definitions of complexity as they apply to the structure of games and activities: (a) role differentiation, (b) player interdependence, (c) size of group, (d) number of rules, (e) explicitness of rules, and (f) team formation. Analysis of the data revealed that boys' games exceeded girls' games in complexity in each of the six areas. Furthermore, boys experienced three times as many highly complex games as girls.

Differences in role differentiation were evidenced by comparing the number of distinct roles found in boys' and girls' games (Lever, 1978). In the game of baseball, for instance, there are many individual positions, each of which have different responsibilities. However, each player in the game of hopscotch or jump rope does essentially the same thing.

Similarly, both the size of the group and the number of rules in these games differ in complexity (Lever, 1978). While team sports require a minimum of twelve players to field two teams, girls' games such as tag or jump rope can be played in groups of two or three. Regarding the number of rules, boys' games often have an elaborate organization of rules while girls' games characteristically involve turn-taking and few guidelines (Lever, 1978).

Evident also in girls' games was coaction rather than interaction (Lever, 1978). In turn-taking games such as hopscotch or jacks, for instance, each player acts independently of the others. Interdependent decision making, then, is never a factor in performance. Boys' games, in contrast, involve quite a different pattern. The majority of these games require competition between members of teams. Players not only must coordinate their actions with those of their teammates, but must also consider the action of the opponents. Interdependent decision making, therefore, is a major factor in successful performance (Lever, 1978).

The goals of boys' and girls' games also differed significantly. Lever (1976) found that, while boys' activities were characterized by

having competitive interactions with an end that produces a winner, girls' games were characterized by having cooperative interactions with no specific end point, no goal, and no winner. It appears, therefore, that the action in boys' games was instrumental--behavior was directed toward achieving a goal. Conversely, the action in girls' games was expressive in nature. A comparison of relative achievement, therefore, was impossible (Lever, 1978).

Quite clearly, the observational data compiled by Lever (1978) supports her conclusion that the structure of boys' activities is more complex than that of girls' activities. Boys' games were characterized by: (a) several distinct roles, (b) a large number of players, (c) several rules, (d) player interdependence, and (e) explicit goals (Table A-1). Conversely, girls' games were: (a) spontaneous, (b) orderly, and (c) free of structure or rules (Table A-1).

In outlining the character of girls' play from infancy to adolescence, Sutton-Smith (1979) found similar results. He noted that the emphasis of girls' games contrasts sharply with that of boys' games in terms of physical skill, competition, and interaction. He further pointed out that while popular boys' games involve either attack and defense or success and failure, popular girls' games require turn-taking, orderly sequences, partial body involvement, and solitary practice (Table A-1).

Unquestionably, the complexities of team play promote the development of several useful social skills (Lever, 1978). It is logical to assume, in fact, that many culturally-defined masculine characteristics

are developed through team sports (Lever, 1978). The findings of several investigations suggest that boys' games encourage the development of leadership skills, independence, analytical thinking ability, and confidence (Greendorfer, 1980; Lever, 1978; Pitcher & Schultz, 1983). Also enhanced by team sport participation, a characteristic of boys' games, is the ability to deal with competition in a confident manner. And finally, the interdependence among teammates promotes the development of cooperative skills (Lever, 1978). Clearly, boys' games provide a valuable learning environment by furnishing the opportunity to develop important social skills (Lever, 1978; Sutton-Smith, 1979).

The lessons learned in girls' games are markedly different. The emphasis of the activities is on cooperation rather than competition. When girls do compete, it is an indirect rather than face-to-face competition (Lever, 1978). Since their games usually involve only two or three players, the opportunity to develop interpersonal and leadership skills is absent (Lever, 1978). Consequently,

. . . girls do not learn as much about competition. . . .
about what it feels like to continue, about some being better
than others but all taking part, about having plans and alter-
native plans . . . (Sutton-Smith, 1979, p. 253).

The preceding analysis of the structure of children's games reveals that many boys' games provide a highly complex learning experience while most girls' games do not (Lever, 1976; Lever, 1978; Sutton-Smith, 1979). The differential exposure of children to complex games suggests that boys and girls do not learn the same lessons from physical activity.

As others have noted (Lever, 1978; Sutton-Smith, 1979), the traits that are developed through team competition (e.g., assertiveness, analytical thinking ability, leadership ability, and confidence) are the same traits that are necessary for success in many careers (Lever, 1978; Sutton-Smith, 1979). As Lever concludes,

At the very least, the striking similarity between the formula for success in team sports and in modern organizations should encourage researchers to give serious attention to play patterns and their consequences (1978, p. 482).

Instruments Designed to Measure How Children Label

Physical Activities According to Gender

The majority of research examining gender-role acquisition has focused on the concept of gender-role preference. Edelbrock and Sugawara (1978) define gender-role preference as the desire to adhere to gender-role stereotypes regarding appropriate masculine and feminine behavior. Although several instruments have been developed to examine children's preferences in toys, objects, and occupations (Brown, 1956; De Lucia, 1963; Edelbrock & Sugawara, 1978; Newman, 1977; Newman & Carney, 1981), minimal attention has been given to the measurement of children's physical activity preferences. Perhaps more important than the measurement of gender-role preferences, however, is the assessment of stereotypic gender-role concepts since these concepts precede and often determine activity preferences.

This researcher identified three instruments that have been developed to measure how children label physical activities according

to gender. In their study investigating children's perceptions of gender roles in childhood, Hartley and Hardesty (1964) examined not only aspects of play and recreation but also peer contacts, domestic chores, parental activities, intra-family relationships, and cultural activities. The instrument consisted of 56 pictures and was administered to 131 five- to eleven-year-old children in individual sessions. The interviewer introduced each picture by identifying the place, object, or activity and asking the child who mostly plays there (plays with it, does it?). Although the researchers found definite stereotypical opinions for both boys and girls, they did not provide measures of validity and reliability for the instrument.

In another gender-role stereotyping study, Herkowitz (1978) developed an instrument consisting of thirty-five stick-figured individuals participating in various physical activities. She asked 360 participants equally divided by sex and age among preschool, second grade, fifth grade, eighth grade, eleventh grade, and college sophomores, to view each of thirty-five slides. After each figure was presented, participants were asked whether they thought each activity was: (a) a boys' activity, (b) a girls' activity, or (c) a boys' or girls' activity by marking one of the three sections on an answer sheet depicting the same androgynous figures, but with sex-distinguishing features (Herkowitz, 1978). Her results indicated that: (a) children perceived most activities as appropriate for both girls and boys, (b) most of the activities that were labeled by gender were perceived as "boy activities," and (c) young boys selected "boy-girl" activities less often

than did older groups. Again, however, information on reliability and validity of the instrument was not provided.

In a study conducted by Edelbrock and Sugawara (1978), 119 pre-school-aged children were assessed with the Sex Role Learning Index (SERLI), a picture choice instrument designed to measure the degree to which children's classification of items depicting various objects agrees with gender-role stereotypes of those items. The participants were shown pictures of objects representing stereotypical activities and roles (e.g., ironing, hammering, baseball) and were instructed to sort the pictures into one of three boxes designated as: (a) for girls, (b) for boys, and (c) for both boys and girls. Reliability (r) using the test-retest method was $r = .64$, $p < .01$. No validity measures were reported.

Summary

The preceding review of the literature provides evidence that girls and boys are socialized differently into physical activity. The influences of parents, peers, the media, and teachers are major factors in a child's evolving perception of gender role. Each of these groups provides children with gender-specific information regarding the gender-appropriateness of various physical activities. The results of several investigations suggests also that children use this information about appropriate gender-role behavior as a guide in selecting activity preferences. A comparison of characteristic girls' games with those of boys' games reveals that these gender-specific

physical activities promote the development of social skills that are markedly different. It is a logical conclusion, therefore, that such stereotypical attitudes not only limit rather than widen a child's list of activity choices, but also impede the development of useful social skills. Questions regarding the identification of gender-labeling of physical activities, not only by children, but also by parents and teachers, therefore, deserve attention. Progress in this area, however, has been minimal.

Gender-role development is of importance in many areas of research and application in the family, school, and community (Newman, 1977). Yet, as Herkowitz (1978, p. 93) recognized,

Surprisingly little research has been done on the direct influence of sex-appropriate or inappropriate labeling of activities on children's subsequent motor behavior or preferences.

It seems, therefore, that a valid and reliable instrument is needed to measure how children label physical activities according to gender. This research study is an initial step toward meeting this need.

CHAPTER III

METHODS

The purpose of this study was to develop an instrument to measure the degree to which specific populations label physical activities according to gender-appropriateness. The research design involved three major stages: (a) construction of the instrument, (b) validation of the instrument, and (c) reliability/stability assessment.

Construction of the Instrument

The basis for the need for the instrument and the research base for the construct inclusion was established in a preliminary review (Ignico, 1986). This review summarized the results of two areas of research: (a) studies identifying characteristic components of traditional girls' physical activities and traditional boys' physical activities (Table A-1), and (b) studies identifying characteristic girls' physical activities and characteristic boys' activities (Table A-2). The specific process of constructing the instrument involved four major steps: (a) item selection, (b) response determination, (c) format and (d) scoring.

Item Selection

Several investigations have been directed toward identifying gender-specific characteristic components of physical activities (Corbin & Nix, 1979; Eiferman, 1979; Herkowitz, 1978; Lever, 1978;

Oglesby, 1978; Rosenberg & Sutton-Smith, 1959; Sutton-Smith, 1979) (Table A-1). Taken together, these studies suggest that characteristic boys' games usually involve the elements of: (a) strength, (b) speed, (c) strategy, and (d) competition, while girls' games are characterized by: (a) cooperation, (b) turn-taking, (c) fine-motor activity, and (d) few rules. Based on a thorough analysis of this information which involved combining several similar characteristics into one and eliminating characteristics that were identified by only one researcher, five female activity characteristics and nine male activity characteristics were identified that were unique to each category (Table 1).

Between the years of 1959 and 1964, several investigations were conducted with children in an effort to identify gender-specific and gender-neutral physical activities based on children's preferences (Rosenberg & Sutton-Smith, 1959; Rosenberg & Sutton-Smith, 1960; Sutton-Smith, Rosenberg, & Morgan, 1963; Walker, 1964) and perceptions (Hartley & Hardesty, 1964). Activities generally considered to be more appropriate for females than for males, for example, included cartwheels, jumprope, and dancing. Characteristic boys' activities included many team games such as baseball, football, and basketball (Table A-2).

Based partly on this research evidence identifying gender-specific and gender-neutral activity characteristics (Table A-1), and partly on the research identifying gender-specific and gender-neutral physical activities (Table A-2), 45 physical activities were

Table 1. Research-Based Gender-Specific Physical Activity Characteristics Selected for Judges' Rating Chart.

Female Physical Activity Characteristics	Male Physical Activity Characteristics
Expression	Competition
Few players	Complex team formation
Few rules	Explicit rules
Fine-motor activity	Gross-motor activity
Turn-taking	Physical contact
	Propulsion of objects
	Speed
	Strategy
	Strength

selected as a basis for establishing a list with an equal number of female, male, and gender-neutral items (Table 2).

In order to construct the three categories of male, female, and gender-neutral physical activities, the assistance of 12 experts (6 females, 6 males) in the area of motor and psychosocial development of children was requested (Appendix B). Six of these judges (3 females, 3 males) were sent a letter of explanation (Appendix C) and a packet of information containing instructions, definitions of terms, and a chart containing the 45 alphabetized activities and 14 alphabetized activity characteristics (Appendix C). The six judges rated the 45 activities according to the degree to which each activity involved each of the 14 activity characteristics using the scale of: (1) 0 = not present, (b) 1 = low degree, (c) 2 = moderate degree, and (d) 3 = high degree.

Two of the judges expressed the concern that the activities of "jacks" and "marbles" were not representative of physical activities. For this reason, these two items were not considered in the subsequent analysis. For each activity, a sum was calculated for the male activity characteristics and for the female activity characteristics. This sum was then divided by the number of characteristics to obtain a comparable value. The 6 judges' ratings were then summed to produce one male characteristic score and one female characteristic score for each activity. Based on the distribution of total scores, the 43 activities were ranked high to low for both female and male characteristic scores, and medians were identified (Table 3).

Table 2. Research-Based Gender-Specific and Gender-Neutral Physical Activities
Selected for Judges' Rating Chart.

Female	Male	Gender-Neutral
Balance beam	Baseball	Bicycling
Cartwheels	Basketball	Bowling
Cheerleading jumps	Boxing	Diving
Dancing	Climbing (rope)	Flying a kite
Drop the handkerchief	Climbing (Jungle gym)	Hiking
Forward roll	Dodgeball	Horseshoes
Hopscotch	Football	Jumping a hurdle
Jacks	Karate	Push-ups
Jumprope (single)	Kickball	Rowing a boat
Jumprope (group)	Marbles	Sit-ups
Leapfrog	Running a race	Skiing
London Bridge	Soccer	Swimming
Ring-around-the-rosy	Tug-of-war	Trampoline
See-saw	Weight-lifting	Tennis
Swings	Wrestling	Volleyball

Table 3. Group I Judges' Female and Male Physical Activity Characteristic Scores (ACS).

Female Physical Activities ^a			Male Physical Activities ^b		
	FACS	MACS		MACS	FACS
1. Leapfrog	10.25	5.56	1. Football	17.89	2.85
2. Balance beam	9.70	5.55	2. Basketball	16.50	2.85
3. Dancing	9.65	5.45	3. Soccer	15.79	2.45
4. See-saw	9.35	2.33	4. Baseball	14.98	4.95
5. Horseshoes	9.25	6.99	5. Volleyball	14.88	3.90
6. Fly kite	8.90	2.30	6. Kickball	13.88	4.75
7. Climb rope	8.70	4.90	7. Boxing	12.78	4.90
8. Swings	8.50	2.77	8. Wrestling	12.78	7.35
9. Hopscotch	8.45	6.01	9. Karate	11.89	6.10
10. Cheerleading	8.30	5.11	10. Tennis	11.78	6.20
11. Jumprope (g)	8.25	5.75	11. Dodgeball	11.10	2.60
12. Cartwheels	8.15	4.45	12. Bowling	9.24	7.40
13. Climbing (jg)	7.90	3.23	13. Tug-of-war	9.10	4.00
14. Jumprope (s)	7.90	4.39	14. Run a race	8.66	5.80
15. Forward roll	7.50	3.11	15. Jump hurdle	7.60	5.90
16. Trampoline	7.50	4.00	16. Horseshoes	6.99	9.25
17. Bowling	7.40	9.24	17. Wt. lifting	6.88	6.90
18. Wrestling	7.35	12.78	18. Drop the hand.	6.56	4.85
19. Diving (board)	7.30	5.22	19. Skiing	6.24	7.30
20. Skiing	7.30	6.24	20. Hopscotch	6.01	8.45
21. Hiking	7.10	3.65	21. Bicycling	6.00	7.10
22. Swimming	7.10	6.00	22. Swimming	6.00	7.10
23. Bicycling	7.10	6.00	23. Jumprope (g)	5.75	8.25
24. Wt. lifting	6.90	6.88	24. Leapfrog	5.56	10.25
25. Push-ups	6.70	4.11	25. Balance beam	5.55	9.70
26. Sit-ups	6.70	4.77	26. Dancing	5.45	9.65
27. Row a boat	6.30	4.79	27. Diving (b)	5.22	7.30
28. London bridges	6.30	4.68	28. Cheerleading	5.11	8.30
29. Tennis	6.20	11.78	29. Climb rope	4.90	8.70
30. Karate	6.10	11.89	30. Row a boat	4.79	6.30
31. Jump hurdle	5.90	7.60	31. Sit-ups	4.77	6.70
32. Run a race	5.80	8.66	32. London bridge	4.68	6.30
33. Baseball	4.95	14.98	33. Cartwheels	4.45	7.90
34. Boxing	4.90	12.78	34. Jumprope (s)	4.39	7.90
35. Drop the hand.	4.85	6.56	35. Push-ups	4.11	6.70
36. Kickball	4.75	13.88	36. Trampoline	4.00	7.50
37. Ring around rosy	4.65	3.67	37. Ring around rosy	3.67	4.65
38. Tug-of-war	4.00	9.10	38. Hiking	3.65	7.10
39. Volleyball	3.90	14.88	39. Climb (jg)	3.23	7.90
40. Basketball	2.85	16.50	40. Forward roll	3.11	7.50
41. Football	2.85	17.89	41. Swings	2.77	8.50
42. Dodgeball	2.60	11.10	42. See-saw	2.33	9.35
43. Soccer	2.45	15.79	43. Fly kite	2.30	8.90

^aMedian = 7.1^bMedian = 6.0

The 10 activities with the highest score for male characteristics and the 10 activities with the highest score for female characteristics were determined. Only activities falling below the male characteristic median for male characteristics (6.0) were considered for inclusion in the female physical activity category, and only activities falling below the female median for female characteristics (7.1) were considered for inclusion in the male physical activity category (Table 4). In the female physical activity category, (a) horseshoes, and (b) hopscotch did not meet this criterion. In the male physical activity category, wrestling failed to meet this requirement.

A third category of items representing the gender-neutral category was constructed by (a) determining the difference between male and female activity characteristic scores for each physical activity, (b) rank-ordering the physical activities according to this criterion, and (c) selecting the 10 activities with the smallest difference between female and male characteristic scores. These 30 physical activities, representative of 10 female, 10 male, and 10 gender-neutral items, were combined to make up the preliminary questionnaire (Table 4).

For placement of items within the questionnaire, a "male, female, gender-neutral" order was selected (Bem, 1974). Within each of the male, female, and gender-neutral physical activity categories, the items were randomly placed.

Response Determination

It was decided to use a Likert-type instrument consisting of 5 category responses. This method was selected because it: (a) is as

Table 4. Preliminary Questionnaire Items with Group I Judges' Female and Male Activity Characteristic Scores (ACS).

