

AN ABSTRACT OF THE THESIS OF

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Title: SEX ROLE DISCRIMINATION, PREFERENCE, AND CONFIRMATION IN PRE-SCHOOL AGED CHILDREN

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The purpose of this study was the development of the Sex Role Learning Index (SERLI), a picture choice instrument for assessing the concepts of sex role discrimination, preference, and confirmation in young children. The SERLI consists of 60 black-and-white line drawings depicting common objects, child activities and adult activities and roles.

In administering the SERLI, the child is first asked to sort the object items, which are representative of the activities and roles used later, into boxes labelled "for boys", or "for girls". The sex role discrimination score is the degree to which these designations agree with cultural sex role stereotypes. The child is then shown sets of items depicting either child or adult figures of his or her own sex, involved in a variety of sex-appropriate and cross-sex activities. The order of the child's choices is used to rank the items from most to least preferred.

The scoring of sex role preference and confirmation is based on the degree to which the order of the child's choices of sex-appropri-

ate items deviates from what would be expected from purely random choosing. The scoring of sex role preference is based on the order of the child's choices of the items culturally defined as being sex-appropriate, while sex role confirmation is scored relative to the child's own designations of which items were sex-appropriate.

To test the validity and reliability of the SERLI, the test was administered to 56 preschool aged children, aged 36 to 64 months. All of the children were average or above in intelligence, and were from the middle and upper socioeconomic classes. Reliabilities were determined by retesting a subsample of 36 children, three weeks after the initial testing.

Split-plot analyses of variance and regression analyses were used to test specific hypotheses regarding the effects of the sex of the experimenter, and the sex and age of the child, as well as to compare SERLI sections and concepts. Product-moment correlation coefficients were used to estimate test-retest reliabilities.

The results showed that boys and girls increased in their awareness of sex roles with age, and were more aware of their own rather than their opposite sex role. In addition, younger boys appeared to be more aware of their own sex role than younger girls, while girls appeared to be more aware of their opposite sex role than boys. For sex role preference and confirmation, boys scored higher in the Child Figures section than in the Adult Figures section, while girls showed an opposite pattern. Boys also scored significantly higher than girls on the Child Figures sections for both of these scales. In the Adult Figures section, however, girls scored higher than boys on confirmation, but not on preference. The test-retest reliabilities

for all of the SERLI scales were significant, and were in the range expected for preschool aged children.

These results were related to previous research on sex role learning, and were discussed from a variety of theoretical frameworks. Overall, this study supported the adequacy of the SERLI as a measure of early sex role learning, and suggested that the SERLI may have several advantages over previous measures.

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Sex Role Discrimination, Preference,
and Confirmation in Preschool Aged Children

by

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SEX ROLE DISCRIMINATION, PREFERENCE,
AND CONFIRMATION IN PRESCHOOL AGED CHILDREN

INTRODUCTION

In learning sex roles, the child not only associates selected aspects of reality with one sex or the other, but also begins to conform to the prescriptions and proscriptions of cultural sex role stereotypes (Biller, 1968; Kagan, 1964). Sex role stereotypes summarize the culturally approved characteristics for males and females (Kagan, 1964), including the personal qualities, behaviors, interests, attitudes, abilities, and skills one is expected to have because one is male or female (Hartley, 1959).

One of the major contributions to the conceptual organization of recent research and theory on sex role learning has been the delineation of the concepts of sex role preference and sex role discrimination by Brown (1956b), Lynn (1959), and Schell and Silber (1968). Sex role preference involves "the behaviors associated with one sex or the other that the individual would like to adopt or that he perceives as the preferred or more desirable behavior" (Brown, 1956b). Hence, sex role preference involves the motivation to adhere to culturally defined sex role stereotypes (Biller, 1968). Sex role discrimination, on the other hand, refers to the individual's relative awareness of the culturally defined symbols, prescriptions, and proscriptions associated with either the masculine or feminine sex role (Biller and Borstelmann, 1967). In other words, sex role discrimination is the child's "sex role knowledge" of the culturally approved behaviors and expectations for boys and girls (Thompson and McCandless, 1970).

Several researchers have attempted to measure sex role preference and sex role discrimination in young children (DeLucia, 1963; Fauls and Smith, 1956; Honzik, 1951; Rabban, 1950). Recently, however, researchers have commonly used Brown's (1956a) It Scale for Children (ITSC), or modifications of the ITSC, to measure these concepts (Doll, Fagot, and Himbert, 1973; Fling and Manosevitz, 1972; Freuh and McGhee, 1975; Laosa and Brophy, 1972; Radin, 1972; Sugawara, 1971; Summers and Felker, 1970).

The ITSC is a semi-projective device consisting of 36 drawings of objects and human figures that have been judged as being either masculine or feminine. To measure sex role preference with the ITSC, the child is given a drawing of a stick figure named "It," presumed ambiguous with regard to sex (Brown, 1956b). The child is then asked to choose from among sets of the drawings, those items which It would like to play with best. According to Brown (1956b), the child will project himself or herself into the It figure, and in choosing items for It, reveal his or her own sex role preferences. To measure sex role discrimination, the It figure has simply been designated as being male or female (Hartup and Zook, 1960; Reed and Asbjornson, 1968; Schell and Silber, 1968; Sugawara, 1971). Hence, the child's choices would reflect his or her awareness of cultural sex role stereotypes, rather than personal preferences.