Female Category	FACS	MACS	Male Category	MACS	FACS	Gender-neutral Category	MACS	FACS
Leapfrog	10.25	5.56	Football	17.89	2.85	Weight-lifting	6.88	6.90
Balance beam	9.70	5.55	Basketball	16.50	2.85	Ring around rosy	3.67	4.65
Dancing	9.65	5.45	Soccer	15.79	2.45	Skiing	6.24	7.30
See-saw	9.35	2.33	Baseball	14.98	4.95	Bicycling	6.00	7.10
Fly kite	8.90	2.30	Volleyball	14.88	3.90	Swimming	6.00	7.10
Climb rope	8.70	4.90	Kickball	13.88	4.75	Row a boat	4.79	6.30
Swings	8.50	2.77	Boxing	12.78	4.90	London bridge	4.68	6.30
Cheerleading	8.30	5.11	Karate	11.89	6.10	Jump hurdle	7.60	5.90
Jump Rope	8.25	5.75	Tennis	11.78	6.20	Drop the hand.	6.56	4.85
Cartwheels	8.15	4.45	Dodgeball	11.10	2.60	Bowling	9.24	7.40

reliable as most scales; and (b) can be administered in a short period of time (Seiler & Hough, 1970). The following five response choices were chosen for use with the adult populations: (a) a lot more for boys; (b) a little more for boys; (c) equally for boys and girls; (d) a little more for girls; and (e) a lot more for girls. For the child population, "for both boys and girls the same amount" was substituted for "equally for boys and girls."

Format

Both the children's questionnaire and the adult questionnaire depicted in picture form a gender-neutral individual participating in each of the activities. The children's questionnaire depicted the five answer choices in picture form, while the adult questionnaire listed the five answer choices in printed form with a box above each answer. A professional artist was asked to illustrate three versions of a gender-neutral individual in various body positions. An informal pilot study was conducted with 10 participants from each of the three population groups (five-year-old children equally distributed by sex; parents of four and one-half-to seven-year-old children equally divided by sex; and preschool/kindergarten teachers) to determine which of the versions of gender-neutral drawings was most androgynous.

The results indicated that over 95% of the adult participants agreed on an olympic-type figure and that the children showed no consistency in their choices of body types. It was decided, therefore: (a) to use the "olympic-type" figure to represent the gender-neutral

individual participating in the activities, and (b) to have the name of the physical activity printed under each picture.

A second informal pilot study was conducted with 4-to 5-year-old children who attended The University of Tennessee Preschool Motor Development Program to answer the following questions: (a) Are the children familiar with the activities? (b) Can 4-year-old children process a five category response scale? (c) Are the children impulsive in responding to the activities, i.e., do they consistently choose the box closest to the activity picture?

Each child was first asked to name and describe each of the nine pictured activities. The investigator then showed the questionnaire to the child and explained the procedure for answering each question. For each pictured activity, the investigator asked the child if it was: (a) a lot more for boys, (b) a little more for boys, (c) for both boys and girls the same amount, (d) a little more for girls, or (e) a lot more for girls. The child was instructed to place a large "X" inside the box she/he thought was the best answer.

To make sure that the child could differentiate the five answers, the investigator pointed to one of the five answer boxes and asked the child what that answer meant. After the test, each child was asked to point to each of her/his first five answers and tell the investigator what that answer meant. Based on the results, it was decided that only children above the age of 4 years, 6 months were able to process the five category response scale. Based on questioning, it was apparent that the children were familiar with the activities depicted. An

inspection of the responses to the questionnaires indicated also that they were not impulsive in making their answer choices; i.e., they did not consistently choose the answer closest to the left margin, but rather used each of the 5 answer choices.

Scoring

A reversed scoring system for female and male activities was selected. For each item in the female and male categories, a score of five reflects gender-labeling in the predicted direction (e.g., "girl" rating for female activity; "boy" rating for male activity); a score of 3 reflects a gender-neutral response pattern. The range of scores within each of the two categories, therefore, is between eight and forty. The eight gender-neutral items are not used in scoring the instrument. A composite gender-labeling score is obtained by summing the female and male category scores.

Summary

The research foundation for the item selection was established in a preliminary review (Ignico, 1986). A panel of six experts in the field of motor and psychosocial development of children rated 45 physical activities according to the degree to which they involved 14 gender-specific physical activity characteristics. Based on the resulting data, 30 activities were identified as representative of: (a) 10 male physical activities, (b) 10 female physical activities, and (c) 10 gender-neutral physical activities. These 30 items were combined to make up the preliminary questionnaire.

It was decided to use two versions of the same Likert-type instrument for use across age groups. The adult version was designed for use with parent and teacher populations and the child version was designed for use with young children. Based on the findings of a pilot study, it was determined that the test directions and administration protocol were appropriate for use with 4-1/2 to 5-year-old children. It was decided that a reversed scoring system for the male and female categories was most appropriate, and that the score for the test would be the sum of the scores for the male physical activities and the female activities.

Validation of the Instrument

Ary et al., (1972) stated that construct validity refers to the extent to which a test reflects constructs presumed to underlie test performance. Specific ways to evaluate construct validity are through: (a) group differences, (b) factor analysis, (c) studies of internal structure, and (d) process (Safrit, 1973). Studies of process consist of the following three steps: (a) proposing a hypothesis that a test measures some abstract trait, (b) constructing a theory to explain both the construct and the test that measures it, and (c) applying a statistical procedure to confirm or deny the theory (Baumgartner & Jackson, 1982).

The first two steps were accomplished following a preliminary review (Ignico, 1986). With the latter objective in mind, a second panel of six different judges including 3 female and 3 male experts

(Appendix B) was asked to rate the 45 activities using the same rating chart that the original 6 judges used. The second group of judges was sent a letter of explanation (Appendix C) and a packet of information. The information packet contained: (a) instructions, (b) definitions of terms, and (c) a rating chart listing the 45 activities arranged alphabetically and the 14 activity characteristics arranged alphabetically (Appendix D).

The degree of agreement between groups of judges was determined: (a) utilizing Pearson product-moment correlations on both female and male physical activity characteristic scores for the total list of items, and (b) utilizing an analysis of variance for the final questionnaire items to determine if there were any statistically significant difference between the ratings of the two sets of judges. A one-way ANOVA was done for each of the following six categories of scores: (a) male activity characteristic scores for male physical activities; (b) female activity characteristic scores for male physical activities; (c) male activity characteristic scores for female physical activities; (d) female activity characteristic scores for female physical activities; (e) male activity characteristic scores for gender-neutral physical activities; and (f) female activity characteristic scores for gender-neutral physical activities. For construct validity to be determined, the two groups of judges would not be statistically different on the construct evaluation in any category.

Reliability/Stability Assessment

Reliability/stability of the instrument was assessed by test-retest correlation for each of the three groups: (a) ninety parents of preschool and/or elementary school children, (b) ninety preschool or elementary school teachers, and (c) ninety 4-1/2 to 7-year-old children. The method of obtaining the test-retest scores for the three groups was accomplished on a carefully scheduled basis. The reliability evaluation included: (a) sampling, and (b) test-retest procedures for each of the three groups.

Sampling

The individual who is responsible for approving research studies in the Knox County School System was contacted. Instructions were provided to forward a research proposal for review (Appendix E) by Knox County School System personnel. Approval was granted and permission was given to contact the principals as a second step. In an effort to obtain a stable (homogeneous) population, only low-to-upper-middle-class schools were considered for participation. The list of schools meeting this requirement was provided by the school system.

Parents. The elementary and kindergarten school parent participants were representative of all the fathers ($n = 45$) of fourth grade students at one randomly selected Knox County elementary school, and all the mothers ($n = 45$) of kindergarten students at the same school.

Teachers. The elementary school teacher participants ($n = 68$) were representative of all full time, salaried teachers in three randomly selected Knox County elementary schools. These three schools did not include the school from which the children were selected.

The preschool teacher participants ($n = 22$) were representative of all full time, salaried teachers in four Knoxville preschools. These four preschools did not include either of the two schools from which the 4-year-old participants were selected.

Children. The 4-year-old participants ($n=22$) were representative of children attending two preschools in the Knoxville area. The investigator contacted the director of each school and obtained permission to conduct the study. Based on subjective evaluation by the teachers and administrative staff, the children were classified as low-to-upper-middle class.

From the list of middle-class schools provided by the school system, one school was randomly selected to provide the 5 to 7-year-old participants. These participants were representative of the students in the kindergarten, first, and second grade classes. The total number of participants in the selected school was 68.

Test-retest Procedures

The principals and preschool directors of the eleven schools selected for participation were contacted to explain the investigation procedure and request permission to conduct the study. Each of the

270 participants responded to the questionnaire on two occasions, three days apart.

Parents. The parent participants received a brief letter from the principal requesting their support, a letter of explanation from the investigator, and one questionnaire inside each of two sealed and numbered envelopes (Appendix F). The participants were instructed to complete the first questionnaire that same day and to complete the second questionnaire 3 days later. They were further instructed to return both questionnaires and the cover sheet to school by their child. The investigator collected the questionnaires four days after leaving them with the students.

Teachers. The teacher participants were given a letter of explanation and the first questionnaire to complete during a staff meeting (Appendix F). These questionnaires were collected by the investigator and the teachers were then given an envelope with a second questionnaire enclosed. They were instructed both verbally and in the letter to complete the second questionnaire 3 days from that day and to return it to the principal. The second questionnaires were collected 3 days later by the investigator.

Children. The investigator visited the selected preschools to meet with the director and teachers and schedule two dates to administer the questionnaire. The parents of the 4-year-old participants were given an envelope that contained: (a) a brief letter from the

preschool director requesting support from the parents; (b) a letter of explanation from the investigator; and (c) a copy of an informed consent (Appendix F). All 4-1/2 to 5-year-old children who received parental permission were selected for participation in the study.

The children were tested in individual sessions and were escorted to and from the room where the questionnaire was administered by the investigator. Upon entering the room, the investigator told the child that she/he was going to play a paper and pencil game. A description of the explanation and procedure that was used is provided in Appendix G.

The principal of the elementary school was contacted to explain the investigation procedure and request permission to conduct the study. The investigator then visited the school to meet with the principal and teachers and schedule a date to administer the questionnaire. All 5-year-old kindergarten students, 6-year-old first grade students, and 7-year-old second grade students were selected for participation in the study.

Each student was given an envelope to take home to her/his parents. Enclosed in the envelope was a brief letter from the principal requesting support from the parents, a letter of explanation from the investigator, and a copy of an informed consent (Appendix F).

An informal pilot study was conducted at one of the schools from which the teacher participants were drawn to determine if kindergarten children could complete the questionnaire as a group or needed to be tested one on one. Based on the responses and informal observation,

it was decided to test the 5-year-olds in individual sessions. The procedure followed was identical to that used for the 4-year-old participants.

The questionnaire was administered to the 6- and 7-year-old participants in two group settings by age group. The investigator instructed the children to place their pencil points on the first picture and to look at the picture. She then named the activity and asked, "Is this game a lot more for boys, a little more for boys, for both boys and girls the same amount, a little more for girls, or a lot more for girls?" The children were allowed 10 seconds to respond. After 10 seconds, the investigator instructed the children to place their pencil points on the picture underneath the previous picture. This procedure continued until the children responded to each of the 24 activities. The procedure was repeated three days after administration of the first questionnaire.

CHAPTER IV

RESULTS

The purpose of this study was to develop a valid and reliable instrument to measure the degree to which children and adults categorize physical activities according to gender. In order to validate the instrument, two steps were taken. First, two Pearson product-moment correlations were calculated comparing the total score for each of the 43 physical activities for the two groups of judges for both the male and female physical activity characteristics. Second, six one-way ANOVA's were calculated to determine if there were a significant difference between the groups of judges on any of the underlying constructs (Ary et al., 1972; Safrit, 1973; Baumgartner & Jackson, 1982) of the final version of the test.

To obtain a measure of reliability/stability, reliability coefficients were calculated for the eight male items, eight female items, and eight gender-neutral items by comparing test 1 and test 2 responses for each group of participants. In addition, each item was analyzed to obtain response frequencies and descriptive statistics.

The findings have been organized into two major sections: (a) validation of the instrument, and (b) reliability assessment. Within the reliability section, results are reported under the following sub-headings: (a) parents, (b) teachers, (c) children, and (d) children by age group.

Validation of the Instrument

The process of testing for agreement between the two panels of judges involved three major stages: (a) correlation of the rating chart items; (b) modification of the preliminary questionnaire; and (c) calculation of the analysis of variance for the final questionnaire items. The results for each of these procedures are reported.

Correlation of the Rating Chart Items

The ratings of the two sets of judges were compared in terms of the male activity characteristic scores and female activity characteristic scores for each of the 43 activities. The scores were correlated using the Pearson product-moment method. This method produced correlations of $r = .82$, $p < .01$ for female activities and $r = .98$, $p < .01$ for the male activities.

Modification of the Preliminary Instrument

Minor modifications were made in the preliminary questionnaire because: (a) two of the Group II judges were not familiar with one or more of the physical activities, and (b) an inconsistent response pattern was evident in the responses of two of the activities. The following alterations were made based on the rationale provided:

1. Ring-around-the-Rosy, London Bridge, and Drop-the-Handkerchief were deleted from the gender-neutral category because: (a) one of the judges was not familiar with any of the three activities, and (b) another judge was not familiar with Drop-the-Handkerchief.

Diving, which occupied the eleventh position in the gender-neutral category, was added to represent the eighth gender-neutral item.

2. Flying a kite and climbing a rope were eliminated from the female category because: (a) Group II judges ranked flying a kite only 21, and (b) both groups of judges showed an inconsistent response pattern on ratings for climbing a rope.

3. Tennis and dodgeball, the ninth and tenth items in the male category, were subsequently deleted in order to equalize the number of items in each physical activity category.

4. The modified instrument, The Physical Activity Gender-Role Stereotyping Index (Appendix G), included 24 items with eight physical activities in each of the three categories: (a) male, (b) female, and (c) gender-neutral (Table 5).

Analysis of Variance for the Final Instrument

In order to determine whether or not there was construct validity for the Physical Activity Gender-Role Stereotyping Index, six separate analyses of variance were conducted including analysis for both male activity characteristics and female activity characteristics for: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities. The results of these six analyses of variance substantiated construct validity as the two sets of judges were not significantly ($p > .05$) different on any construct.

Male activities--male activity characteristics. The analysis of variance for the male activities contrasting the two groups of judges

Table 5. Final Questionnaire Items Grouped by Category with Group I and Group II Judges' Activity Characteristic Scores.

	Female Category (n=8)			Male Category (n=8)			Gender-Neutral Category (n=8)							
	Female ACS		Male ACS	Male ACS		Female ACS	Male ACS		Female ACS					
	I	II	I	I	II	I	I	II	I	II				
Leapfrog	10.25	9.15	5.56	5.34	Football	17.89	16.89	2.85	3.25	Weight lifting	6.88	5.89	6.90	8.25
Balance beam	9.70	11.57	5.55	5.22	Basketball	16.50	16.22	2.85	5.30	Skiing	6.24	6.12	7.30	9.55
Dancing	9.65	10.00	5.45	6.23	Soccer	15.79	15.67	2.45	4.45	Bicycling	6.00	6.11	7.10	7.75
See-saw	9.35	9.0	2.33	2.10	Baseball	14.98	15.67	4.95	6.55	Swimming	6.00	6.89	7.10	8.30
Swings	8.50	9.05	2.77	2.10	Volleyball	14.88	14.42	3.90	5.25	Rowing a boat	4.79	4.22	6.30	8.40
Cheerleading jumps	8.30	8.55	5.11	6.56	Kickball	13.88	11.78	4.75	6.90	Jumping hurdle	7.60	6.56	5.90	8.35
Jumprope	8.25	10.25	5.75	6.89	Boxing	12.78	12.66	4.90	5.60	Bowling	9.24	9.65	7.40	9.65
Cartwheels	8.15	9.60	4.45	4.46	Karate	11.89	11.90	6.10	7.85	Diving	5.22	5.78	7.30	10.25

on their male activity characteristic scores for the male physical activities produced no significant difference ($F_{1,11} = 2.039$, $p = .181$). Because Group I judges were not different from Group II judges on the male characteristics of male physical activities (Table 6), construct validity was established for this category.

Male activities--female activity characteristics. The analysis of variance for the male physical activities contrasting female activity characteristic scores revealed no significant difference ($F_{1,11} = 2.759$, $p = .125$). between the groups of judges. Since Group I judges were not different from Group II judges on the female characteristics of male physical activities (Table 6), construct validity was established for this category.

Female activities--male activity characteristics. The analysis of variance contrasting the two groups of judges on their male activity characteristic scores for female physical activities produced no significant difference ($F_{1,11} = .581$, $p > .20$). Because Group I judges were not different from Group II judges on the male characteristics of female physical activities (Table 6), construct validity was established for this category.

Female activities--female activity characteristics. Analysis of variance for female physical activities contrasting female activity characteristic scores revealed no significant difference ($F_{1,11} = .570$, $p > .20$) between the groups of judges. Since Group I judges were not

Table 6. Scores for Both Groups of Judges for Six Constructs: The Basis for Construct Validity.

	<u>Male Phys. Activ.</u>		<u>Female Phys. Activ.</u>		<u>Gender-Neutral Phys. Activ.</u>	
	MAC ¹	FAC ²	MAC ¹	FAC ²	MAC ¹	FAC ²
GROUP I						
J ₁	18.76	5.00	5.56	13.60	9.11	8.40
J ₂	20.34	3.75	4.07	6.75	8.07	4.50
J ₃	20.12	1.80	4.00	11.20	7.74	8.40
J ₄	19.76	4.60	4.89	12.00	7.78	10.60
J ₅	20.00	9.20	8.89	13.20	10.44	12.20
J ₆	19.61	7.60	7.34	14.00	9.55	11.20
M	19.77	5.33	5.79	11.79	8.78	9.22
SD	.56	2.67	1.95	2.68	1.10	2.77
GROUP II						
J ₁	18.11	7.80	6.78	11.60	9.33	13.40
J ₂	18.45	4.75	5.78	12.00	8.01	11.50
J ₃	19.78	8.20	5.56	14.60	7.33	12.00
J ₄	19.63	5.60	5.88	10.00	7.44	7.00
J ₅	19.12	9.00	6.45	13.20	7.02	12.40
J ₆	20.12	10.60	8.45	15.60	12.00	14.20
M	19.20	7.66	6.48	12.83	8.54	11.75
SD	.79	2.17	1.06	2.06	1.89	2.52

¹Male activity characteristics.

²Female activity characteristics.

different from Group II judges on the female characteristics of female physical activities (Table 6), construct validity was established for this category.

Gender-neutral activities--male activity characteristics. Analysis of variance contrasting the two groups of judges on their male activity characteristic scores for gender-neutral physical activities produced no significant difference ($F_{1,11} = .076, p > .20$). Because Group I judges were not different from Group II judges on the male characteristics for gender-neutral physical activities (Table 6), construct validity was established for this category.

Gender-neutral activities--female activity characteristics. Analysis of variance for the gender-neutral physical activities comparing female activity characteristic scores revealed no significant difference ($F_{1,11} = 2.744, p = .126$) between the groups of judges. Since Group I judges were not different from Group II judges on the female characteristics for gender-neutral physical activities (Table 6), construct validity was established for this category.

Reliability/Stability Assessment

Ninety participants from each of the three population groups responded to the questionnaire on two occasions, three days apart. Separate analyses were done for: (a) each population group, and (b) the children by age group. The results are presented under the following major headings: (a) parents, (b) teachers, (c) children, and (d) children by age group.

Within each of these major sections, reliability/stability results are reported for: (a) test scores, (b) male physical activities, (c) female physical activities, and (d) gender-neutral physical activities. Thus, reliability coefficients were calculated for each of the above items by comparing test 1 and test 2 for each group of participants. In addition, each item was analyzed to obtain response frequencies and descriptive statistics (Appendix H). These descriptive statistics were included only to provide the details contributing to the pattern of responses in the reliability/stability assessment. A summary of the item analysis results is presented under the following subheadings: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities.

Parents

The parent participants consisted of 45 fathers and 45 mothers of children enrolled at one Knox County elementary school. Responses to test 1 and test 2 were correlated to obtain reliability/stability measures for: (a) test scores, (b) male physical activities, (c) female physical activities, and (d) gender-neutral physical activities. An item analysis was conducted for each of the 24 activities (Table H-3).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients (r) and probability values (p) for: (a) test scores, and (b) each of the three content areas are presented.

Test score. The correlation of scores for test 1 and test 2 produced an $\underline{r} = .94$, $\underline{p} = .0001$. Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., parents.

Male physical activities. For the eight male items, results of the test-retest correlation produced a reliability coefficient of $\underline{r} = .88$, $\underline{p} = .0001$. Therefore, reliability/stability was established for the male physical activity scores on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., parents.

Female physical activities. A comparison of the test 1 and test 2 responses for the female physical activities revealed an $\underline{r} = .93$, $\underline{p} = .0001$. Thus, reliability/stability was established for the female physical activity scores on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., parents.

Gender-neutral physical activities. Correlation of the two tests for the eight gender-neutral physical activities produced an $\underline{r} = .89$, $\underline{p} = .0001$. Thus, reliability/stability was established for the gender-neutral physical activity scores on the Physical Activity Gender-Role Stereotyping Index.

Item analysis. An item analysis was conducted for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-3). The response frequencies and percentages were also obtained for each item (Table H-3). A summary

of the results is reported under the following three categories:

- (a) male physical activities, (b) female physical activities, and
- (c) gender-neutral physical activities.

Male physical activities. The item analysis for the male items revealed a consistent response pattern as evidenced by the measures of central tendency. Both the mode and median for each of the eight items was the same in test 1 and test 2 (Table H-3). In addition, the largest mean difference between test 1 and test 2 was .078 for baseball (Table H-3).

Female physical activities. An inspection of the measures of central tendency for the eight female items also revealed a consistent response pattern between tests 1 and 2 (Table H-3). For each item, the mode and the median did not change from test 1 to test 2. The largest mean difference between test 1 and test 2 was .089 for cheer-leading jumps (Table H-3).

Gender-neutral physical activities. The parent population showed a consistent response pattern for the eight gender-neutral items. Again, the mode and median for each item was the same for test 1 and test 2 and the largest mean difference between tests was .111 for rowing a boat (Table H-3).

Teachers

The teacher participants consisted of preschool teachers ($n = 22$) from four Knoxville preschools and elementary teachers ($n = 68$) from three Knox County elementary schools. Responses to test 1 and test 2

were correlated to obtain stability measures for: (a) test scores, (b) male physical activities, (c) female physical activities, and (d) gender-neutral physical activities. An item analysis was conducted for each of the 24 activities (Table H-4).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients ($\underline{r}$) and probability values ($\underline{p}$) for: (a) test scores, and (b) each of the three categories are presented.

Test scores. Correlation of the test-retest scores for teachers produced an $\underline{r} = .95$, $\underline{p} = .0001$. Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., teachers.

Male physical activities. A comparison of test 1 and test 2 responses for the male items produced an $\underline{r} = .92$, $\underline{p} = .0001$. Therefore, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., teachers.

Female physical activities. For the eight female items, results of the test-retest correlation produced an $\underline{r} = .91$, $\underline{p} = .0001$. Thus, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., teachers.

Gender-neutral physical activities. The eight gender-neutral items produced an $\underline{r} = .83$, $\underline{p} = .0001$ on the test-retest correlation.

Therefore, reliability/stability was established for the gender-neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for one adult group, i.e., teachers.

Item analysis. An item analysis was conducted for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-4). Response frequencies and percentages were also obtained for each item (Table H-4). The results are reported under the following three headings: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the eight male items revealed a consistent response pattern for test 1 and test 2 as evidenced by the measures of central tendency. The median for each of the items was the same for test 1 and test 2. For seven of the eight items, the mode stayed the same from test 1 to test 2. The mode for baseball changed from three to four. An inspection of mean differences between test 1 and test 2 showed that boxing had the largest with a difference of .067 (Table H-4).

Female physical activities. An analysis of the measures of central tendency for the eight female items revealed a consistent response pattern for test 1 and test 2. For each of the eight items, both the mode and the median was three for each test. The largest mean difference between test 1 and test 2, was .088 for jumprope (Table H-4).

Gender-neutral physical activities. The teacher population showed a consistent response pattern across tests for the eight gender-neutral items also. For all items, the mode and the median did not change from test 1 to test 2. In addition, the largest mean difference between tests 1 and 2 was .056 for jumping a hurdle (Table H-4).

Children

The child participants consisted of preschool students ($n = 22$) and elementary school students ($n = 68$) between the ages of 4-1/2 and 7. Responses to test 1 and test 2 were correlated to obtain reliability/stability measures for each of the following: (a) test scores, (b) male physical activities, (c) female physical activities, and (d) gender-neutral physical activities. An item analysis was conducted for each of the 24 activities (Table H-5).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2. The reliability coefficients (r) and probability values (p) for: (a) test scores, and (b) each of the three categories are presented.

Test scores. Correlation of the test scores for children produced an $r = .77$, $p = .0001$. Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for one group, i.e., children between the ages of 4-1/2 and 7.

Male physical activities. For the eight male items, results of the test-retest correlation produced an $r = .79$, $p = .0001$.

Therefore, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for one group, i.e., children between the ages of 4-1/2 and 7.

Female physical activities. A comparison of the test 1 and test 2 responses for the female items revealed an $r = .66$, $p = .0001$. Thus, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for one group, i.e., children between the ages of 4-1/2 and 7.

Gender-neutral physical activities. Scores for the eight gender-neutral items on test 1 and test 2 produced an $r = .69$, $p = .0001$. Therefore, reliability/stability was established for the gender-neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for one group, i.e., children between the ages of 4-1/2 and 7.

Item analysis. An item analysis was conducted for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-5). The response frequencies and percentages were also obtained for each item (Table H-5). The results are reported under the following three headings: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the eight male items showed that the children were fairly consistent in their response

pattern for tests 1 and 2. The median did not change for any of the items from test 1 to test 2, and the mode for six of the eight items did not change across tests. The modes for both kickball and soccer changed from 5 to 3. An inspection of mean differences between tests revealed that both kickball and football had the largest with a difference of .10 (Table H-5).

Female physical activities. The measures of central tendency for the female items showed a slightly less consistent response pattern than that for the male items. The median did not change from test 1 to test 2 for six of the eight items. The medians for both jumprope and cartwheels changed from 4 to 3. A comparison of the modes for test 1 and test 2 revealed that seven of the eight items had the same mode for both tests. The mode for cartwheels changed from 5 to 3. The largest mean difference between test 1 and test 2 was shared by two items, cheerleading jumps and jumprope, each of which had a mean difference of .22 (Table H-5).

Gender-neutral. The children's responses to the gender-neutral items showed a fairly consistent pattern. Only one of the items showed a change in medians from test 1 to test 2; the median for rowing a boat changed from 2 to 3. Each of the eight items had the same mode for both tests. An examination of mean differences between tests showed that jumping a hurdle had the largest with a difference of .189 (Table H-5).

Children by Age Group

Separate analyses were done to obtain reliability coefficients for each of the four age groups: (a) 4-1/2-year-old participants, 5-year-old participants, (c) 6-year-old participants, and (d) 7-year-old participants to determine if there was an age effect on the reliability/stability for 4-1/2-to 7-year-old children. Correlations were calculated for (a) test scores, (b) male physical activities, (c) female physical activities, and (d) gender-neutral physical activities using the Pearson product-moment method. An item analysis was done for each of the 24 activities to obtain descriptive statistics for each age group (Appendix H).

Four-and-one-half-year-old participants. The 4-1/2-year-old population ($n = 22$) consisted of preschool students between the ages of 4-1/2 and 5 who were tested in individual sessions. Responses to test 1 and test 2 were correlated to obtain coefficients for: (a) test scores, (b) male items, (c) female items, and (d) gender-neutral items. An item analysis was done for each of the 24 physical activities (Table H-6).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients ($\underline{r}$) and probability values ($\underline{p}$) are presented.

Test score. A comparison of the test 1 and test 2 test scores for the 4-1/2-year-old participants revealed an $\underline{r} = .78$, $\underline{p} = .0001$.

Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for the group of 4-1/2-year-old children.

Male physical activities. For the eight male physical activities, results of the test-retest correlation produced an $\underline{r} = .89$, $\underline{p} = .0001$. Therefore, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 4-1/2-year-old children.

Female physical activities. Correlation of test 1 and test 2 scores for the female items produced an $\underline{r} = .72$, $\underline{p} = .0001$. Thus, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 4-1/2-year-old children.

Gender-neutral physical activities. A comparison of the test 1 and test 2 scores for the gender-neutral physical activities revealed an $\underline{r} = .84$, $\underline{p} = .0001$. Thus, reliability/stability was established for the gender-neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 4-1/2-year-old children.

Item analysis. An item analysis was conducted for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-6). The response frequencies and percentages were also obtained for each item (Table H-6). A summary of the results is reported by category: (a) male physical activities,

(b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the male items revealed a fairly consistent response pattern across tests as evidenced by the measures of central tendency. Seven of the eight items had the same mode and median for tests 1 and 2 (Table H-6). Both the median and the mode for soccer changed from 5 to 3. In addition, the largest mean difference between test 1 and test 2 was .455 for soccer (Table H-6).

Female physical activities. An inspection of measures of central tendency for test 1 and test 2 revealed a consistent response pattern for the female items. For each item, the mode and the median did not change from test 1 to test 2. The largest mean difference between test 1 and test 2 was .454 for both swings and balance beam (Table H-6).

Gender-neutral physical activities. The 4-1/2-year-old children showed a somewhat inconsistent response pattern across tests for the gender-neutral items. Six of the eight items showed no change in modes from test 1 to test 2 (Table H-6). The mode for weight-lifting changed from 3 to 1, and the mode for rowing a boat changed from 1 to 3. The medians of the following three items changed from test 1 to test 2: (a) jumping a hurdle (3 to 2.5); (b) weight-lifting (3 to 1.5); and (c) rowing a boat (1.5 to 3) (Table H-6). An inspection of mean differences between tests showed that rowing a boat had the largest with a difference of .637 (Table H-6).

Five-year-old participants. The 5-year-old population consisted of kindergarten students ($n = 23$) between the ages of 5 and 6 who were tested in individual sessions. Responses to test 1 and test 2 were analyzed to obtain correlation coefficients for: (a) test scores, (b) male items, (c) female items, and (d) gender-neutral items. An item analysis was conducted for each of the physical activities (Table H-7).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients (r) and probability values (p) are reported.

Test scores. Correlation of the test-retest scores for the 5-year old population produced an $r = .81$, $p = .0001$. Therefore, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for the group of 5-year-old children.

Male physical activities. The results of the test-retest scores for the male physical activities revealed an $r = .63$, $p = .0001$. Thus, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 5-year-old children.

Female physical activities. A comparison of the test-retest scores for the female physical activities produced an $r = .73$, $p = .0001$. Thus, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 5-year-old children.

Gender-neutral physical activities. For the eight gender-neutral items, results of the test-retest correlation revealed an $r = .49$, $p = .0001$. Thus, reliability/stability was established for the gender-neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 5-year-old children.

Item analysis. An item analysis was conducted for each of the physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-7). The response frequencies and percentages were also obtained for each item (Table H-7). A summary of the results is reported by category: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the male items revealed a fairly consistent response pattern across tests. Seven of the eight items had the same mode for test 1 and test 2 (Table H-7). The mode for kickball changed from 5 to 3. Two of the items showed a change in medians from test 1 to test 2 (Table H-7). The median for kickball changed from 5 to 3 and the median for soccer changed from 4 to 5. An inspection of mean differences between tests showed that three of the items (football, basketball, and boxing) had identical means for the two tests. The largest mean difference between tests was .273 for soccer (Table H-7).

Female physical activities. An inspection of the measures of central tendency for the female items also revealed a consistent

response pattern for tests 1 and 2. For each item, the mode and median did not change from test 1 to test 2 (Table H-7). The largest mean difference between tests was .338 for balance beam (Table H-7).

Gender-neutral activities. The 5-year-old population showed a consistent response pattern for the gender-neutral items. For each item, the mode and median were the same for tests 1 and 2 (Table H-7). The largest mean difference between tests was .512 for skiing (Table H-7).

Six-year-old participants. The six-year-old population consisted of first grade students ($n = 22$) between the ages of six and seven who were tested in a group setting. Responses to test 1 and test 2 were correlated to obtain reliability coefficients for: (a) test scores, (b) male items, (c) female items, and (d) gender-neutral items. An item analysis was conducted for each of the 24 activities (Table H-8).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients (r) and probability values (p) are presented.

Test score. A comparison of the test-retest scores for the 6-year-old participants revealed an $r = .70$, $p = .0001$. Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for the group of 6-year-old children.

Male physical activities. The results of the test-retest correlation for the male items revealed an $\underline{r} = .63$, $\underline{p} = .0001$. Thus, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 6-year-old children.

Female physical activities. Correlation of the test-retest scores for the female physical activities produced an $\underline{r} = .61$, $\underline{p} = .0001$. Thus, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 6-year-old children.

Gender-neutral physical activities. A comparison of the test 1 and test 2 scores for the gender-neutral items produced an $\underline{r} = .59$, $\underline{p} = .0001$. Therefore, reliability/stability was established for the gender-neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 6-year-old children.

Item analysis. An item analysis was done for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-7). The response frequencies and percentages were also obtained for each item (Table H-7). A summary of the results is reported by category: (a) male physical activities (b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the male items revealed a somewhat inconsistent response pattern across tests. Three

of the items had different modes for test 1 and test 2 (Table H-8). The mode for basketball changed from 3 to 5 and the modes for both kick-ball and soccer changed from 5 to 3. Seven of the eight items showed no change in medians from test 1 to test 2 while the median for basketball changed from 3 to 4 (Table H-8). The largest mean difference between tests was .409 for football (Table H-8).

Female physical activities. An inspection of the measures of central tendency for the female items revealed an inconsistent response pattern across tests. Four of the items showed a change in modes from test 1 to test 2 (Table H-8): (a) dancing (5 to 4); (b) see-saw (3 to 5); (c) jumprope (5 to 3); and (d) cartwheels (5 to 3). An inspection of the item medians revealed that three changed from test 1 to test 2 (Table H-8): dancing (5 to 3); (b) jumprope (4.5 to 4); and (c) cartwheels (4 to 3.5). The largest mean difference between tests was .364 for dancing (Table H-8).

Gender-neutral physical activities. The 6-year-old population showed a consistent response pattern for the gender-neutral items. Both the mode and the median were the same for all items in test 1 and test 2 (Table H-8). The largest mean difference between test 1 and test 2 was .364 for bowling (Table H-8).

Seven-year-old participants. The 7-year-old population was representative of second grade students ($n = 23$) between the ages of 7 and 8 who were tested in a group setting. Responses to test 1 and test 2 were correlated to obtain reliability coefficients for: (a) test

scores, (b) male items, (c) female items, and (d) gender-neutral items. An item analysis was conducted for each of the 24 physical activities (Table H-9).

Reliability/stability. Reliability/stability was assessed by correlating the responses of test 1 and test 2 using the Pearson product-moment method. The reliability coefficients ($\underline{r}$) and probability values ($\underline{p}$) are presented.

Test scores. A comparison of the test-retest scores for the 7-year-old participants produced an $\underline{r} = .76$, $\underline{p} = .0001$. Thus, reliability/stability was established for the score on the Physical Activity Gender-Role Stereotyping Index for the group of 7-year-old children.

Male physical activities. The results of the test-retest scores for the male physical activities revealed an $\underline{r} = .67$, $\underline{p} = .0001$. Thus, reliability/stability was established for the male physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 7-year-old children.

Female physical activities. Correlation of test 1 and test 2 scores for the female physical activities produced an $\underline{r} = .54$, $\underline{p} = .0001$. Therefore, reliability/stability was established for the female physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 7-year-old children.

Gender-neutral physical activities. A comparison of test 1 and test 2 scores for the gender-neutral items produced an $\underline{r} = .63$, $\underline{p} = .0001$. Thus, reliability/stability was established for the gender-

neutral physical activity score on the Physical Activity Gender-Role Stereotyping Index for the group of 7-year-old children.

Item analysis. An item analysis was conducted for each of the 24 physical activities to obtain the following values: (a) mean, (b) median, (c) mode, (d) standard deviation, (e) range, (f) kurtosis, and (g) skewness (Table H-9). The response frequencies and percentages were also obtained for each item (Table H-9). A summary of the results is reported by category: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities.

Male physical activities. The item analysis for the male items showed a fairly consistent response pattern across tests as evidenced by the measures of central tendency. Seven of the eight items had the same mode for tests 1 and 2 (Table H-9); the mode for basketball changed from 3 to 4. An inspection of the medians revealed that seven of the items had the same median for test 1 and test 2 (Table H-9). The median for baseball changed from 5 to 4. The largest mean difference between tests was .304 for baseball (Table H-9).