The consensus of research with the ITSC has been that young children are aware of cultural sex role stereotypes, and have definite preferences for the roles of one sex or the other. After about three years of age, boys show a dominant preference for the masculine role, while girls show less preference for the feminine role and are more variable in their responses. Furthermore, boys consistently increase in their

preference for the masculine role with age, while girls make the most feminine preferences at four years of age, and then maintain that level or tend toward masculine choices until early adolescence. Both boys and girls increase in their awareness of sex role stereotypes with age, but girls have been found to be better than boys at making opposite sex role discriminations.

Several sociocultural factors have been used to account for these findings (Brown, 1956b; Hartley, 1959; Hartup, Moore, and Sager, 1963; Lynn, 1969). In addition, several behavioral theories have been applied to the process of early sex role learning, including psychoanalytic theory (Freud, 1924), social learning theory (Mischel, 1966, 1970; Mussen, 1969; Sears, 1965), and cognitive-developmental theory (Kohlberg, 1966; Kohlberg and Zigler, 1967).

The body of ITSC research, however, has been criticized on both conceptual and methodological grounds. As Schell and Silber (1968) pointed out, the measurement of sex role preference is based upon the assumption that the child is already aware of the masculine and feminine stereotypes associated with the test items. Hence, since the ITSC simply assumes that the child can make such discriminations, the interpretation of the child's choices as a measure of sex role preference must be highly suspect. Schell and Silber (1968) and Sugawara (1971) have further maintained that the ITSC items are not a representative sample of the diversity of masculine and feminine sex roles, and that the masculine items are illustrated with more clarity and detail than the feminine items. In addition, the ITSC, as well as virtually all of the other picture choice measures of sex role learning, have limited themselves to items depicting children's toys and activities, and have

not included items representing adult figures or activities. Finally, some research has shown the IT figure to appear more masculine than feminine to young children (Brown, 1962; Duryea, 1967; Hall and Keith, 1964; Hartup and Zook, 1960; Kohlberg and Zigler, 1961; Lansky and McKay, 1963; Lefkowitz, 1962; Sher and Lansky, 1968; Sugawara, 1971).

The continued use of the ITSC (Doll, Fagot, and Himbert, 1973; Fling and Manosevitz, 1972; Freuh and McGhee, 1975; Laosa and Brophy, 1972; Radin, 1972), despite these conceptual and methodological problems, indicates a pressing need for the development of new concepts and measures of sex role learning in early childhood.

Purpose of the Study

Overall, the purpose of this study was to develop an instrument to assess cognitive aspects of sex role learning in young children. To fulfill this purpose, the Sex Role Learning Index (SERLI) was developed as a measure of sex role discrimination, preference and confirmation in young children. The concept of sex role confirmation was introduced in order to account for the relationship between the child's awareness of the cultural sex role stereotypes associated with the test stimuli, and the child's preferences for those test stimuli. The SERLI contents, format, and administration and scoring procedures were developed and refined in two previous pilot studies (Edelbrock, Cloud, Hamilton, Hickok, Reed, and Sugawara, 1974; Edelbrock, 1975; Edelbrock and Sugawara, 1975).

To test the validity of the SERLI, a sample of 56 preschool aged children was assessed, and the main and interaction effects of age, sex, and sex of the experimenter on the sex role discrimination, pref-

erence, and confirmation scores were determined. The test-retest reliabilities for these three scales were also determined. In addition, comparisons were also made between the Adult and Child Figures sections of the SERLI, as well as between the preference and confirmation scores of the subjects.

Definition of Terms

- (1) Sex Role Designation - the subject's determination of whether an aspect of reality is associated with either the masculine or feminine sex role.
- (2) Sex Role Discrimination - as measured by the sex role discrimination scales of the SERLI - the degree to which the subject's sex role designations of selected drawings of objects agree with the cultural sex role stereotypes of those objects. This may refer to the objects culturally defined as being appropriate for either the subject's own or opposite sex.
- (3) Sex Role Preference - as measured by the sex role preference scale of the SERLI - the degree to which the subject chooses, from sets of drawings of selected activities and roles, those items that are culturally stereotyped as being appropriate for the subject's sex.
- (4) Sex Role Confirmation - as measured by the sex role confirmation scale of the SERLI - the degree to which the subject chooses, from sets of drawings of selected activities and roles, those items that the subject has designated as being appropriate for the subject's sex.

Assumptions

- (1) Drawings of objects, activities, and roles can be used to measure sex role learning in young children (Brown, 1956b; DeLucia, 1963; Fauls and Smith, 1956; Honzik, 1951; Rabban, 1950).
- (2) The subject's sex role designation of each object in the SERLI would be the same as the subject's designation of the activity or role associated with that object (Brown, 1956b; Rabban, 1950).
- (3) For well defined sets of alternatives, choice behavior is best described by probabilistic models (Luce, 1967).