Female physical activities. An inspection of the measures of central tendency for the female items revealed a consistent response pattern across tests. For each item, the mode did not change from test 1 to test 2 (Table A-9). Seven of the eight items showed no change in medians from test 1 to test 2 (Table H-9). The median for dancing changed from 4 to 5. An inspection of mean differences between tests showed that cheerleading jumps had the largest with a difference of .348 (Table H-9).

Gender-neutral activities. The 7-year-old population showed a fairly consistent response pattern for the gender-neutral items. Six of the items had the same mode for tests 1 and 2 (Table H-9), while the modes for both jumping a hurdle and rowing a boat changed from 2 to 3. Only one item had different medians for test 1 and test 2; jumping a hurdle changed from 2 to 3 (Table H-9). An inspection of mean differences between tests revealed that three items (jumping a hurdle, skiing and rowing a boat) had the largest with a difference of .174 (Table H-9).

CHAPTER V

DISCUSSION

The purpose of this study was to develop an instrument which would yield a reliable and valid measure of the degree to which specific adult and child populations categorize physical activities according to gender. The discussion is organized into the following major sections: (a) validation of the instrument, (b) reliability/stability assessment, and (c) summary.

Validation of the Instrument

Construct validity refers to the extent to which a test reflects abstract attributes or components presumed to underlie test performance (Ary et al., 1972; Baumgartner & Jackson, 1982; Safrit, 1973). Previous research identified several such characteristic components of girls' physical activities and boys' physical activities (Corbin & Nix, 1979; Eifermann, 1979; Herkowitz, 1978; Lever, 1978; & Oglesby, 1978; Rosenberg & Sutton-Smith, 1959; Sutton-Smith, 1979) (Table A-1). The results of other studies have identified gender-specific and gender-neutral physical activities based on children's preferences (Rosenberg & Sutton-Smith, 1959; Rosenberg & Sutton-Smith, 1960; Sutton-Smith et al., 1963; Walker, 1964) and perceptions (Hartley & Hardesty, 1964; Herkowitz, 1978) (Table A-2).

Previous research (Brawley et al., 1980; Corbin & Nix, 1979; Eiferman, 1979; Hartley & Hardesty, 1964; Herkowitz, 1980; Lever, 1978; Oglesby, 1978; Rosenberg & Sutton-Smith, 1959) suggested that physical activities are gender-labeled based on their characteristic elements. Therefore, when developing this evaluation instrument to assess gender-labeling of physical activities, the degree to which these established gender-specific activity characteristics were present in the physical activities was used as the foundation for the underlying constructs (Ary et al., 1972).

Measurement experts (Baumgartner & Jackson, 1982) state that construct validity is determined by judging the degree to which statistical information supports theoretically determined constructs. In order to assess the validity of the instrument, therefore, the assistance of 12 experts in the area of motor and psychosocial development of children was requested. These 12 judges were divided into two sets of six judges, each of which consisted of three females and three males. Both groups rated 45 gender-specific and gender-neutral physical activities according to the degree to which each activity involved each of 14 gender-specific physical activity characteristics.

The ratings of the first group of judges were analyzed to establish the preliminary questionnaire which consisted of 30 physical activities. These items were representative of: (a) 10 male physical activities, (b) 10 female activities, and (c) 10 gender-neutral activities. The ratings of the second group of judges were subsequently utilized to verify the ratings of the first group of judges.

To test for agreement, the ratings of the two groups of judges were compared in terms of the male activity characteristics and the female activity characteristics for each of the physical activities (Table 3, p. 40). The obtained correlations for the male activities ($r = .98$, $p < .01$) and the female activities ($r = .82$, $p < .01$) were considered to be "very good" and "excellent," respectively (Barrow & McGee, 1971, p. 38).

After reviewing the responses of the second group of judges, five items were deleted from the preliminary questionnaire due to:

(a) expressed unfamiliarity with Ring-Around-the-Rosey, London Bridge, and Drop the Handkerchief, and (b) inconsistent response patterns both within and between groups for climbing a rope and flying a kite. The final questionnaire consisted of 24 items, including: (a) eight male physical activities, (b) eight female physical activities, and (c) eight gender-neutral activities.

To test for agreement between the 2 group of judges on the 24 extracted items, six analyses of variance were conducted to compare the ratings of the groups on: (a) male activity characteristics, and (b) female activity characteristics for each of the three content areas. Significance was established as $p > .05$.

A similar pattern of responding was evident for the male activities. The scores of the two groups did not differ for either the male activity characteristics ($p = .181$) or the female activity characteristics ($p = .125$). The responses of the two groups to the female activities were also similar. There was no difference between the

scores of the groups for both male activity characteristics ($p > .20$) and female activity characteristics ($p > .20$). The analysis of variance for the gender-neutral activities again indicated a similar response pattern by the two groups. The group scores did not differ for either the male activity characteristics ($p > .20$) or the female activity characteristics ($p = .126$).

Taken together, these findings suggest that the two groups of judges evaluated the previously identified gender-specific constructs and items similarly. Thus, the Physical Activity Gender-Role Stereotyping Index with 24 items was shown to have construct validity.

Reliability/Stability Assessment

Ninety participants from each of the three population groups responded to the questionnaire on two occasions, three days apart. Separate analyses were done for each population group: (a) parents, (b) teachers, and (c) children. In addition, the children's data were analyzed by age group: (a) 4-1/2-year-old participants, (b) 5-year-old participants, (c) 6-year-old participants, and (d) 7-year-old participants. Significance was established as $p = .0001$ for all analyses.

Parents

Correlation of the test scores for the parent population ($r = .94$) indicated a similar pattern of responding, Barrow and McGee (1971, p. 38) reported that this value is considered to be "excellent." A review of the literature failed to locate a test designed to assess gender-role stereotyping of physical activities by adults.

The reliability/stability coefficients for the three content areas were between $\underline{r} = .88$ and $\underline{r} = .93$. According to Barrow and McGee (1971, p. 38), these coefficients are considered to be "acceptable" to "very good."

The item analysis, which was conducted for each of the 24 activities, revealed a consistent response pattern for the parent population. An inspection of measures of central tendency for all activities indicated that the mode and the median did not change from test 1 to test 2 for any of the 24 items. In addition, the largest mean difference for all activities was .111.

Both the test-retest scores and the item analysis results indicated consistency in responding to tests 1 and 2. Taken together, the findings suggest that the instrument is reliable/stable for use with parents of preschool and elementary school children.

Teachers

The reliability/stability coefficient for the teachers' test scores ($\underline{r} = .95$) indicated a similar pattern of responding. According to Barrow and McGee (1971, p. 38), this coefficient is considered to be "excellent." The literature review failed to locate a test designed to assess gender-role stereotyping of physical activities by adults.

Correlation of the test-retest scores for each of the content areas produced coefficients of between $\underline{r} = .83$ and $\underline{r} = .92$. According to Barrow and McGee (1971, p. 38), these coefficients are considered to be "acceptable" to "very good."

An analysis of the measures of central tendency for the teacher population revealed a consistent response pattern across all activities. The median for all activities was the same for test 1 and test 2, and the mode did not change from test 1 to test 2 for 23 of the 24 activities.

Both the test-retest scores and the item analysis results indicated that the pattern of responding was similar for the two tests. Based on these findings, it appears that the instrument is reliable/stable for use with preschool and elementary school teachers.

Children

The reliability coefficient for the children's test score ($r = .77$) was considerably higher than the reliability found by Edelbrock and Sugawara (1978) of $r = .64$, $p < .01$ using the test-retest method. These authors indicated that, based on this finding, their instrument (SERLI) was reliable for use with preschool-aged children (Edelbrock & Sugawara, 1978).

The obtained coefficients for each of the three content areas were also higher than that of $r = .64$, $p < .01$ reported by Edelbrock and Sugawara (1978). Although Barrow and McGee (1971, p. 38) report that these values are considered "questionable" to "poor" by various writers, they further state that,

. . . it is probably safe to say that the standards are too high and that tests with slightly lower coefficients would be acceptable for school use and could be relied upon to produce meaningful measurement information (Barrow & McGee, 1971, p. 38).

An inspection of the measures of central tendency for all children revealed a fairly consistent response pattern for test 1 and test 2. The median did not change from test 1 to test 2 for 21 of the 24 items and the mode for each of the two tests was the same for 22 of the 24 items.

A similar pattern of responding to the two tests was evident. Based on the test-retest scores and on the statement made by Barrow and McGee (1971, p. 38) regarding the acceptability of coefficients lower than $r = .70$, it appears that the instrument is reliable/stable for use with 4-1/2- to 7-year-old children.

Four-and-one-half-year-old participants

The reliability coefficient for the 4-1/2-year-old participant's test score ($r = .78$) was calculated to be "poor" (Barrow & McGee, 1971, p. 38). This reliability, however, is higher than that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978).

According to Barrow and McGee (1971, p. 38), the reliability coefficients for the male items ($r = .89$) and gender-neutral items ($r = .84$) are considered to be "acceptable." The coefficient for the female items ($r = .72$) was calculated to be "poor" (Barrow & McGee, 1971, p. 38). Each of these coefficients are considerably higher than the reliability of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1971) which would be considered "questionable" by Barrow and McGee (1971, p. 38).

The analysis of the measures of central tendency revealed a similar response pattern. The mode did not change for 21 of the 24 items and the median did not change for 20 of the 24 items.

An inspection of item mean differences between tests indicated a similar pattern of responding. In light of the statement made by Barrow and McGee (1971, p. 38) regarding the acceptability of coefficients lower than $r = .70$, these findings suggest that the instrument is reliable/stable for use with 4-1/2-year-old children who are tested in individual sessions.

Five-year-old participants

The reliability coefficient for the 5-year-old participant's test score ($r = .81$) was calculated to be "acceptable" (Barrow & McGee, 1971, p. 38). This reliability is considerably higher than that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978).

The reliability for the male and female categories is similar to that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978) while the reliability for the gender-neutral category is considerably lower than that found by Edelbrock and Sugawara (1978). Barrow and McGee (1971, p. 38) define these reliability values as "questionable" to "poor."

The inspection of measures of central tendency revealed a similar response pattern to the two tests. Twenty-three of the 24 items had the same mode for test 1 and test 2 and 22 of the 24 items had the same median for both tests.

A similar pattern of responding to the two tests was evident. Based on the correlation coefficient obtained for the test-retest scores, it appears that the instrument is reliable/stable for use with 5-year-old children who are tested in individual sessions.

Six-year-old participants

The reliability coefficient for the 6-year-old participant's test score (.70) was calculated to be "poor" (Barrow & McGee, 1971, p. 38). Again, however, this reliability is considerably higher than that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978).

Reliability coefficients for each of the three content areas were similar to that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978). According to Barrow and McGee (1971, p. 38), these values are considered to be "questionable."

The analysis of measures of central tendency suggested that the 6-year-old population responded only somewhat consistently to the two tests. Seven of the item modes changed and 3 of the item medians changed from test 1 to test 2.

An inspection of mean differences between tests suggests that the 6-year-old participants responded similarly to test 1 and test 2. Based on: (a) the correlation coefficient obtained for the test-retest scores, and (b) Barrow and McGee's (1971, p. 38) statement indicating reliability values of slightly lower than $r = .70$ may be acceptable, it appears that the instrument has low but acceptable reliability for use with 6-year-old children who are tested in a group setting.

Seven-year-old participants

The reliability coefficient for the 7-year-old participants' test score ($r = .76$) was calculated to be "poor" (Barrow & McGee, 1971, p. 38). This reliability, though, is considerably higher than that found by Edelbrock and Sugawara (1978) of $r = .64$, $p < .01$.

Reliability coefficients for the three content areas were considerably higher than that of $r = .64$, $p < .01$ found by Edelbrock and Sugawara (1978). According to Barrow and McGee (1971, p. 38), these coefficients are considered to be "questionable."

The inspection of measures of central tendency revealed a fairly consistent response pattern for the two tests. Twenty-one of the 24 items had the same mode and median for tests 1 and 2.

Both the test-retest reliability coefficient and the item analysis indicated a similar response pattern on the two tests. In light of the statement made by Barrow and McGee (1971, p. 38) regarding the acceptability of reliability coefficients lower than $r = .70$, the findings suggest that the instrument has reliability/stability for use with 7-year-old children who are tested in a group setting.

Summary

Construct validity was determined by comparing the ratings of experts regarding the identified constructs underlying the gender-labeling of physical activities. Baumgartner and Jackson (1982) state that this method is appropriate for tests measuring abstract attributes

or qualities. The results of the analyses of variance substantiated construct validity as the two sets of judges were not significantly ($p > .05$) different for all six constructs.

Reliability/stability was assessed by test-retest using the Pearson product-moment method. Although no tests measuring gender-labeling of physical activities by adults were located for comparison, the obtained coefficients for both adult populations are considered to be "excellent" (Barrow & McGee, 1971, p. 38). The reliability coefficient found for the children ($r = .77$) was considerably higher than that found by Edelbrock and Sugawara (1978). Barrow and McGee (1971, p. 38) state that a test with this coefficient " . . . would be acceptable for school use and could be relied on to produce meaningful measurement information" (1971, p. 38).

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to develop a valid and reliable instrument that measures the degree to which parents, teachers, and children label physical activities according to gender. Participants for the validity assessment were 12 experts (6 females, 6 males) in the field of motor and psychosocial development of children. Participants for the reliability study were: (a) mothers (n = 45) and fathers (n = 45) of preschool and/or elementary school children; (b) preschool and elementary school teachers (n = 90); and (c) preschool and elementary school children between the ages of 4-1/2 and 7 (n = 90). The populations were representative of 11 middle-class schools in the Knoxville area.

Nine male physical activity characteristics and five female physical activity characteristics that were unique to each category were identified based on an analysis of the results of: (a) research identifying gender-specific physical activity characteristics, and (b) research identifying gender-specific and gender-neutral physical activities. Based on this same research, 45 physical activities, representative of an equal number of female, male, and gender-neutral items were selected by the researcher.

Six experts in the field of motor and psychosocial development of children served as judges (3 females, 3 males) and rated the 45 activities according to the degree to which each activity involved each of the 14 activity characteristics. Based on the distribution of total scores, the 10 activities with the highest ratings for female activity characteristics and the 10 activities with the highest ratings for male activity characteristics were identified. A third category of items was constructed by identifying the 10 activities with the smallest difference between male and female activity characteristic scores. These 30 activities, representative of 10 female, 10 male, and 10 gender-neutral items, were combined to make up the preliminary questionnaire.

Construct validity was assessed by testing for agreement between the first group of experts and a second group of 6 experts. The second set of judges (3 females, 3 males) rated the 45 activities using the same rating chart that the original judges used. The ratings of the two panels of judges were compared in terms of the male activity characteristic scores and female activity characteristic scores for each of the activities using the Pearson product-moment method. This method produced correlations of $r = .98$, $p < .01$ for the male activities and $r = .82$, $p < .01$ for the female activities.

Based on the responses of the second group of judges, minor modifications were made in the preliminary questionnaire. Three items were deleted from the gender-neutral category because two of the judges were not familiar with the activities; the eleventh-ranked item

was added to the list. Two items were also deleted from the female category because an inconsistent response pattern was evident both within and between groups. The modified instrument included 24 items with eight physical activities in each of the three categories: (a) female, (b) male, and (c) gender-neutral.

To provide support for construct validity of the 24 item instrument, six analyses of variance were conducted to compare the ratings of the two groups of judges. The ratings of the two groups were compared in terms of the male activity characteristic scores and the female activity characteristic scores for: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities. Results indicated there were no differences ($p > .05$) between the two groups on their evaluation of all six of the theory related constructs.

The instrument utilized the following five Likert-type response choices: (a) a lot more for boys; (b) a little more for boys; (c) equally for boys and girls; (d) a little more for girls; and (e) a lot more for girls. Both the children's questionnaire and the adult questionnaire depicted in picture form a gender-neutral individual participating in each of the 24 activities with the verbal label for the activity under the picture. The adult questionnaire listed the five answer choices in printed form while the children's questionnaire depicted the five answer choices in picture form. A reversed scoring system for the female and male activities with no weighting for the gender-neutral items was proposed. A composite score may be calculated

by summing the female and male category scores. The higher the score on the Physical Activity Gender-Role Stereotyping Index, the greater the degree of gender-role stereotyping.

Ninety participants from each of the three population groups responded to the questionnaire on two occasions, three days apart. The parent participants received the questionnaires with explanatory information from school through their child. Both the teachers and the children completed the questionnaires at school. The instrument was administered to the teachers and the 6- and 7-year-old children in group settings. The investigator tested the 4-1/2- and 5-year-old children in individual sessions.

Reliability coefficients were calculated using the Pearson product-moment method, and descriptive statistics were obtained for: (a) each of the three population groups, and (b) the children by age group. Separate analyses were done for each of the three content areas: (a) male physical activities, (b) female physical activities, and (c) gender-neutral physical activities. Significance was established as $p = .0001$ for all analyses. Each of the reliability coefficients for the adult populations ($r = .94$, $r = .95$) indicated that the instrument has reliability for use with: (a) parents of preschool and elementary school students, and (b) preschool and elementary school teachers. Across all age groups, the child population showed a less consistent response pattern ($r = .77$). Reliability coefficients for the test-retest by age group were: (a) $r = .78$ for the 4-1/2-year-old participants; (b) $r = .81$ for the 5-year-old participants; (c) $r = .70$ for the 6-year-old

participants; and (d) $r = .76$ for the 7-year-old participants.

Conclusions

The purpose of this investigation was to develop an instrument to measure the degree to which children and adults label selected physical activities according to gender. The sub-problems stated in Chapter I were answered by correlational statistical techniques. Based upon the resulting data, the following conclusions appear justifiable.

1. The Physical Activity Gender-Role Stereotyping Index (PAGRSI) is a valid measure of the degree to which individuals label selected physical activities according to gender.

2(a) The Physical Activity Gender-Role Stereotyping Index (PAGRSI) has reliability/stability for parents of preschool and elementary school children;

2(b) The Physical Activity Gender-Role Stereotyping Index (PAGRSI) has reliability/stability for preschool and elementary school teachers;

2(c) The Physical Activity Gender-Role Stereotyping Index (PAGRSI) has reliability/stability for children between the ages of 4-1/2 and 7.