Hypotheses

The following hypotheses were tested in this study:

Sex Role Discrimination

There will be no significant differences between the sex role discrimination scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis I)
2. Sex of the child (Hypothesis II)
3. Age of the child (Hypothesis III)
4. Concept - Own vs Opposite Discrimination (Hypothesis IV)

Sex Role Preference

There will be no significant differences between the sex role preference scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis V)
2. Sex of the child (Hypothesis VI)
3. Age of the child (Hypothesis VII)
4. Section of the SERLI - Adult vs Child Figures
(Hypothesis VIII)

Sex Role Confirmation

There will be no significant differences between the sex role confirmation scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis IX)
2. Sex of the child (Hypothesis X)
3. Age of the child (Hypothesis XI)
4. Section of the SERLI - Adult vs Child Figures
(Hypothesis XII)

Sex Role Preference vs Sex Role Confirmation

There will be no significant differences between the sex role preference and sex role confirmation scores of the subjects in:

1. The Adult Figures Section of the SERLI (Hypothesis XIII)
2. The Child Figures Section of the SERLI (Hypothesis XIV)

Reliability

There will not be a significant relationship between the pretest and posttest scores of the subjects for:

1. Own sex role discrimination (Hypothesis XV)
2. Opposite sex role discrimination (Hypothesis XVI)

3. Sex Role Preference
 - A. Adult Figures section (Hypothesis XVII)
 - B. Child Figures section (Hypothesis XVIII)
4. Sex Role Confirmation
 - A. Adult Figures section (Hypothesis XIX)
 - B. Child Figures section (Hypothesis XX)

Analysis

Hypotheses I through XIV were tested by 2 x 2 x 2 x 2 (sex of experimenter x sex x age x variable) split-plot analyses of variance, where the "variable" referred to two compared measures on each subject. For Hypotheses I through IV, the two measures were own and opposite sex role discrimination. For Hypotheses V through XII, the two measures referred to the distinction between the Adult and Child Figures sections of the SERLI. For Hypotheses XIII and XIV, the two measures were sex role preference and sex role confirmation. Hypotheses XV through XX were tested by the Pearson product-moment correlation technique. In addition, Hypotheses II through IV were further investigated using regression analysis.

CHAPTER II

A REVIEW OF THE LITERATURE

The prescription of different activities and attitudes to males and females is found in all societies (Barry, Bacon, and Child, 1957; Murdock, 1937), and almost all behaviors are included in a sex role stereotype to some degree (Sherriffs and Jarrett, 1953). Sex role learning has also been shown to be important in the maintenance of continuities in behavior during development (Kagan and Moss, 1962), in intellectual mastery (Milton, 1958), and in determining the attitudes and preferences of both children and adults (Constantinople, 1967; DeLucia, 1963; Thomas, 1971). In addition, sex role stereotypes define, in part, the range of acceptable behavior and normal personality traits of a culture (Linton, 1945; Mowrer, 1950). Hence, the emergence of the child's awareness of sex role differences, and the development of selective preferences for sex-typed behaviors, have become major concerns in child development research and theory in the past decade (Lynn, 1969; Maccoby, 1966; Maccoby and Jacklin, 1974).

The purpose of this review of literature is to evaluate previous research on sex role learning in young children, with the purpose of developing a new conceptualization and measurement instrument in this area. Consequently, the first section deals with the definition and measurement of sex role preference and sex role discrimination, and the major research findings with regard to sex and age. The second section briefly reviews some of the theoretical interpretations of these findings. The third section focuses on delineating the major

conceptual and methodological inadequacies of these studies. Finally, the development of the conceptual framework, contents, format, and administration and scoring procedures for the Sex Role Learning Index (SERLI), will be discussed.

Previous Research on Sex Role Learning

This section of the review of literature is concerned with previous research on sex role learning in young children, including the definition and measurement of sex role preference and sex role discrimination, and major research findings regarding sex and age differences.

Sex Role Preference

Sex role preference involves "the behaviors associated with one sex or the other that the individual would like to adopt, or that he perceives as the preferred or more desirable behavior," (Brown, 1956b). In other words, sex role preference is the motivation to adhere to the culturally defined prescriptions and proscriptions of masculine and feminine sex roles (Billler and Borstelmann, 1967).

The major research studies on sex role preference in young children have used a wide variety of measurement techniques, including occupational interest interviews (Bridges, 1927, 1929; Looft, 1971), doll play situations (Honzik, 1951; Santrock, 1970), game and activity preferences (Rosenberg and Sutton-Smith, 1959, 1960; Terman and Miles, 1936), and picture preference techniques (Benjamin, 1932; Brown, 1956a, b; DeLucia, 1963; Fauls and Smith, 1956; Rabban, 1950; Vance and McCall, 1934).

Historically, one of the oldest techniques for assessing sex role preference in young children has been to determine their occupational interests and aspirations. Bridges (1927,1929) was one of the first to systematically investigate the occupational interests of preschool aged children, and relate these interests to free-play activities. More recently, Looft (1971) has examined the vocational aspirations of elementary school children by simply asking them, "What would you like to be when you grow up?" Boys named 18 different occupations, including football player, policeman, soldier, and doctor, while girls named mainly the roles of a nurse or a teacher. Hence, these findings indicate that both boys and girls develop occupational interests early in life, and these goals follow sex stereotyped lines. The masculinity-femininity dimension of the vocational interests of adolescents and adults has also been assessed, with the Strong Vocational Interest Blank (Stewart, 1959; Strong, 1943).

Another technique for measuring sex role preference in young children has involved doll play. Honzik (1951) used a doll play situation to study sex differences in the utilization of different dolls and household materials by 11 to 13 year olds. She found that boys preferred to play with masculine stereotyped items such as the policeman and cowboy dolls, while girls played with feminine stereotyped items, such as the baby and girl dolls and the kitchen furniture and appliances. Other researchers have developed structured doll play situations to measure dependency and aggression as dimensions of masculinity-femininity (Brown, 1956b; Emmerich, 1959; Hartup, 1962; Santrock, 1970). Santrock (1970), for example, rated four- to six-year-old children's

doll play on three-point scales of dependency and aggression. Dependency was defined as a subordinate learning relationship between the child doll and the mother or father doll. Aggression was defined in terms of offensive action of the child doll toward the mother or father doll. This technique, therefore, is based upon the child's identification with the child doll. Generally, boys were found to be more aggressive and less dependent than girls.

Game and activity preferences have also been used to assess sex role preferences in young children. Foster (1930) pioneered research in this area in asking elementary school children to list their favorite games. She found that boys preferred masculine stereotyped games such as baseball and football, while girls preferred games such as jacks and tag. Similar sex differences have been found with Terman and Miles' (1936) Game Preference Test, a masculinity-femininity scale based on 181 children's games and activities. Recent revisions of the Game Preference Test by Rosenberg and Sutton-Smith (1959, 1960) have shown boys to prefer athletic, competitive, combative, and aggressive games such as soldiers, cops and robbers, wrestling and boxing. Girls, on the other hand, have typically preferred more passive and domestic activities, such as doll play, dressing up, and playing house.

Finally, the most commonly used sex role preference measures have been based on picture preferences. The use of pictures has several advantages, including usefulness with children too young to be able to read and write, high interest value, and simple and objective administration and scoring procedures. Vance and McCall (1934) were first to use this technique to measure children's preferences for selected play

materials, including a wagon, wheelbarrow, seesaw, clay, ball, slide, swings, and tools. By using all possible combinations of picture pairs, they were able to rank the test items in terms of their desirability to preschoolers. Their research on 17 girls and 15 boys of preschool age reported that boys preferred to play with materials requiring large muscle coordination and gross motor skills, while girls preferred domestic activities and fine motor skills.

Studies using other picture preference tests (DeLucia, 1963; Fauls and Smith, 1956; Rabban, 1950) have also reported sex stereotyped preferences in young children. Rabban (1950), for example, reported that boys preferred pictures of masculine stereotyped toys, such as a truck, fire engine, and tool set, while girls preferred feminine stereotyped toys including a doll buggy, highchair, and dishes.

Currently, however, these picture preference tests are rarely used in research due to their use of a direct choice technique. Having the child directly indicate his own preferences in the presence of an adult test administrator is thought to result in more socially desirable responses, because the child may feel pressure to respond in agreement with social expectations for his or her sex role. Hence, with a direct choice technique, the child's sex role preferences may be distorted in favor of more sex appropriate responses.

The measurement instrument that is currently used to assess sex role preference in young children is Brown's (1956a,b) It Scale for Children (ITSC). The ITSC is a semi-projective device consisting of 36 drawings, three by four inches, of objects and human figures that have been judged as being either masculine or feminine by children and adults. The ITSC items were developed mainly from Rabban's (1950)

Toy Preference Test, and are administered in three sections. The Toy Pictures Section contains 16 drawings of common children's toys, half of which are stereotyped as masculine (i.e. truck, soldiers), and the other half as feminine (i.e. doll, dishes). The Eight Paired Pictures Section includes 16 drawings which are presented in eight masculine-feminine pairs (i.e. mens' and womens' shoes). Finally, the Four Child-Figures Section includes four drawings designated as (1) a masculine boy, (2) a feminine boy, (3) a masculine girl, and (4) a feminine girl.

To avoid the complications of a direct choice technique, the child is asked to choose items from the sections, not for himself, but rather for a stick figure named "It," presumed "relatively ambiguous" with regard to sex (Brown, 1956b). According to Brown (1956b):

The child will project himself or herself in the It figure on the basis of his or her own sex role preference. Thus a girl who basically prefers the feminine sex role will project such a preference onto It, while the girl who is ambivalent will tend to give responses indicating a mixture of both masculine and feminine components. (p. 5)

The ITSC items have arbitrarily determined point values that are used in scoring. In the Toy Pictures Section, one point is given for each masculine choice, and zero points for each feminine choice. In the Eight Paired Pictures Section, eight points are given for each masculine choice, and zero for each feminine choice. In the Four Child-Figures Section, the choice of the masculine boy is given 12 points; the feminine boy, eight points; the masculine girl, four points; and the feminine girls, zero points. The total range of scores, therefore, is from zero, which is exclusively feminine sex role preference, to 84 which is exclusively masculine sex role preference.

Several researchers have studied sex and age effects on children's sex role preferences with the ITSC (Brown, 1956b, 1957; Duryea, 1967; Hartup and Zook, 1960; Schell and Silber, 1968; Sugawara, 1971; Thompson and McCandless, 1970). The consensus of research with the ITSC has been that after about three years of age, boys show a dominant preference for the masculine sex role, while girls show less preference for the feminine sex role and are more variable in their responses. In addition, while boys increase in their preference for the masculine sex role with age, girls reach a maximum in feminine sex role preference at about four years of age, and then maintain that level or tend toward more masculine responses until early adolescence.