Recommendations

The results of this study suggest that the Physical Activity Gender-Role Stereotyping Index (PAGRSI) is a valid instrument that has high reliability for parents and teachers. Although the obtained reliability coefficients for children were somewhat lower than those found for the adult populations, the findings suggest that the

Physical Activity Gender-Role Stereotyping Index (PAGRSI) has reliability for children between the ages of 4-1/2 and 7. In light of these results, the following recommendations are made for future research:

1. Reassess the gender-appropriateness of the physical activity items in each category.
2. Replicate the study with a larger number of participants.
3. Examine the differential influence of individual and group administration on the reliability/stability for 6- to 8-year-old children.
4. Examine the effect of gender on Physical Activity Gender-Role Stereotyping Index scores.
5. Examine the effect of age on Physical Activity Gender-Role Stereotyping Index scores.
6. Examine the effect of socioeconomic level on Physical Activity Gender-Role Stereotyping Index scores.
7. Evaluate the differential influence of parents and teachers on children's Physical Activity Gender-Role Stereotyping Index scores.

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APPENDIXES

APPENDIX A

GENDER-SPECIFIC PHYSICAL ACTIVITY CHARACTERISTICS
AND GENDER-SPECIFIC AND GENDER NEUTRAL
PHYSICAL ACTIVITIES

Table A-1. Gender-Specific Physical Activity Characteristics.*

Female and Male Physical Activities	Corbin (1979)	Eifermann (1979)	Herkowitz (1976)	Lever (1978)	Oglesby (1978)	Rosenberg & Sutton- Smith (1959)	Sutton- Smith (1979)
FEMALE							
Central person has a focal role					✓	✓	✓
Cooperation		✓			✓		
Expression		✓		✓	✓		✓
Few players		✓			✓		✓
Fine motor activity			✓		✓		✓
Indirect competition		✓			✓		
Partial body movement		✓			✓		
Multiple stages		✓			✓		
Solitary practice		✓			✓		✓
Spontaneous		✓			✓		
Structure-free		✓			✓		
Turn-taking		✓			✓		
MALE							
Age-heterogeneous groups					✓		
Competition		✓	✓		✓	✓	✓
Complex team formation		✓			✓	✓	
Explicit rules		✓			✓		
Forceful production		✓	✓		✓	✓	
Gross motor activity	✓	✓	✓		✓		
Large groups		✓			✓		
Long games		✓			✓		
Physical contact	✓	✓	✓		✓	✓	
Power		✓	✓		✓	✓	
Propulsion of objects	✓	✓	✓		✓	✓	
Speed					✓		
Strategy				✓	✓		✓
Strength				✓	✓		✓
Use of large spaces		✓			✓		

*Ignico, 1986.

Table A-2. Gender-Specific and Gender-Neutral Physical Activities.*

Female, Male, and Gender-Neutral Physical Activities	Hartley & Hardesty (1964)	Rosenberg & Sutton-Smith (1960)	Rosenberg & Sutton-Smith (1959)	Sutton-Smith, Rosenberg & Morgan (1963)	Walker (1964)
FEMALE					
Cartwheels		✓	✓	✓	✓
Dancing		✓	✓	✓	✓
Drop the Handkerchief		✓	✓	✓	✓
Farmer in the Dell		✓	✓	✓	✓
Follow the Leader		✓	✓	✓	✓
Hopscotch		✓	✓	✓	✓
Jump Rope		✓	✓	✓	✓
London Bridge		✓	✓	✓	✓
Mother May I		✓	✓	✓	✓
Red Rover		✓	✓	✓	✓
Ring Around the Rosy		✓	✓	✓	✓
See-Saw		✓	✓	✓	✓
Skating		✓	✓	✓	✓
Stoop Tag		✓	✓	✓	✓
Choral Activities			✓		✓
Dodgeball		✓			
Leap Frog			✓		
Rhythmic Activities					✓
Sledding					✓
Swings					✓
Jacks	✓	✓	✓	✓	✓
Musical Chairs		✓			✓
Tag		✓			✓

Table A-2 (Continued)

Female, Male, and Gender- Neutral Physical Activities	Hartley & Hardesty (1964)	Rosenberg & Sutton- Smith (1960)	Rosenberg & Sutton- Smith (1959)	Sutton-Smith, Rosenberg & Morgan (1963)	Walker (1964)
MALE					
Bows and Arrows					✓
Darts		✓	✓	✓	✓
Racing		✓	✓	✓	✓
Soccer		✓	✓	✓	✓
Throwing Snowballs		✓	✓	✓	✓
Wrestling		✓	✓	✓	✓
Baseball				✓	✓
Basketball		✓			✓
Bowling		✓	✓	✓	✓
Boxing			✓	✓	✓
Climbing			✓	✓	✓
Football			✓	✓	✓
Marbles				✓	✓
Volleyball					✓
Wall Dodgeball		✓	✓		
Hiking					✓
Hockey					✓
Jungle Gym					✓
Kickball					✓
Push-ups					✓
Sit-ups					✓
Weight Lifting					✓
Ball and Bat	✓				
Shooting		✓			
Skiing				✓	
Tug-o-War		✓			

Table A-2 (Continued)

Female, Male, and Gender-Neutral Physical Activities	Hartley & Hardesty (1964)	Rosenberg & Sutton-Smith (1960)	Rosenberg & Sutton-Smith (1959)	Sutton-Smith, Rosenberg & Morgan (1963)	Walker (1964)
GENDER-NEUTRAL					
Ball Tag		✓			
Baseball		✓			
Biking		✓			
Camping		✓			
Fly Kite		✓			
Hiking		✓			
Kick Dodge		✓			
Ping Pong		✓			
Stunts in Gym		✓			
Tennis		✓			
Volleyball		✓			

*Ignico, 1986.

APPENDIX B
SELECTED JUDGES

Mr. Lee Allsbrook
Department of Physical Education
Middle Tennessee State University

Dr. Lawrence Bruya
Department of Physical Education
North Texas State University

Dr. Charles Corbin
Department of Health and Physical Education
Arizona State University

Dr. David Gallahue
School of HPER
Indiana University

Dr. Carl Gabbard
Department of Health and Physical Education
Texas A & M University

Dr. Susan Greendorfer
Department of Physical Education
University of Illinois

Dr. Jacqueline Herkowitz
Department of Physical Education
Ohio State University

Dr. Shirley Holt-Hale
Linden Elementary School
Oak Ridge, TN

Mr. David Huntsinger
Physical Education Supervisor
Knoxville City Schools

Dr. Janet Lever
Department of Sociology
University of California, Los Angeles

Dr. Barbara Mead
Department of Physical Education and Dance
University of Tennessee, Knoxville

Dr. G. S. Don Morris
HPERD Department
California Polytechnic-Pomona

Dr. Carole Oglesby
Department of Physical Education
Temple University

Dr. Richard Walker
Gesell Institute of Child Development
New Haven, CT

APPENDIX C
LETTER TO JUDGES

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Dear

As a doctoral student at The University of Tennessee, I am currently investigating children's perceptions of the gender appropriateness of various motor skill activities. To my knowledge, there is presently no valid and reliable instrument to measure the degree to which individuals label physical activities as gender-specific. The purpose of my study, therefore, is to develop an instrument that measures the degree to which children and adults categorize various physical activities as appropriate for girls or appropriate for boys.

As you know, several investigations have been directed toward identifying characteristic components of girls' play activities and boys' play activities. Based on an analysis of the findings, I have identified 14 factors that differentiate the two categories and have selected 45 female, male and gender-neutral items.

In order to validate this selection process, I would like to request your expert opinion regarding the degree to which these 45 activities involve each of the 14 activity characteristics. Based on your ratings and those of 5 other experts in the field of motor development/psychosocial development, I will identify 30 activities, representative of 10 female, 10 male, and 10 gender-neutral items.

I hope so very much that you will be able to take the 30-60 minutes to complete the enclosed rating sheet because your assistance is especially important to my study. If you agree to participate, please read the brief instruction page, complete the rating chart, and return it to me in the self-addressed, stamped envelope provided.

If you do complete the checklist, please mail by March 16. If for some reason you cannot assist me in this research project, please return the materials immediately. I appreciate your time and consideration of my request and look forward to hearing from you.

Very sincerely,

Arlene Ignico

APPENDIX D
INFORMATION PACKET FOR JUDGES

INSTRUCTIONS FOR COMPLETING THE WORKSHEET

Please rate each of the activities listed on the worksheet according to the degree to which they involve the 14 characteristics listed across the top of the page. A definition of each of the activity characteristics is provided. Completion of the rating scale serves as informed consent. Confidentiality will be maintained as no names will be associated with the responses and only group data will be used in reporting the results.

SPECIFIC STEPS TO BE FOLLOWED (order is very important)

1. Read the first activity definition
2. Rate each of the 45 activities on that one characteristic using the following scale:
 - 0 = not present
 - 1 = low degree
 - 2 = moderate degree
 - 3 = high degree
3. Upon completing the column, check your first 4 or 5 responses for consistency.
4. Repeat steps 2 and 3 for each of the remaining 13 activity characteristics.

I would like to receive a summary of the development/
validation results. (Return under separate cover)

Name _____

Address _____

DEFINITIONS OF TERMS

1. Competition: an event that is characterized by a goal and an end point that produces a winner.
2. Complex team formation: a group structure which involves two or more teams where players have multiple roles.
3. Explicit rules: a game/activity that involves guidelines that are universally known and accepted, constant from one situation to the next, and that carry sanctions for their violations (Lever, 1978).
4. Expression: a game/activity that has as a primary goal the depiction of emotional mood or feeling.
5. Few participants: a game/activity involving less than 4 participants.
6. Few rules: a game/activity involving few or no guidelines.
7. Fine-motor activity: a game/activity requiring primarily fine-muscle manipulation.
8. Gross-motor activity: a game/activity requiring primarily total body movement.
9. Physical contact: a game/activity involving body contact.
10. Propulsion of objects: a game/activity involving the throwing, rolling, striking, or kicking of objects.
11. Speed: a game/activity requiring propulsion of the body or parts of the body through space as fast as possible (Johnson & Nelson, 1974).
12. Strategy: a game/activity requiring interdependent decision making by 2 or more individuals.
13. Strength: a game/activity requiring muscular force exerted against a movable or immovable object (Johnson & Nelson, 1974).
14. Turn-taking: a game/activity requiring participation by each individual in a specified, sequential order (Lever, 1978).

APPENDIX E

LETTER TO KNOX COUNTY SCHOOLS

RESEARCH COORDINATOR

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

January 14, 1987

Dear

I am writing to request approval to conduct a research study at one of the Knox County elementary schools. As a doctoral student at The University of Tennessee, I am currently investigating children's perceptions of the sex-appropriateness of various physical activities. In addition, I am interested also in the perceptions of elementary school teachers and parents. The purpose of my study, therefore, is to develop a questionnaire that measures the degree to which children, teachers, and parents label games and activities as gender-specific.

Enclosed are the letter of explanation and consent form which I plan to distribute to the parents of the child participants. I would like to administer the questionnaire on two occasions to one intact class (approximately 25 students) at the first, second, and third grade levels. The administration procedure can be completed in approximately 20 minutes.

I would like also to administer the same questionnaire to approximately 90 elementary school teachers and 90 parents from perhaps 4-6 Knox County elementary schools. If possible, I would prefer administering the questionnaire to teachers during a staff meeting and to parents during a P.T.A. meeting since the procedure can be completed in approximately 5-10 minutes. I would like to distribute the second form during these meetings and request that it be completed and returned to me 3 days later. Each participant, therefore, will complete the questionnaire on two occasions, 3 days apart.

I trust that this letter and enclosed material will provide sufficient information regarding the nature of my study; however, if you have questions or need additional information please contact either my advisor, Dr. Pat Beitel, or me (974-5111). I appreciate your time and consideration of my request and look forward to hearing from you.

Sincerely,

Arlene Ignico
Dept. of P.E. & Dance
University of Tennessee
Knoxville, TN 37996

APPENDIX F

LETTERS OF EXPLANATION
AND INFORMED CONSENT

LETTER TO PARENT PARTICIPANTS

April 7, 1987

Dear Parent:

As a doctoral student at The University of Tennessee, I have designed a questionnaire to measure how our society labels various games and activities as appropriate for males or appropriate for females. I have discussed the study with Mr. Robinette and he has offered his assistance.

Based on his suggestion, I am sending the questionnaires home to the fathers of your child's fourth-grade class. I hope so very much that you will take the 5 minutes to complete the questionnaire as your responses are important to the success of my study.

If you agree to participate in the study, please open envelope number 1 today and complete the coversheet and the 1st questionnaire. On Friday of this week, please open envelope number 2 and complete the 2nd questionnaire. Then, return the coversheet and both questionnaires to school by your child in the large envelope provided. If you have any questions, please feel free to call me at work (974-5111) or at home (573-9960).

Thank you very much for your time and consideration.

Very sincerely,

Arlene Ignico

LETTER FROM PRINCIPAL

Dear Parent:

Attached is a questionnaire which is being distributed by Arlene Ignico, a doctoral student at the University of Tennessee. I have given her permission to request the fathers of your child's fourth-grade class to participate and have offered my assistance.

If you have 5-10 minutes and wouldn't mind, I would appreciate your completing the questionnaire for her as detailed in the accompanying letter.

LETTER TO TEACHER PARTICIPANTS

Dear Colleague:

As a doctoral student at The University of Tennessee, I have designed a questionnaire to measure how our society labels various games and activities as appropriate for males or appropriate for females. In order to test the reliability of this questionnaire, I need each participant to complete it on 2 occasions, 3 days apart.

I appreciate your taking the time today to complete the first questionnaire and hope very much that you will complete the second one 3 days from today. Please leave it with the principal and I will return to collect all of the questionnaires in three days. If you have any questions, please feel free to call me at work (974-5111) or at home (573-9960).

Again, thank you very much for your participation in my study.

Very sincerely,

Arlene Ignico

LETTER TO PARENTS OF CHILD PARTICIPANTS

Dear Parent:

As a doctoral student at The University of Tennessee, I have designed a questionnaire to measure how young children label various games and activities as appropriate for girls or appropriate for boys. In order to test the reliability of this questionnaire, I need each participant to complete it on 2 occasions, 3 days apart. I have discussed the study with Mr. Burnette and he has offered his assistance.

This investigation will take only 15 minutes and take place during the children's regular school day. Should you allow your child to participate in the study she/he will be shown 24 pictures of individuals participating in activities such as bicycling, basketball, and tennis. Following the presentation of each picture, I will ask her/him if boys mostly play this activity, if girls mostly play this activity, or if both boys and girls play the activity. The study will be conducted in a friendly and informal atmosphere. No personal names will be used in presenting the results of the study and only group scores will be reported.

Since the results of this investigation might provide teachers with valuable information, I would greatly appreciate your son/daughter's participation.

If you would allow your child to participate in the study, please sign the attached consent form and return it to your child's teacher as soon as possible. Thank you very much for your time and consideration of this request. If you have any questions, please feel free to contact me (974-5111) or my faculty advisor, Dr. Pat Beitel (974-1277).

Very sincerely,

Arlene Ignico

LETTER FROM PRINCIPAL TO PARENTS OF CHILD PARTICIPANTS

Dear Parent:

Enclosed is an informed consent which is being distributed by Arlene Ignico, a doctoral student at The University of Tennessee. I have given her permission to work with the kindergarten, first, and second-grade children and have offered my assistance.

If you wouldn't mind, I would appreciate your allowing your child to participate in the study by signing the informed consent and returning it to school tomorrow.

INFORMED CONSENT

I understand that the purpose of this study is to determine to what degree 4- to 7-year-old children label activities as appropriate for boys or appropriate for girls.

I confirm that my child's participation is entirely voluntary. No coercion of any kind has been used to obtain my permission.

I have read the letter explaining the procedures that will be used in the study and understand what will be required of my child as a participant.

I understand that the task will take approximately 20 minutes, and will be scheduled during the regular school day. Participation in the study will not affect the child's academic opportunities.

I understand that I may withdraw my consent and terminate my child's participation at any time, without penalty, during the investigation.

I understand that all of my child's responses and scores will remain completely confidential.

I give permission for my child to participate in the study.

Signature of Parent or Guardian_____

Child's Name_____

Home Address_____

Phone Number_____

Date_____

Arlene Ignico
Dept. of P.E. and Dance
University of Tennessee
Knoxville, TN 37996

Phone: 974-5111

Dr. Patricia Beitel
Dept. of P.E. and Dance
University of Tennessee
Knoxville, TN 37996

Phone: 974-1277

APPENDIX G

PHYSICAL ACTIVITY GENDER-ROLE
STEREOTYPING INDEX

PARENT PARTICIPANTS COVER SHEET

THIS QUESTIONNAIRE CONSISTS OF 24 PICTURED ACTIVITIES WITH LABELS BELOW EACH PICTURE. PLEASE DECIDE WHICH OF THE 5 ANSWER CHOICES, IN YOUR OPINION, BEST DESCRIBES EACH ACTIVITY. PUT AN 'X' INSIDE THAT BOX

NAME _____

ADDRESS _____

PHONE _____

SCHOOL _____

MALE ☐ FEMALE ☐

PLEASE LIST ALL OF YOUR CHILDRENS' AGES:

TEACHER PARTICIPANTS COVER SHEET

THIS QUESTIONNAIRE CONSISTS OF 24 PICTURED ACTIVITIES WITH LABELS BELOW EACH PICTURE. PLEASE DECIDE WHICH OF THE 5 ANSWER CHOICES, IN YOUR OPINION, BEST DESCRIBES EACH ACTIVITY. PUT AN 'X' INSIDE THAT BOX

NAME _____

SCHOOL _____

MALE _____ FEMALE _____

ADULT'S QUESTIONNAIRE

131



Football

☐

A lot
more for boys

☐

A little
more for boys

☐

Equally for girls and boys

☐

A little
more for girls

☐

A lot
more for girls



Dancing

☐

A lot
more for boys

☐

A little
more for boys

☐

Equally for girls and boys

☐

A little
more for girls

☐

A lot
more for girls



Bowling

☐

A lot
more for boys

☐

A little
more for boys

☐

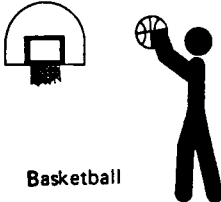
Equally for girls and boys

☐

A little
more for girls

☐

A lot
more for girls



Basketball

☐

A lot
more for boys

☐

A little
more for boys

☐

Equally for girls and boys

☐

A little
more for girls

☐

A lot
more for girls



See Saw

☐

A lot
more for boys

☐

A little
more for boys

☐

Equally for girls and boys

☐

A little
more for girls

☐

A lot
more for girls



Jumping a Hurdle

☐

A lot
more for boys

☐

A little
more for boys

☐

Equally for boys and girls

☐

A little
more for girls

☐

A lot
more for girls



Volleyball

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Jump rope

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Weight Lifting

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Baseball

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Cartwheels

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Skiing

A lot
more for boysA little
more for boys

Equally for boys and girls

A little
more for girlsA lot
more for girls



Boxing

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Swings

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Rowing a Boat

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Kickball

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Balance Beam

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Diving

A lot
more for boysA little
more for boys

Equally for boys and girls

A little
more for girlsA lot
more for girls



Soccer

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Leapfrog

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Bicycling

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Karate

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Cheerleading Jump

A lot
more for boysA little
more for boys

Equally for girls and boys

A little
more for girlsA lot
more for girls

Swimming

A lot
more for boysA little
more for boys

Equally for boys and girls

A little
more for girlsA lot
more for girls

PROTOCOL FOR INDIVIDUAL SESSION ADMINISTRATION

I am going to show you some pictures of people playing different games and I want you to decide whether the games are for boys or for girls or for both boys and girls. It is very important that you think hard about each game before answering. You will get to choose one of the five answer boxes for each game so try hard to think about which is the best one. Whatever you think is the right answer.