In partial summary, a wide variety of techniques have been used to study sex role preference in young children, including the analysis of occupational interests, doll play sessions, game and activity preferences, and picture preferences. Recently, however, the most systematic research has been with Brown's (1956a,b) ITSC, a semi-projective picture preference test. Studies using the ITSC have reported significant age and sex differences in the development of young children's preferences for aspects of one or the other sex role.

Sex Role Discrimination

Sex role discrimination is the child's "sex awareness," (Weider and Noller, 1950), or "sex role knowledge," (Thompson and McCandless, 1970) of the characteristics culturally defined as being masculine or feminine. This concept involves the child's relative awareness of the cultural prescriptions and proscriptions of masculine and feminine sex

roles, including the symbols and representations associated with one sex or the other (Biller and Borstelmann, 1967). Unlike sex role preference, the concept of sex role discrimination does not involve preferential judgements, but is simply the knowledge or awareness of cultural sex role differences.

Research studies on sex role discrimination have used a variety of measurement techniques, including human figure drawings (Jolles, 1952; Weider and Noller, 1950), structured interviews (Hartley, 1959; Landreth, 1963), and modifications of the ITSC (Hartup and Zook, 1960; Reed and Asbjornson, 1968; Schell and Silber, 1968; Sugawara, 1971).

The technique of using children's drawings of human figures to measure sex role discrimination evolved from several independent sources. Weider and Noller (1950) modified Goodenough's (1926) Draw-A-Man test originally designed as a measure of intellectual development to measure awareness of sex differences. Using a scoring technique based on the sexes of drawn figures and their relative sizes and characteristics, Weider and Noller found that children increase in their awareness of sex differences with age, and prefer to draw their own sex first. In a similar manner, Jolles (1952) expanded Bucks (1948) House-Tree-Person test, to measure sex awareness in young children. This test was designed as a clinical diagnostic device, and requires the child to tell a story about a house, a tree, and a person, and then discuss the sex and characteristics of the person. Using this technique, Jolles found that children can differentiate between the sexes on the basis of physical and behavioral characteristics, and this ability increases with age.

Several researchers (Brown and Tolor, 1957; Swenson, 1955) have modified Machover's (1949, 1953) Draw-A-Person test for use in measuring children's awareness of sex differences. Swenson and Newton (1955), for instance, developed a nine point scale for evaluating children's drawings, based on the sex differentiation of hair, clothes, and facial features. Studies using this technique (Biller, 1968; Haworth and Normington, 1961; Rabin and Limuaco, 1959; Swenson and Newton, 1955) have reported an increase in ability to differentiate between the sexes as children grow older. In addition, Haworth and Normington (1961) reported that girls differentiate more between the sexes than boys.

Another approach to assessing children's sex role preferences has been the use of structured interviews and questionnaires. Several studies (Hartley and Hardesty, 1964; James, 1967; Landreth, 1963; Tasch, 1952) have employed questionnaires to measure children's perceptions of differences in their parent's roles. Landreth (1963), for example, presented children with drawings of a same-sexed child in a variety of family situations including (1) taking a bath, (2) eating dinner, (3) going to bed, (4) working a puzzle, (5) playing with a dog, and (6) reading a book. While viewing the pictures, the child was asked which parent would participate with the child in the activity. The results showed that children were aware of traditional sex role distinctions in the home. Fathers, for instance, were chosen to participate in intellectual and athletic activities, such as reading, puzzle play, and playing with the dog. Mothers, on the other hand, were chosen to participate in domestic and child care activities such as dinner, going to bed, and taking a bath.

Hartley (1960) has devised an interesting interview technique to measure the child's awareness of sex roles, in which the child is asked:

Suppose you met a person from Mars who knew nothing about the way we live here, and that person asks you to tell him about boys (girls) in this world. What would you say boys (girls) need to be able to know and do?

Using this approach, Hartley found that young children are aware of traditional sex role differences.

A more direct approach to measuring sex role discrimination has been used by Kellogg (1969). He gave ten-year-old children a typed list of common school objects and asked them to mark whether or not they were suitable for boys or girls. He found that most school objects, such as books, a blackboard, and a desk, are considered to be more feminine than masculine by elementary school children.

Finally, several researchers (Hartup and Zook, 1960; Reed and Asbjornson, 1968; Schell and Silber, 1968; Sugawara, 1971) have used modifications of Brown's (1956a,b) ITSC to measure sex role discrimination. To measure sex role discrimination with the ITSC, the ambiguous It figure has simply been designated as being either male or female. Hartup and Zook (1960) and Schell and Silber (1968) called the It figure either a "little boy," or a "little girl." Reed and Asbjornson (1968) and Sugawara (1971) replaced the It figure with a clear drawing of a child of either sex. The results of these studies have indicated that both boys and girls are equally aware of their own sex role, and their awareness increases with age. However, while both boys and girls increase in their ability to make opposite sex role discriminations with age, some studies (Reed and Asbjornson, 1968; Sugawara, 1971) have reported that girls are better than boys

at this task. In other words, girls choose more masculine items for the male figure, than boys choose feminine items for the girl figure. This has been interpreted to mean that girls are more aware of their opposite sex role than boys are.