These are the answers: If you think the game is a lot more for boys, you would put an X inside this big box (show box) with a picture of a boy inside. If you think the game is a little more for boys, you would put an X inside the little box (show box) with a picture of a boy inside. If you think the game is for both boys and girls the same amount, you would put an X inside the box (show box) with a picture of a boy and girl together. If you think the game is a little more for girls, you would put an X inside the little box (show box) with a picture of a girl inside. Where do you think you would put an X if you think the game is a lot more for girls . . . inside the big box with a picture of a girl inside.

Let's make sure you understand how to play. If you think a game is a little more for boys, which box would you put an X inside? What if you think it is for both girls and boys the same amount? O.K., I think we are ready to play.

Look at the first picture at the top of the page. This is a picture of someone playing football. Now you think hard and decide if the game is a lot more for boys, a little more for boys, for both boys and girls the same amount, a little more for girls, or a lot more for girls. Put an X inside the box you think is the best answer.

O.K., let's go to the next one. This is a picture of someone dancing. Now think hard and decide if dancing is a lot more for boys . . . , or a lot more for girls. Put an X inside the box you think is the best answer.

This same procedure was repeated for each of the remaining questions except that the five answer choices were not repeated for questions three through twenty-four. When the questionnaire was completed, the investigator said to the participant, "You looked like you were really thinking hard about your answers. That makes me proud of you!" The child was then escorted back to the classroom. The same procedure was repeated three days later.

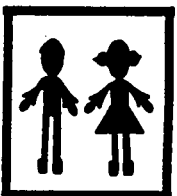
CHILDREN'S QUESTIONNAIRE



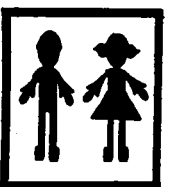
Football



Dancing

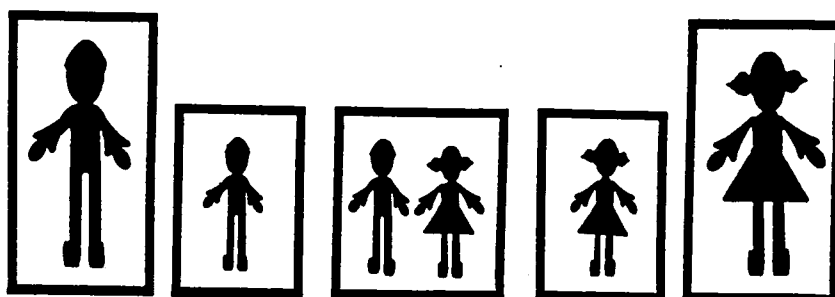


Bowling

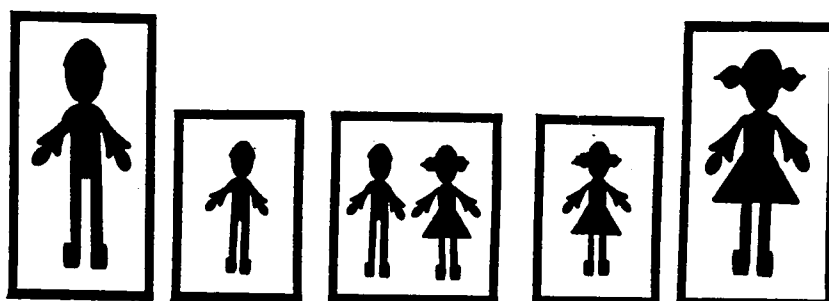




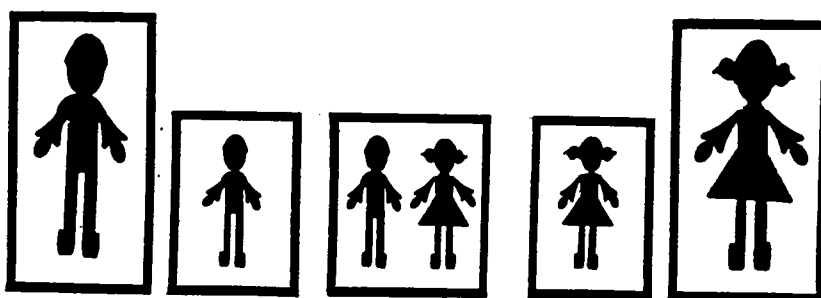
Basketball



See Saw

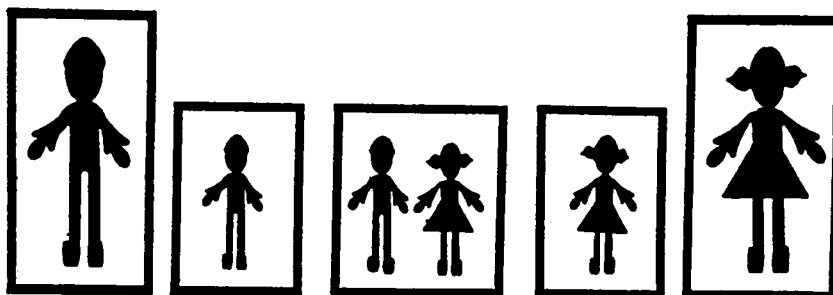


Jumping a Hurdle

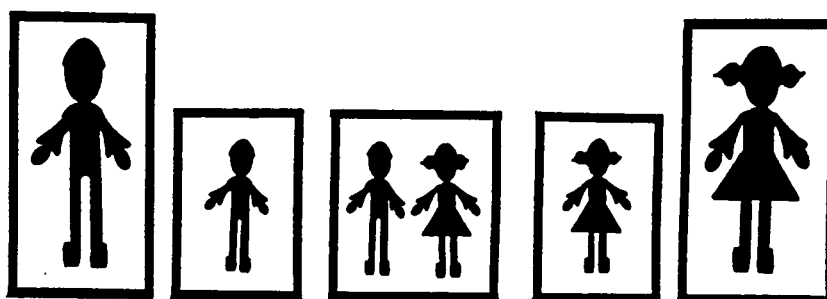




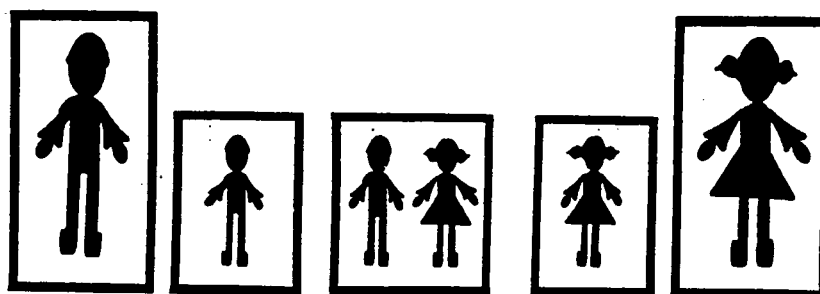
Volleyball



Jumprope



Weight Lifting





Baseball



Cartwheels



Skiing





Boxing



Swings



Rowing a Boat





Soccer

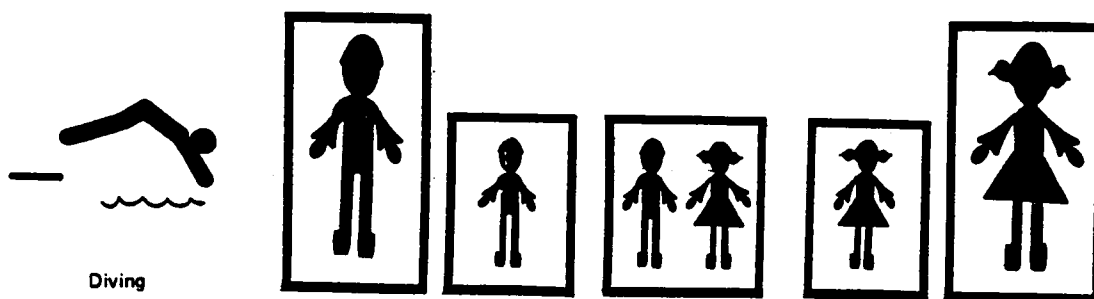
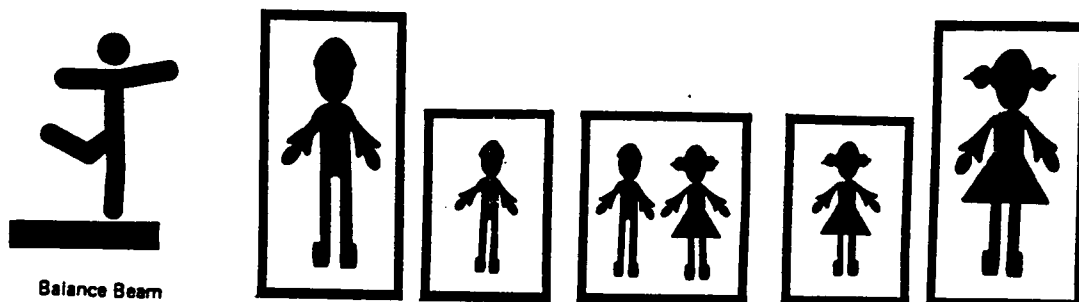
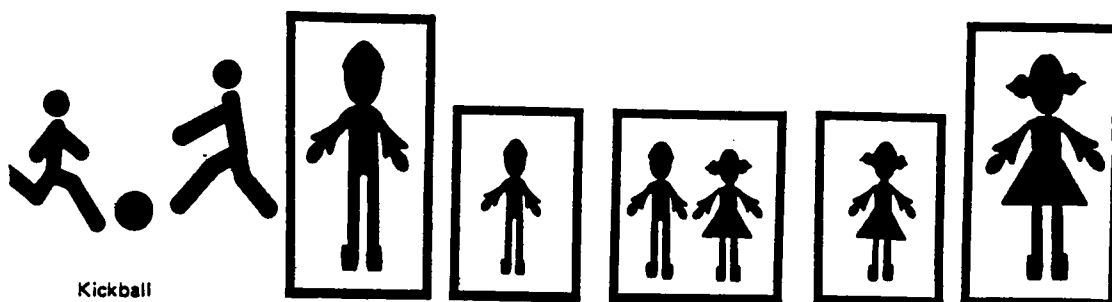


Leapfrog



Bicycling







Karate



Cheerleading Jump



Swimming



APPENDIX H

ITEM ANALYSES

Table H-3. Item Analysis - Parents.

#	Item Name	N	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
1	Football	1		1/1.11	3/3.33	15/16.67	71/78.89	4.733	5	5	.577	2	5	-2.433	6.415
		2		1/1.11	4/4.44	12/13.33	73/81.11	4.744	5	5	.591	2	5	-2.536	6.506
4	Basketball	1			72/80.00	17/18.89	1/1.11	3.211	3	3	.437	3	5	1.845	2.493
		2			72/80.00	16/17.78	2/2.22	3.222	3	3	.469	3	5	2.006	3.371
7	Volleyball	1	1/1.11	1/1.11	86/95.56	2/2.22		2.989	3	3	.280	1	4	-3.534	33.335
		2	1/1.11	3/3.33	83/92.22	3/3.33		2.978	3	3	.334	1	4	2.253	17.375
10	Baseball	1			37/41.11	25/27.78	28/31.11	3.900	4	3	.849	3	5	.194	-1.591
		2	1/1.11	1/1.11	34/37.78	31/34.44	23/25.56	3.822	4	3	.869	1	5	-.170	-.269
13	Boxing	1			7/7.78	9/10.00	74/82.22	4.744	5	5	.591	3	5	-2.203	5.571
		2		1/1.11	8/8.89	11/12.22	70/77.78	4.667	5	5	.687	2	5	-2.009	3.121
16	Kickball	1			78/86.67	8/8.89	4/4.44	3.178	3	3	.487	3	5	2.797	7.072
		2		1/1.11	77/85.56	10/11.11	2/2.22	3.144	3	3	.439	2	5	2.357	6.904
19	Soccer	1			56/62.22	25/27.78	9/10.00	3.478	3	3	.674	3	5	1.095	-.015
		2			58/64.44	24/26.67	8/8.89	3.444	3	3	.655	3	5	1.190	.245
22	Karate	1			44/48.84	23/25.56	23/25.56	3.767	4	3	.835	3	5	.466	-1.413
		2			42/46.67	25/27.78	23/25.56	3.789	4	3	.828	3	5	.415	-1.420

Table H-3 (Continued)

#	Item Name	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
		1	2	3	4	5								
2	Dancing	1 2		50/55.56 53/58.89	29/32.22 26/28.89	11/12.22 11/12.22	3.567 3.533	3	3	.704 .706	3	5	.845 .956	-.529 -.379
5	See-saw	1 2		84/93.33 79/87.78	6/6.67 10/11.11	1/1.11	3.067 3.133	3	3	.251 .373	3	4	3.534 2.834	10.724 7.923
8	Jump rope	1 2		45/50.00 45/50.00	32/25.56 26/40.00	13/14.44 9/10.00	3.644 3.600	3.5	3	.724 .667	3	5	.660 .669	-.819 -.595
11	Cartwheels	1 2	1/1.11	48/53.33 46/51.11	28/31.11 31/34.44	14/15.56 12/13.33	3.622 3.589	3	3	.743 .763	3	5	.744 .236	-.810 .408
14	Swings	1 2		70/77.78 68/75.56	18/20.00 17/18.89	2/2.22 5/5.56	3.244 3.300	3	3	.481 .570	3	5	1.809 1.774	2.518 2.185
17	Balance Beam	1 2	1/1.11 1/1.11	58/64.44 55/61.11	22/29.44 23/25.86	9/10.00 11/12.22	3.422 3.478	3	3	.719 .753	1	5	.651 .562	1.156 .686
20	Leapfrog	1 2	2/2.22 2/2.22	77/85.56 72/80.00	9/10.00 12/13.33	2/2.22 2/2.22	3.122 3.111	3	3	.445 .570	2	5	2.128 .015	7.097 5.536
23	Cheerleading Jump	1 2		18/20.00 24/26.67	39/43.33 35/38.89	33/36.67 31/34.44	4.167 4.078	4	4	.738 .782	3	5	-.276 -.138	-1.109 -1.344

Table H-3 (Continued)

#	Item Name	Responses/Percentages (N = 90)	Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
		1	2	3	4	5				
3	Bowling		1/1.11 2/2.22	89/98.89 88/97.78						
6	Jumping Hurdle	1 4/4.44 2 7/7.78	21/23.33 17/18.89	65/72.22 65/72.22	1/1.11					
9	Weight Lifting	1 40/44.44 2 38/42.22	25/27.78 25/27.78	24/26.67 25/27.78	1/1.11	1/1.11 1/1.11				
12	Skiing	1 2	5/5.56 1/1.11	85/94.44 89/98.89						
15	Rowing Boat	1 12/13.33 2 7/7.78	25/27.78 25/27.78	53/58.89 58/64.44						
18	Diving	1 2	2/2.22 1/1.11	86/95.56 88/97.78	2/2.22 1/1.11					
21	Bicycling	1 2	2/2.22 4/4.44	88/97.78 86/95.56						
24	Swimming	1 2		90/100.00 88/97.78	2/2.22					

Table H-4. Item Analysis - Teachers.

#	Item Name	N	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
1	Football	1			3/3.33	15/8.33	72/40.00	4.767	5	5	.498	3	5	-2.079	3.645
		2			2/2.22	18/20.00	70/77.78	4.756	5	5	.481	3	5	-1.810	2.518
4	Basketball	1			67/74.44	20/22.22	3/3.33	3.289	3	3	.525	3	5	1.641	1.865
		2			66/73.33	21/23.33	3/3.33	3.300	3	3	.529	3	5	1.565	1.600
7	Volleyball	1	1/1.11	1/1.11	85/94.44	2/2.22	1/1.11	3/011	3	3	.351	1	5	.168	24.463
		2		1/1.11	86/95.56	2/2.22	1/1.11	3.033	3	3	.278	2	5	4.422	32.584
10	Baseball	1	1/1.11		38/42.22	34/37.78	17/18.89	3.733	4	3	.804	1	5	-.005	.074
		2			36/40.00	43/47.78	11/12.22	3.722	4	4	.671	3	5	.392	-.767
13	Boxing	1			10/11.11	11/12.22	69/76.67	4.656	5	5	.673	3	5	-1.720	1.471
		2			12/13.33	13/14.44	65/72.22	4.589	5	5	.717	3	5	-1.441	.524
16	Kickball	1			75/83.33	11/12.22	4/4.44	3.211	3	3	.508	3	5	2.415	5.070
		2			78/86.67	10/11.11	2/2.22	3.156	3	3	.422	3	5	2.802	7.650
19	Soccer	1			61/67.78	24/26.67	5/5.56	3.378	3	3	.392	3	5	1.323	.767
		2			58/64.44	28/31.11	4/4.44	3.400	3	3	.577	3	5	1.122	.300
22	Karate	1		2/2.22	38/42.22	30/33.34	20/22.22	3.756	4	3	.825	2	5	.241	-1.045
		2			38/42.22	33.36.67	19/21.11	3.789	4	3	.772	3	5	.385	-1.216

Table H-4 (Continued)

#	Item Name	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis	
		1	2	3	4	5									
2	Dancing	1	1/1.11		59/65.56	23/26.56	7/7.78	3.389	3	3	.682	1	5	.631	1.581
		2	1/1.11		61/67.78	22/24.44	6/6.67	3.356	3	3	.659	1	5	.674	1.966
5	See-saw	1	1/1.11		81/90.00	6/6.67	2/2.22	3.100	3	3	.398	2	5	3.040	11.968
		2	1/1.11		81/90.00	6/6.67	2/2.22	3.100	3	3	.398	2	5	3.040	11.968
8	Jump rope	1			57/63.33	26/28.89	7/7.78	3.444	3	3	.638	3	5	1.142	.211
		2			62/68.89	24/26.67	4/4.44	3.356	3	3	.567	3	5	1.350	.892
11	Cartwheels	1	3/3.33		50/55.56	30/33.34	7/7.78	3.456	3	3	.690	2	5	.583	-.016
		2	1/1.11		49/54.44	35/38.89	5/5.56	3.489	3	3	.622	2	5	.614	-.209
14	Swings	1	1/1.11		80/88.89	9/10.00		3.089	3	3	.323	2	4	1.861	5.296
		2			79/87.78	9/10.00	2/2.22	3.144	3	3	.412	3	5	2.982	8.789
17	Balance Beam	1	3/3.33		64/71.11	21/23.33	2/2.22	3.244	3	3	.547	2	5	.924	1.365
		2	5/5.56		61/67.78	23/25.56	1/1.11	3.222	3	3	.556	2	5	.443	.622
20	Leapfrog	1	11/12.22		73/81.11	6/6.67		2.944	3	3	.433	2	4	-.310	2.412
		2	9/10.00		74/82.22	7/7.78		2.978	3	3	.423	2	4	-.142	2.831
23	Cheerleading Jump	1	1/1.11		46/51.11	27/30.00	16/17.78	3.644	3	3	.783	2	5	.581	-.880
		2			50/55.56	24/26.67	16/17.78	3.622	3	3	.773	3	5	.774	-.892

Table H-4 (Continued)

# Item	Item Name	Gender	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1	1/1.11	4/4.44	85/94.44			2.933	3	3	.292	1	3	-4.814	24.931
		2	2/2.22	4/4.44	84/93.33			2.911	3	3	.356	1	3	-4.306	18.891
6	Jumping Rope	1	6/6.66	24/26.67	60/66.67			2.600	3	3	.614	1	3	-1.284	.604
		2	8/8.89	25/27.78	57/63.33			2.544	3	3	.656	1	3	-1.144	.149
9	Weight Lifting	1	31/34.44	40/44.44	19/21.11			1.867	2	2	.737	1	3	.217	-1.120
		2	32/35.56	40/44.44	18/20.00			1.844	2	2	.733	1	3	.252	-1.089
12	Skiing	1	3/3.33	86/95.56			1/1.11	2.989	3	3	.280	2	5	2.733	34.374
		2		6/6.67	83/92.22	1/1.11		2.944	3	3	.275	2	4	-2.139	0.571
15	Rowing a Boat	1	8/8.87	30/33.34	52/57.78			2.489	3	3	.658	1	3	- .928	- .239
		2	4/4.44	36/40.00	50/55.56			2.511	3	3	.585	1	3	- .732	- .424
18	Diving	1		3/3.33	87/96.67			2.967	3	3	.181	2	3	-5.288	26.553
		2		3/3.33	87/96.67			2.967	3	3	.180	2	3	-5.288	26.553
21	Bicycling	1		4/4.44	86/95.56			2.956	3	3	.207	2	3	-4.496	18.632
		2		3/3.33	87/96.67			2.967	3	3	.180	2	3	-5.288	26/553
24	Swimming	1			90/100.00			3.000	3	3	0.000	3	3	0.000	0.000
		2		1/1.11	89/98.89			2.989	3	3	.105	2	3	-9.487	90.000

TABLE H-5. Item Analysis - Children.

#	Item Name	Sex	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
			MALE												
1	Football	1	2/2.22		9/10.00	12/13.33	67/74.44	4.578	5	5	.848	1	5	-2.343	5.903
		2	3/3.33		5/5.56	7/7.78	75/83.33	4.678	5	5	.859	1	5	-3.129	9.944
4	Basketball	1	2/2.22		36/40.00	9/10.00	43/47.78	4.011	4	5	1.044	1	5	-.507	-.643
		2	3/3.33		29/32.22	17/18.89	41/45.56	4.033	4	5	1.043	1	5	-.796	.170
7	Volleyball	1	5/5.56	3/3.33	49/54.44	14/15.56	19/21.11	3.433	3	3	1.039	1	5	-.095	.047
		2	4/4.44		60/66.67	8/8.89	18/20.00	3.400	3	3	.958	1	5	.214	.517
10	Baseball	1	1/1.11	1/1.11	25/27.78	10/11.11	53/58.89	4.256	5	5	.978	1	5	-.906	-.257
		2	2/2.22		25/27.78	14/15.56	49/54.44	4.200	5	5	.997	1	5	-.972	.327
13	Boxing	1	3/3.33		5/5.56	3/3.33	79/87.78	4.722	5	5	.848	1	5	-3.382	11.309
		2	2/2.22		2/2.22	5/5.56	81/90.00	4.811	5	5	.685	1	5	-4.454	21.196
16	Kickball	1	2/2.22	1/1.11	35/38.89	16/17.78	36/40.00	3.922	4	5	1.019	1	5	-.427	-.504
		2	2/2.22		42/46.67	14/15.56	32/35.56	3.822	4	3	1.001	1	5	-.183	-.616
19	Soccer	1	3/3.33		31/34.44	12/13.33	44/48.89	4.044	4	5	1.070	1	5	-.766	-.062
		2	2/2.22	1/1.11	37/41.11	14/15.56	36/40.00	3.900	4	3	1.028	1	5	-.367	-.615
22	Karate	1	2/2.22	1/1.11	15/16.67	13/14.44	59/65.56	4.400	5	5	.958	1	5	-1.593	2.130
		2	1/1.11		19/21.11	12/13.33	58/64.44	4.400	5	5	.897	1	5	-1.269	.879

Table H-5 (Continued)

# Item	Item Name	Sex	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
	FEMALE														
2	Dancing	1			31/34.44	11/12.22	48/53.33	4.189	5	5	.923	3	5	-.388	-1.733
		2	2/2.22		32/35.56	9/10.00	4/4.44	3.000	3	3	.600	1	5	.320	7.681
5	See-saw	1	3/3.33	3/3.33	79/87.78	2/2.22	4/4.44	3.000	3	3	.600	1	5	.320	7.681
		2	1/1.11	1/1.11	82/91.11	2/2.22	4/4.44	3.078	3	3	.502	1	5	1.788	11.255
8	Jump Rope	1	1/1.11	1/1.11	38/42.22	16/17.78	34/37.78	3.900	4	3	.972	1	5	-.171	-.971
		2	1/1.11	1/1.11	49/54.44	14/15.56	25/27.78	3.678	3	3	.934	1	5	-.269	-.795
11	Cartwheels	1	4/4.44	2/2.22	27/30.00	18/20.00	39/43.33	3.956	4	5	1.111	1	5	-.816	.080
		2	1/1.11	1/1.11	44/48.89	13/14.44	31/34.44	3.800	3	3	.974	1	5	.042	-1.042
14	Swings	1	1/1.11	4/4.44	74/82.22	4/4.44	7/7.78	3.133	3	3	.657	1	5	1.315	4.294
		2	4/4.44	1/1.11	78/86.67	3/3.33	4/4.44	3.022	3	3	.636	1	5	-.018	6.612
17	Balance Beam	1	5/5.56	3/3.33	52/57.78	7/7.78	23/25.56	3.444	3	3	1.082	1	5	.010	-.221
		2	6/6.67	2/2.22	56/62.22	9/10.00	17/18.89	3.322	3	3	1.026	1	5	.015	.346
20	Leapfrog	1	12/13.33	5/5.56	62/68.89	3/3.33	8/8.89	2.889	3	3	.988	1	5	-.059	.924
		2	8/8.89	3/3.33	70/77.78	4/4.44	5/5.56	2.944	3	3	.812	1	5	-.283	2.721
23	Cheerleading Jump	1	2/2.22	1/1.11	8/8.89	9/10.00	70/77.78	4.600	5	5	.872	1	5	-2.450	6.001
		2	3/3.33		18/20.00	8/8.89	61/67.78	4.378	5	5	1.023	1	5	-1.593	1.994

Table H-5 (Continued)

# Item	Item Name GENDER - NEUTRAL	Test	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1	21/23.33	7/7.78	57/63.33	3/3.33	2/2.22	2.533	3	3	.962	1	5	-.406	-.197
		2	21/23.33	11/12.22	55/61.11	2/2.22	1/1.11	2.456	3	3	.914	1	5	-.498	-.469
6	Jumping Hurdle	1	27/30.00	15/16.67	39/43.33	3/3.33	6/6.67	2.400	3	3	1.149	1	5	.387	-.329
		2	21/23.33	13/14.44	45/50.00	4/4.44	7/7.78	2.589	3	3	1.131	1	5	.203	-.242
9	Weight Lifting	1	56/62.22	8/8.89	23/25.56	2/2.22	1/1.11	1.711	1	1	.997	1	5	1.030	-.067
		2	55/62.22	15/16.67	19/21.11		1/1.11	1.633	1	1	.893	1	5	1.187	.757
12	Skiing	1	19/21.11	4/4.44	63/70.00	1/1.11	3/3.33	2.611	3	3	.944	1	5	-.451	.392
		2	14/15.56	5/5.56	67/74.44	2/2.22	2/2.22	2.700	3	3	.841	1	5	-.773	1.236
15	Rowing a Boat	1	34/37.78	12/13.33	43/47.78		1/1.11	2.133	2	3	.974	1	5	.025	-1.127
		2	28/31.11	11/12.22	49/54.44		2/2.22	2.300	3	3	.989	1	5	-.067	-.606
18	Diving	1	13/14.44	10/11.11	60/66.67	6/6.67	1/1.11	2.689	3	3	.843	1	5	-.732	.577
		2	16/17.78	1/1.11	67/74.44	2/2.22	4/4.44	2.744	3	3	.931	1	5	-.490	1.014
21	Bicycling	1	5/5.56	5/5.56	74/82.22	4/4.44	2/2.22	2.922	3	3	.640	1	5	-.721	5.103
		2	5/5.56	8/8.89	74/82.22	1/1.11	2/2.22	2.856	3	3	.628	1	5	-.720	5.201
24	Swimming	1	5/5.56	2/2.22	77/85.56	1/1.11	5/5.56	2.989	3	3	.695	1	5	.015	5.293
		2	7/7.78	2/2.22	79/87.78	1/1.11	1/1.11	2.856	3	3	.610	1	5	-1.740	6.178

Table H-6. Item Analysis - Children (4.5)

# Item	Item Name	4 3 2 1	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
MALE															
1	Football	1	1/4.55		4/18.18	5/22.73	12/54.55	4.227	5	5	1.066	1	5	-1.536	2.501
		2	3/13.64		3/13.64	1/4.55	15/68.18	4.136	5	5	1.457	1	5	-1.478	.789
4	Basketball	1	2/9.09		6/27.27	3/13.64	11/50.00	3.954	4.5	5	1.290	1	5	-1.079	.421
		2	3/13.64		6/27.27	2/9.09	11/50.00	3.818	4.5	5	1.435	1	5	-.926	-.295
7	Volleyball	1	3/13.64	2/9.09	7/31.82	3/13.64	7/31.82	3.410	3	3-5	1.403	1	5	-.365	-.954
		2	3/13.64		12/54.55	2/9.09	5/22.73	3.273	3	3	1.241	1	5	-.244	-.140
10	Baseball	1	1/4.55		5/22.73	3/13.64	13/59.09	4.227	5	5	1.110	1	5	-1.414	1.721
		2	2/9.09		6/27.27	1/4.55	13/59.09	4.045	5	5	1.327	1	5	-1.168	.409
13	Boxing	1	3/13.64		3/13.64		16/72.73	4.182	5	5	1.468	1	5	-1.536	.891
		2	2/9.09		2/9.09		18/81.82	4.454	5	5	1.262	1	5	-2.232	3.898
16	Kickball	1	2/9.09	1/4.55	10/45.45	2/9.09	7/31.82	3.500	3	3	1.263	1	5	-.312	-.507
		2	2/9.09	1/4.55	10/45.45	2/9.09	5/22.73	3.364	3	3	1.136	1	5	-.165	.284
19	Soccer	1	2/9.09		6/27.27	2/9.09	12/54.55	4.000	5	5	1.309	1	5	-1.120	.402
		2	2/9.09		12/54.55		8/36.36	3.545	3	3	1.262	1	5	-.269	-.462
22	Karate	1	2/9.09	1/4.55	4/18.18	4/18.18	11/50.00	3.955	4.5	5	1.327	1	5	-1.121	.275
		2	1/4.55		7/31.82	3/13.64	11/50.00	4.045	4.5	5	1.133	1	5	-.961	.502

Table H-6 (Continued)

# Item	Item Name	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis	
		Responses/Percentages (N = 90)													
		1	2	3	4	5									
FEMALE															
2	Dancing	1		7/31.82	2/9.09	13/59.09	4.273	5	5	.935	3	5	-.607	-1.656	
		2	2/9.09	7/31.82	1/4.55	12/54.55	4.045	5	5	1.133	2	5	-.529	-1.429	
5	See-saw	1	3/13.64	15/68.18	1/4.55	2/9.09	2.909	3	3	1.019	1	5	-.101	1.228	
		2	1/4.55	17/77.27	1/4.55	2/9.09	3.091	3	3	.811	1	5	.414	3.516	
8	Jump Rope	1	1/4.55	10/45.45	1/4.55	9/40.91	3.727	3	3	1.202	1	5	-.323	-.732	
		2	1/5.66	13/59.09	2/9.09	6/27.27	3.545	3	3	1.057	1	5	.002	.080	
11	Cartwheels	1	3/13.14	8/36.36	1/4.55	8/36.36	3.409	3	3-5	1.436	1	5	-.277	-1.089	
		2		14/63.64	2/9.09	5/22.73	3.500	3	3	.913	2	5	.826	.617	
14	Swings	1		13/59.09	2/9.09	5/22.73	3.454	3	3	.962	2	5	.670	-.659	
		2	2/9.09	18/81.82		2/9.09	3.000	3	3	.873	1	5	.000	3.509	
17	Balance Beam	1	2/9.09	11/50.00	1/4.55	7/31.82	3.454	3	3	1.262	1	5	-.200	-.544	
		2	3/13.64	14/63.64	1/4.55	3/13.64	3.000	3	3	1.113	1	5	.000	.572	
20	Leapfrog	1	3/13.64	12/54.55	1/4.55	5/22.73	3.182	3	3	1.259	1	5	-.060	-.323	
		2	3/13.64	15/68.18		3/13.64	2.954	3	3	1.090	1	5	.097	.880	
23	Cheerleading Jump	1	1/4.55	5/22.73	1/4.55	14/63.64	4.182	5	5	1.220	1	5	-1.245	.555	
		2	2/9.09	7/31.82		13/59.09	4.000	5	5	1.345	1	5	-1.033	.043	

Table H-6 (Continued)

#	Item Name GENDER - NEUTRAL	Tests	Responses/Percentages (N = 90)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1 2	6/27.27 5/22.73	1/4.55 3/13.64	13/59.09 12/54.55	1/5.45	2/9.09 1/4.55	2.591 2.545	3 3	3 3	1.182 1.057	1 1	5 5	.142 .002	-.024 .080
6	Jumping Hurdle	1 2	8/36.36 7/31.82	2/9.09 4/18.18	8/36.36 6/27.27	1/4.55 2/9.09	3/13.64 3/13.64	2.500 2.545	3 2.5	1-3 1	1.046 1.405	1 1	5 5	.453 .464	-.829 -.904
9	Weight- Lifting	1 2	8/36.36 11/50.00	2/9.09 4/18.18	10/45.45 6/27.27	1/4.55	1/4.55 1/4.55	2.318 1.909	3 1.5	3 1	1.170 1.109	1 1	5 5	.288 1.116	-.575 1.019
12	Skiing	1 2	5/22.73 6/27.27	1/4.55	13/59.09 11/50.00	1/4.55 2/9.09	3/13.64 2/9.09	2.864 2.682	3 3	3 3	1.246 1.249	1 1	5 5	-.044 .027	-.204 -.562
15	Rowing a Boat	1 2	11/50.00 5/22.73	1/4.55 1/4.55	9/40.91 14/63.64		1/4.55 2/9.09	2.045 2.682	1.5 3	1 3	1.174 1.129	1 1	5 5	.681 .046	-.252 .346
18	Diving	1 2	3/13.64 5/22.73	4/18.18 1/4.55	12/54.55 12/54.55	2/9.09	1/4.55 4/18.18	2.727 2.864	3 3	3 3	.985 1.320	1 1	5 5	-.049 .137	.552 -.470
21	Bicycling	1 2	2/9.09 3/13.64	1/4.55 2/9.09	16/72.73 15/68.18	1/4.55 0	2/9.09 2/9.09	3.000 2.818	3 3	3 3	.926 1.006	1 1	5 5	.000 .089	2.215 1.401
24	Swimming	1 2	3/13.64 2/9.09		16/72.73 19/86.36		3/13.64 1/4.55	3.000 2.909	3 3	3 3	1.069 .750	1 1	5 5	.000 -.591	1.179 5.664

Table H-7. Item Analysis - Children (5.5).