Summary

Boys and girls demonstrate definite sex role preferences by age three, however, significant age and sex differences exist. Findings with the ITSC have shown that boys prefer the masculine role more than girls prefer the feminine role, and are less variable in their responses. While boys consistently increase in their preference for the masculine role with age, girls reach a peak in feminine preference at about four years of age and then maintain that level or tend toward more masculine preferences until early adolescence. Both sexes increase in their ability to make own and opposite sex role discriminations with age, however, girls have been found to be better than boys at making opposite sex role discriminations.

Theoretical Interpretations

Several theories have been used to explain age and sex differences in children's learning of sex roles, including social learning theory (Mischel, 1966, 1970; Mussen, 1969; Sears, 1965), psychoanalytic theory (Freud, 1924; Parsons and Bales, 1955), and cognitive-developmental theory (Kohlberg, 1966; Kohlberg and Zigler, 1967).

According to social learning theory (Mischel, 1966; 1970; Mussen, 1969; Sears, 1965), children learn sex roles through observation, re-

inforcement, and modeling. Hence, the child, through observing peers, parents, and other adults, as well as through the mass media, learns to associate certain characteristics with one sex or the other. In addition, through modeling (usually of the same-sexed parent) and being differentially rewarded and punished for certain behaviors, children are shaped toward the behaviors and qualities deemed appropriate for their sex.

Alternatively, cognitive-developmental theory emphasizes the development of the child's own concept of sex categories and how he or she fits into them. According to Kohlberg (1966), the young child develops a concept of "we males," or "we females," which is critical to the learning of behaviors and preferences associated with one of these sex groups. The young boy, for example, will find it rewarding to adopt some of the characteristics of his father because he sees himself as being in the same sex category as his father. In other words, the cognitive-developmental view emphasizes the process of "self-socialization," whereby the child's own understanding of sex categories is critical to the learning of sex roles.

These theoretical approaches can account for the general learning of sex differences and preferences, but the major problem has been to explain reported sex differences in sex role discrimination and preference. Psychoanalytic explanations postulate that the sexes differ fundamentally in their ability to resolve the conflict caused by early sexual attraction to the opposite-sexed parent. According to Freud (1924), boys actively resolve the Oedipus complex due to a strong castration fear which leads to identification with their fathers. Identi-

fication is taken here to mean the perception of similarity with another person that leads to a process of adopting some of the characteristics of that person (Kagan, 1964). Since boys develop a strong identification with their fathers, motivated by castration fear, they adopt masculine behaviors and demonstrate masculine sex role preferences.

Girls; on the other hand, undergo a more passive resolution of their initial sexual attraction to their fathers and, therefore, do not identify with their mothers as strongly. Furthermore, in Freudian terms, a girl's eventual resolution of the Oedipus complex is motivated by fear of loss of her mother's love, which is seen as a less potent motive than castration fear. Consequently, girls would be expected to show a more ambivalent identification with their mothers and, therefore, demonstrate less feminine stereotyped behaviors and preferences.

Parsons and Bales (1955) have extended the Freudian concept of identification into a sociological frame of reference, by postulating that the child's identification with the parent is based upon a reciprocal role relationship between the parent and the child. From this point of view, the child first identifies with the instrumental role of the mother in the early mother-child relationship. Later, the child sees the father as the instrumental leader in the wider family system and identifies with his more powerful role. Hence, while Freud emphasized identification with the parent, Parsons and Bales emphasized the identification with the parent's social role along an instrumental-expressive continuum. Ultimately, however, the Parsonian theory

describes the process of early sex role learning in terms of general social learning theory, emphasizing differential reinforcement. (Parsons and Bales, 1955).

Another, more common, explanation of sex differences in sex role learning has involved socio-cultural factors. (Hartup, Moore, and Sager, 1963; Brown, 1956b; DeLucia, 1963; Kagan, 1964; Lynn, 1964). From this approach, boys develop preferences for their own sex role earlier than girls, because of the greater prestige, power, clarity, and attractiveness of the masculine role in our culture. Furthermore, boys are more likely than girls to be punished for adopting characteristics of their opposite sex role. Conversely, girls prefer the masculine role and are more aware of the masculine role than boys are aware of the feminine role because of the cultural emphasis on masculinity. Furthermore, girls are less likely to be restricted in adopting opposite sex role behaviors. In other words, people accept the young girl who is a tomboy, but respond negatively to an effeminate boy. Boys, therefore, appear to be forced into the masculine sex role at an early age, while girls have more freedom to experiment with the roles of both sexes.

Inadequacies of Previous Research

The purpose of this section of the review of literature is to summarize the major criticisms of previous research on sex role learning in young children. The first part of this section deals with inadequacies of the concepts of sex role preference and sex role discrimination, and the second part deals with problems in measurement tech-

niques used to assess these two aspects of early sex role learning.

Conceptual Inadequacies

One of the major criticisms of the concepts of sex role preference and sex role discrimination has been the inadequate delineation of their relationship (Schell and Silber, 1968). The concepts of preference and discrimination describe two broad categories of behavior involving motivation and perception, respectively. The concept of preference is concerned with motives or decision making dispositions which are inferred from actual choices or decisions (Davidson, Suppes, and Siegel, 1957). This inference is based upon the assumption that if the individual is faced with similar alternatives in the future, the individual will make similar choices. Furthermore, the concept of preference implies a relation, namely, a probability relation between behavioral acts or choices, and the outcome of those acts (Irwin, 1958). The term outcome is taken here to mean any change in the individual or his relationship to the environment that occurs as the result of the behavioral act (Irwin, 1958). Since preference is a probability relation, it cannot be inferred from a single act or choice, but depends upon a series of choices between alternatives that have related outcomes.

Discrimination is a perceptual concept devoid of preferential judgements, and is also a relation inferred from choices. Discrimination is distinct from preference in that it involves the relation between choices and the stimuli that are associated with those choices. Hence, preference involves the relation between choices and their out-

comes, discrimination involves a relation between choices and their associated stimuli. This again implies that discrimination cannot be inferred from a single choice, but depends upon analysis of several choices between stimulus sets that differ in one consistent dimension. In modifying the ITSC to measure sex role discrimination, for example, the discrimination score depends upon the relationship between all of the child's choices and the masculinity-femininity dimension of the stimulus sets.

While preference and discrimination both involve probability relations inferred from choices, Schell and Silber (1968) have pointed out that the concept of preference is dependent upon the assumption that the stimuli can be perfectly discriminated. If a subject cannot make such discriminations, or even if he can, his choices might be based upon some other stimulus dimension. In the ITSC, therefore, the interpretation of the child's choices as a measure of sex role preference may be misleading, since the child might not be able to perfectly discriminate between the stimuli on the basis of sex role stereotypes. This situation would be particularly critical if the child chose an item he regarded as sex-appropriate, when it was stereotyped as being appropriate for the child's opposite sex. This would result in an appropriate choice on the part of the child being scored as an inappropriate choice. The concept of sex role preference alone, therefore, cannot account for individual differences in the child's ability to discriminate between sex-typed items.

Methodological Inadequacies

The measurement techniques that have been used to assess sex role preference and sex role discrimination in young children have been criticized on several grounds. A major criticism has involved the degree to which these techniques can cover the broad range of sex roles. Assessment based on occupational interests (Looft, 1971), children's games (Rosenberg and Sutton-Smith, 1959, 1960), or human figure drawings alone (Jolles, 1952; Weider and Noller, 1950; Swenson, 1955) do not appear to cover the diversity of masculine and feminine sex role standards. Picture preference techniques, on the other hand, appear to offer more potential for representation of a wide range of objects, activities, and roles, associated with either sex.

Despite this advantage, picture choice techniques, particularly Brown's (1956a,b) ITSC, have been widely criticized. The major criticisms of the ITSC have focused in three areas, including (1) the selection and quality of the items, (2) the use of the ambiguous IT figure, and (3) the scoring procedures.

Some researchers (Schell and Silber, 1968; Sugawara, 1971) have maintained that the ITSC items are not a representative sample of masculine and feminine sex roles. Most of the items, for example, depict children's play activities and toys, with little representation of adult roles. Furthermore, five of the eight masculine toys are wheeled objects, while half of the feminine toys involve dolls. In addition, the masculine items appear to be drawn with more clarity and detail than the feminine items. Some of the items are also often not recognized by children, such as the bathinette and the model airplane parts. Finally, the masculine items are often enclosed in straight line borders

while the feminine items are enclosed in curved lines. This difference alone may be the basis of a systematic bias in the ITSC scores (Frank and Rosen, 1949).

In addition to criticisms aimed at the ITSC contents, several researchers have challenged the validity of Brown's (1956b) assumption that the It figure is ambiguous with regard to sex. As mentioned earlier, Brown included the It figure as a projective device to avoid socially desirable responses which are common to the direct choice technique. Several studies, however, have shown that the It figure appears more masculine than feminine to young children (Brown, 1962; Duryea, 1967; Hall and Keith, 1964; Hartup and Zook, 1960; Kohlberg and Zigler, 1961; Lansky and McKay, 1963; Lefkowitz, 1962; Sher and Lansky, 1968).

Lansky and McKay (1963), for example, administered the ITSC to five-year-old children with the It figure concealed in an envelope. They found that girls made significantly more feminine choices than boys made masculine choices, a finding that is contradictory to previous research. They interpreted these results to mean that masculine cues in the It figure were responsible for more masculine responses in both boys and girls. Hence, when the It figure was removed, both boys and girls made more feminine choices.

Several other studies, however, have supported Brown's original assumption that the It figure is sexually ambiguous (DeLucia, 1963; Endsley, 1967; Handy, 1954; Hogan, 1954; Lowe, 1957; Schell and Silber, 1968). Endsley (1968), for instance, replicated Lansky and McKay's (1963) study using a "between subjects" design and found boys to be

more masculine than girls were feminine. On the basis of these findings, he reasoned that the It figure was sexually ambiguous to young children. Despite these research studies, the controversy regarding the ambiguity of the It figure remains unresolved, and is currently one of the major criticisms of the ITSC (Brown, 1962).

The third area of criticism of the ITSC has been the scoring procedures. A major concern has been the Four Child-Figures Section, where one choice is worth a total of 12 points. Hence, one choice in this section may be worth more than the eight choices made in the Toy Pictures Section where one point is given for each masculine choice. This arbitrarily weighted scoring technique, therefore, allows for interactions between the scores in the various sections. The ITSC scoring procedures have also been criticized for their inability to be able to account for the order of the child's choices where more than one choice is made per stimulus set. Logically, it is expected that the order of the child's choices would contain valuable information concerning the child's relative preferences for the items, and this information is lost in scoring children's responses in the ITSC.