#	Item Name	# of MALE	Responses/Percentages (N = 23)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
1	Football	1 2			1/4.35 1/4.35	2/8.70 2/8.70	20/86.96 20/86.96	4.826 4.826	5 5	5 5	.491 .491	3 3	5 5	-2.990 -2.990	9.946 8.946
4	Basketball	1 2			8/34.78 8/34.78	1/4.35 1/4.35	14/60.87 14/60.87	4.261 4.261	5 5	5 5	.964 .964	3 3	5 5	-.578 -.578	-1.767 -1.767
7	Volleyball	1 2	1/4.35		13/56.52 16/69.57	3/13.04	6/26.09 7/30.43	3.565 3.609	3 3	3 3	1.037 .941	1 3	5 5	-.056 .911	.169 1.291
10	Baseball	1 2		1/4.35	8/34.78 7/30.43	1/4.35 1/4.35	13/56.52 15/65.22	4.130 4.348	5 5	5 5	1.058 .935	2 3	5 5	-.534 -.794	-1.495 -1.435
13	Boxing	1 2				2/8.70 2/8.70	21/91.30 21/91.30	4.913 4.913	5 5	5 5	.288 .288	4 4	5 5	-3.140 -3.140	8.605 8.605
16	Kickball	1 2			10/43.48 12/52.17	1/4.35	12/52.17 11/47.83	4.087 3.956	5 3	5 3	.996 1.022	3 3	5 5	-.187 .093	-2.104 -2.190
19	Soccer	1 2	1/4.35		9/39.13 8/34.78	2/8.70 2/8.70	11/47.83 13/56.52	3.956 4.217	4 5	5 5	1.147 .951	1 3	5 5	-.700 -.475	.113 -1.820
22	Karate	1 2			5/21.74 5/21.94	2/8.70 1/4.35	16/69.57 17/73.91	4.478 4.522	5 5	5 5	.846 .846	3 3	5 5	-1.160 -1.308	-.520 -.215

Table H-7 (Continued)

#	Item Name	Test	Responses/Percentages (N = 23)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
	FEMALE														
2	Dancing	1			9/39.13	2/8.70	12/52.17	4.130	5	5	.968	3	5	-.281	-1.989
		2			8/34.78	1/4.35	14/60.87	4.261	5	5	.964	3	5	-.578	-1.767
5	See-saw	1			21/91.30		2/8.70	3.174	3	3	.576	3	5	3.140	8.605
		2			23/100.00			3.000	3	3	.000	3	3	-	-
8	Jump Rope	1			17/73.91		6/26.09	3.522	3	3	.898	3	5	1.167	-.709
		2			20/86.96		3/13.04	3.261	3	3	.689	3	5	2.351	3.855
11	Cartwheels	1	1/4.35		12/52.17	1/4.35	9/39.13	3.739	3	3	1.137	1	5	.249	-.502
		2	1/4.35		16/69.57		6/26.09	3.435	3	3	1.037	1	5	.324	.250
14	Swings	1	1/4.35	1/4.35	19/82.61		2/8.70	3.043	3	3	.767	1	5	.585	4.978
		2	2/8.70		20/86.96		1/4.35	2.913	3	3	.733	1	5	-.619	6.003
17	Balance Beam	1	1/4.35		13/56.52	2/8.70	7/30.43	3.609	3	3	1.076	1	5	-.068	-.144
		2	2/8.70		16/69.57		5/21.74	3.261	3	3	1.096	1	5	.120	.601
20	Leapfrog	1	5/21.74		17/73.91		1/4.35	2.652	3	3	.982	1	5	-.467	.903
		2	3/13.04		20/86.96			2.739	3	3	.689	1	3	-2.351	3.855
23	Cheerleading Jump	1	1/4.35	2/8.70	2/8.70	18/78.26		4.565	5	5	.992	1	5	-2.645	7.300
		2	1/4.35	4/17.39	1/4.35	17/73.91		4.435	5	5	1.080	1	5	-1.951	3.481

Table H-7 (Continued)

#	Item Name GENDER - NEUTRAL	4 1	Responses/Percentages (N = 23)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1	6/26.09	2/8.70	14/60.87	1/4.35		2.435	3	3	.945	1	4	-.680	-.992
		2	5/21.74	2/8.70	16/69.57			2.478	3	3	.846	1	3	-1.160	-.520
6	Jumping Hurdle	1	9/39.13	1/4.35	12/52.17		1/4.35	2.261	3	3	1.137	1	5	.249	-.520
		2	6/26.09	1/4.35	14/60.87		2/8.70	2.609	3	3	1.158	1	5	.096	.072
9	Weight- Lifting	1	14/60.87	3/13.04	6/26.09			1.652	1	1	.885	1	3	.786	-1.274
		2	14/60.87	3/13.04	6/26.09			1.652	1	1	.885	1	3	.786	-1.274
12	Skiing	1	9/39.13		14/60.87			2.217	3	3	.998	1	3	-.477	-1.951
		2	3/13.04		20/86.96			2.739	3	3	.689	1	3	-2.351	3.855
15	Rowing a Boat	1	10/43.48	1/4.35	12/50.17			2.087	3	3	.996	1	3	-.187	-2.104
		2	11/47.83		12/52.17			2.043	3	3	1.022	1	3	-.093	-2.190
18	Diving	1	6/26.09	1/4.35	16/69.57			2.435	3	3	.896	1	3	-1.033	-.943
		2	7/30.43		16/69.57			2.391	3	3	.941	1	3	-.911	-1.1291
21	Bicycling	1	3/13.04		20/86.96			2.739	3	3	.689	1	3	-2.351	3.855
		2	1/4.35	1/4.35	21/91.30			2.870	3	3	.458	1	3	-3.710	13/960
24	Swimming	1	1/4.35	1/4.35	19/82.61		2/8.70	3.043	3	3	.767	1	5	.585	4.798
		2	4/17.39		18/78.26	1/4.35		2.696	3	3	.822	1	4	-1.503	1.266

Table H-8. Item Analysis - Children (6.5).

# Item	Item Name	Sex	Responses/Percentages (N = 22)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
MALE															
1	Football	1	1/4.55		2/9.09	4/18.18	15/68.18	4.455	5	5	1.011	1	5	-2.299	5.805
		2		1/4.55	1/4.55	20/90.91	4.864	5	5	.468	3	5	-3.621	13.270	
4	Basketball	1			12/54.55		10/45.45	4.909	3	3	1.019	3	5	.196	-2.168
		2			7/31.82	5/22.73	10/45.45	4.136	4	5	.889	3	5	-.287	-1.730
7	Volleyball	1			16/72.73	4/18.18	2/9.09	3.364	3	3	.658	3	5	1.660	1.687
		2			18/81.82	2/9.09	2/9.09	3.273	3	3	.631	3	5	2.232	3.898
10	Baseball	1			6/27.27	4/18.18	12/54.55	4.273	5	5	.883	3	5	-.597	-1.485
		2			5/22.73	5/22.73	12/54.55	4.318	5	5	.839	3	5	-.693	-1.208
13	Boxing	1			2/9.09	1/4.55	19/86.36	4.773	5	5	.612	3	5	-2.601	5.634
		2				2/9.09	20/90.91	4.909	5	5	.294	4	5	-3.059	8.085
16	Kickball	1			7/31.82	7/31.82	8/36.36	4.045	4	5	.844	3	5	.091	-1.606
		2			9/40.91	5/22.93	8/36.36	3.955	4	3	.899	3	5	.095	-1.825
19	Soccer	1			9/40.91	3/13.64	10/45.45	4.045	4	5	.950	3	5	-.097	-1.999
		2		1/4.55	9/40.91	4/18.18	8/36.36	3.864	4	3	.990	2	5	-.028	-1.476
22	Karate	1			4/18.18	4/18.18	14/63.64	4.455	5	5	.800	3	5	-1.064	-.498
		2			4/18.18	4/18.18	14/63.64	4.455	5	5	.800	3	5	-1.064	-.498

Table H-8 (Continued)

#	Item Name	Test	Responses/Percentages (N = 22)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
	FEMALE														
2	Dancing	1 2			8/36.36 10/45.45	4/18.18	14/63.64 8/36.36	4.273 3.909	5 3	5 4	.985 .921	3 3	5 5	-.609 .193	-1.802 -1.882
5	See-saw	1 2			22/100.00 21/95.45		1/4.55	3.000 3.091	3 3	3 5	.000 .426	3 3	3 5	- 4.690	- 22.000
8	Jump Rope	1 2			7/31.82 10/45.45	4/18.18 3/13.14	11/50.00 9/40.91	4.182 3.955	4.5 4	5 3	.907 .950	3 3	5 5	-.390 .097	-1.739 -1.999
11	Cartwheels	1 2			7/31.82 11/50.00	6/27.27 3/13.64	9/40.91 8/36.36	4.091 3.864	4 3.5	5 3	.868 .941	3 3	5 5	-.187 .293	-1.187 -1.907
14	Swings	1 2			21/45.45 20/90.91	1/4.55 1/4.55		3.045 3.136	3 3	3 3	.213 .466	3 3	4 5	4.690 3.621	22.000 13.270
17	Balance Beam	1 2			16/72.73 12/54.55	2/9.09 5/22.73	4/18.18 4/18.18	3.455 3.545	3 3	3 3	.800 .843	3 2	5 5	1.388 .592	.176 -1.668
20	Leapfrog	1 2	3/13.14 2/9.09	2/9.09	15/68.18 18/81.82	1/4.55 1/4.55	1/4.55 1/4.55	2.773 2.955	3 3	3 3	.922 .785	1 1	5 5	-.305 -.566	1.536 4.498
23	Cheerleading Jump	1 2			1/4.55 3/13.64	3/13.64 4/18.18	18/81.82 15/68.18	4.773 4.545	5 5	5 5	.528 .739	3 3	5 5	-2.394 -1.541	5.459 3.378

Table H-8 (Continued)

#	Item Name	Test	Responses/Percentages (N = 22)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1 2	4/18.18 8/36.36	1/4.55 1/4.55	17/77.27 13/59.04			2.591 2.227	3 3	3 3	.796 .973	1 1	3 3	-1.571 -.501	.652 -1.867
6	Jumping Hurdle	1 2	5/22.73 5/22.73	4/18.18 2/9.09	12/54.55 13/59.09		1/4.55 2/9.09	2.455 2.636	3 3	3 3	1.011 1.136	1 1	5 5	.136 .165	.503 .284
9	Weight- Lifting	1 2	16/72.73 15/68.18		5/22.73 5/22.73	1/4.55		1.591 1.545	1 1	1 1	1.007 .858	1 1	4 3	1.263 1.090	-.076 -.696
12	Skiing	1 2	5/22.73 3/13.64		17/77.27 19/86.36			2.545 2.727	3 3	3 3	.858 .703	1 1	3 3	-1.399 -2.278	-.057 3.498
15	Rowing a Boat	1 2	7/31.82 7/31.82	1/4.55 3/13.64	14/63.64 12/54.55			2.318 2.227	3 3	3 3	.945 .922	1 1	3 3	-.721 -.497	-1.564 -1.714
18	Diving	1 2	3/13.64 2/9.09	1/4.55	17/77.27 20/90.91	1/4.55		2.727 2.818	3 3	3 3	.767 .588	1 1	4 3	-1.558 -3.059	1.952 8.085
21	Bicycling	1 2			20/90.91 22/100.00	2/9.09		3.091 3.000	3 3	3 3	.294 .000	3 3	4 3	3.059 -	8.085 -
24	Swimming	1 2	1/4.55	2/9.09	21/95.45 20/90.91			2.909 2.909	3 3	3 3	.426 .294	1 2	3 3	-4.690 -3.059	22.000 8.085

Table H-9. Item Analysis - Children (7.5).

#	Item Name	Items	Responses/Percentages (N = 23)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
1	Football	1 2		2/8.70		1/4.55 3/13.04	20/86.96 20/86.96	4.783 4.870	5 5	5 5	.560 .344	3 4	5 5	-2.678 -2.351	6.062 3.855
4	Basketball	1 2		10/43.48 8/34.78		5/21.74 9/39.13	8/34.18 6/26.09	3.913 3.913	4 4	3 4	.900 .793	3 3	5 5	.182 .162	-1.809 -1.349
7	Volleyball	1 2	1/4.35 1/4.35	1/4.35	13/56.50 14/60.87	4/17.39 4/17.39	4/17.39 4/17.39	3.391 3.435	3 3	3 3	.988 .945	1 1	5 5	.021 .028	.560 1.039
10	Baseball	1 2		6/26.09 7/30.42		2/8.70 7/30.42	15/65.22 9/39.13	4.391 4.087	5 4	5 5	.891 .848	3 3	5 5	-.907 -.175	-1.130 -1.607
13	Boxing	1 2				1/4.35	23/100.00 22/95.65	5.000 4.957	5 5	5 5	.000 .209	5 4	5 5	- -4.796	- 23.000
16	Kickball	1 2		8/34.78 8/34.78		6/26.09 7/30.43	9/39.13 8.34.78	4.043 4.000	4 4	5 3-5	.878 .853	3 3	5 5	-.089 .000	-1.746 -1.650
19	Soccer	1 2		7/30.83 8/34.78		5/21.74 8/34.78	8/30.83 7/30.43	4.174 3.957	4 4	4 3-4	.887 .825	3 3	5 5	-.367 .085	-1.678 -1.519
22	Karate	1 2		2/8.70 3/13.04		3/13.04 4/17.39	18/78.26 16/69.57	4.696 4.565	5 5	5 5	.635 .728	3 3	5 5	-1.994 -1.409	2.935 .586

Table H-9 (Continued)

# Item	Item Name	N	Responses/Percentages (N = 23)					Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
	FEMALE														
2	Dancing	1			7/30.43	7/30.43	9/39.13	4.087	4	5	.848	3	5	-.175	-1.607
		2			7/30.43	3/13.04	13/56.52	4.261	5	5	.915	3	5	-.573	-1.621
5	See-saw	1		2/8.70	21/91.30		1/4.35	2.913	3	3	.288	2	3	-3.14	8.610
		2			21/91.30	1/4.35		3.130	3	3	.458	3	5	3.710	13.960
8	Jump Rope	1			4/19.39	11/47.83	8/34.78	4.174	4	4	.717	3	5	-.273	-.893
		2		1/4.35	6/26.09	9/39.13	7/30.43	3.957	4	4	.878	2	5	-.352	-.644
11	Cartwheels	1				10/43.48	13/56.52	4.565	5	5	.507	4	5	-.282	-2.113
		2			3/13.04	8/34.78	12/52.17	4.391	5	5	.722	3	5	-.773	-.587
14	Swings	1		1/4.35	21/91.30	1/4.35		3.000	3	3	.301	2	4	.000	11.000
		2		1/4.35	20/86.96	2/8.70		3.043	3	3	.367	2	4	.619	6.003
17	Balance Beam	1	2/8.70		12/52.47	2/8.70	5/21.74	3.261	3	3	1.176	1	5	-.007	-.220
		2	1/4.35		14/60.87	3/13.04	5/21.74	3.478	3	3	.994	1	5	.065	.550
20	Leapfrog	1	1/4.35	2/8.70	18/78.26	1/4.35	1/4.35	2.957	3	3	.706	1	5	.061	4.961
		2		2/8.70	17/73.91	3/13.04	1/4.35	3.130	3	3	.625	2	5	1.135	5.255
23	Cheerleading Jump	1				3/13.04	20/86.96	4.870	5	5	.344	4	5	-2.351	3.855
		2		4/17.39		3/13.04	16/69.57	4.522	5	5	.790	3	5	-1.288	-.009

Table H-9 (Continued)

#	Item Name GENDER - NEUTRAL	Responses/Percentages (N = 23)						Mean	Median	Mode	SD	Minimum	Maximum	Skewness	Kurtosis
			1	2	3	4	5								
3	Bowling	1 5/21.74 2 3/13.04	3/13.04 5/21.74	3/13.04 5/21.74	13/56.52 14/60.87	2/8.70 1/4.35		2.522 2.565	3 3	3 3	.947 .788	1 1	4 4	-.595 -.7845	-.692 .150
6	Jumping Hurdle	1 5/21.74 2 3/13.04	8/34.78 6/26.09	8/34.78 6/26.09	7/30.43 12/52.17	2/8.70 2/8.70	1/4.35	2.391 2.565	2 3	2 3	1.076 .843	1 1	5 4	.548 -.472	.088 -.209
9	Weight- Lifting	1 18/78.26 2 15/65.22	3/13.04 6/26.09	3/13.04 6/26.09	2/8.70 2/8.70			1.304 1.435	1 1	1 1	.635 .662	1 1	3 3	1.994 1.288	2.935 .625
12	Skiing	1 2	2/8.70 4/17.39	4/17.39 4/17.39	19/82.61 17/73.91			2.826 2.652	3 3	3 3	.387 .647	2 1	3 3	-1.843 -1.728	1.522 1.945
15	Rowing a Boat	1 6/26.09 2 5/21.74	9/38.13 7/30.43	9/38.13 7/30.43	8/34.78 11/47.83			2.087 2.261	2 2	2 3	.793 .810	1 1	3 3	-.162 -.534	-1.349 -1.243
18	Diving	1 1/4.35 2 2/8.70	4/17.39 2/8.70	4/17.39 2/8.70	15/65.22 19/82.61	3/13.04 2/8.70		2.870 2.913	3 3	3 3	.694 .668	1 1	4 4	-.713 -1.905	1.530 5.401
21	Bicycling	1 2	1/4.35 5/21.74	4/17.39 5/21.74	18/78.26 16/69.57	1/4.35 1/4.35		2.870 2.739	3 3	3 3	.458 .619	2 1	4 4	-.595 -1.047	1.886 1.924
24	Swimming	1 2	1/4.35 1/4.35	1/4.35 1/4.35	21/96.30 22/95.65	1/4.35		3.000 2.913	3 3	3 3	.302 .417	2 1	4 3	.000 -4.796	11.000 23.000

VITA

Arlene Anne Ignico was born in Clearwater, Florida on January 28, 1956. She attended elementary school in that city and was graduated from Clearwater High School in June, 1973. Following graduation, she enrolled at Maryville College in Maryville, Tennessee where she was elected to Alpha Gamma Sigma Honor Society, Alpha Lambda Delta Honor Society, and Who's Who in American College and Universities. She received a Bachelor of Arts degree in May, 1977 and accepted a graduate teaching assistantship in the Physical Education Department at The University of Tennessee in August of that year. During the school year, she served as the physical education teacher at Bearden Elementary School in Knoxville, Tennessee. She was awarded the Master of Science degree in August of 1978 and accepted a teaching/coaching position at Coker College in Hartsville, South Carolina. In the summer of 1979, she accepted a teaching/coaching position at Austin Peay State University where she taught activity classes and coached the women's volleyball team. From 1983 to 1985, she was employed by the Department of Defense and taught physical education at the Pirmasens American School in Pirmasens, West Germany. In the fall of 1985, she enrolled at The University of Tennessee to pursue a doctoral degree in motor behavior and she accepted a graduate teaching assistantship in the fall of 1986. In the fall of 1986, she was initiated into the Phi Kappa Phi honor society. She will receive the Doctor of

Education degree with a major emphasis in Motor Behavior in August, 1987. She has accepted a teaching/research position in the School of Physical Education at Ball State University in Muncie, Indiana.

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