Summary

The major conceptual inadequacy in sex role research on young children has been the inadequate delineation of the relationship between sex role preference and sex role discrimination. Both concepts involve probability relations inferred from choices, but the concept of preference depends upon the assumption that the stimuli are perfectly discriminated. Hence, new conceptual formulations are required

in order to account for individual variations in the ability to discriminate between sex-typed stimuli.

Methodologically, picture preference techniques appear to offer the most potential for sampling the diversity of masculine and feminine sex roles. However, picture preference measures, in particular the ITSC, have been widely criticized. Optimally, the goals for a new picture choice measure of sex role learning would include (1) adequate and justified content validity, (2) a representative range of sex-typed activities, roles, and objects, (3) consistent items quality, (4) reduced social desirability effects, and (5) scoring procedures that account for the order of choices.

Development of the Sex Role Learning Index

The goal of the development of the Sex Role Learning Index (SERLI) has been to overcome the major conceptual and methodological inadequacies of previous sex role measures used with young children. As such, the SERLI was developed as a measure of sex role preference and sex role discrimination, as well as to be able to account for individual differences in the child's ability to discriminate between the test stimuli on the basis of masculinity-femininity. To fulfill the latter purpose, the concept of sex role confirmation was defined. Sex role confirmation is analogous to the concept of sex role preference, however, sex role preference is based on the assumption of perfect discrimination, while sex role confirmation is not.

The purpose of this section of the review of literature is to (1) describe the conceptual framework of the SERLI, defining the concepts

of sex role designation, sex role discrimination, sex role preference, and sex role confirmation and delineating how these concepts are operationalized in the SERLI, and (2) describe the contents, format, and administration and scoring procedures of the SERLI.

Conceptual Framework

The SERLI is based on four main concepts - sex role designation, discrimination, preference and confirmation. In the SERLI, the concepts of sex role discrimination and preference are identical to those defined in previous research. The concept of sex role designation is used to distinguish between discrete behavioral acts (choices) and the probabilities relating those choices to their associated stimuli or outcomes. The concept of sex role confirmation has been introduced to be able to account for the relationship between sex role preference and sex role discrimination discussed by Schell and Silber (1968).

Sex Role Designation. A sex role designation is simply an act of placing an aspect of reality on a masculinity-femininity continuum. This concept is necessary in order to distinguish between the behavioral acts themselves, and the relations between the acts and their associated outcomes and stimuli. In the SERLI, a sex role designation is operationally defined as the child's determination of whether a drawing of an object (e.g. hammer, broom) is either for boys, girls, or both boys and girls. Hence, the child "designates" or classifies the object as being either masculine, feminine, or neutral.

Sex Role Discrimination. Sex role discrimination is the child's

awareness or knowledge of the characteristics culturally defined as being either masculine or feminine (Weider and Noller, 1950; Thompson and McCandless, 1970). In the SERLI, sex role discrimination involves the relation between the child's sex role designations and the culturally defined masculinity-femininity dimension of the stimuli associated with those designations. Specifically, sex role discrimination is operationally defined in the SERLI as the degree to which the child's sex role designations of selected objects agree with the cultural sex role stereotypes of those objects. Agreement is measured as the percent agreement between the child's sex role designations and cultural sex role stereotypes. In calculating this agreement score, it is assumed that the more aware the child is of cultural sex role stereotypes, the more the child's sex role designations will agree with cultural sex role stereotypes.

In addition, the set of objects used to measure sex role discrimination can be divided into masculine and feminine stereotyped items. Hence, a child's sex role discrimination score may apply to all of the items, or the subset of items stereotyped as being appropriate for either the child's own or opposite sex. A boy's awareness of the masculine role would be reflected by his "own sex role discrimination" score, while his awareness of the feminine role would be reflected by his "opposite sex role discrimination" score, and vice versa for girls. In the SERLI, cultural stereotypes of the items have been determined by previous research on other instruments, and by pilot studies (Edelbrock et al, 1974; Edelbrock, 1975). These studies are discussed further in the following section on "Content."

Sex Role Preference. Sex role preference is the desire to adhere

to culturally defined prescriptions and proscriptions of masculine and feminine sex roles (Brown, 1956b; Biller and Borstelmann, 1967). As a motivational concept, sex role preference involves the relation between choices and the outcomes of the choices. In the SERLI, choices are made between drawings of sex stereotyped activities and roles. The outcome of the choices is considered to be involved in the child's expectation and satisfaction of choosing an item.

Sex role preference is operationally defined in the SERLI as the degree to which the child chooses drawings of activities and roles that are culturally defined as being appropriate for the child's sex. The measurement of this agreement is based on the order of the child's choices of sex-appropriate items, as compared to a probability distribution characterizing random choices. It is assumed that the more the child prefers one sex role, the more likely the child will choose the activities and roles associated with that role. Furthermore, it is assumed that the child will choose the items related to the preferred sex role before choosing items related to the other sex role. For purposes of scoring, it is assumed that the child's dominant preference is for his or her own sex role. Hence, a boy's sex role preference score reflects his preference for the masculine role, and an increasing score represents an increase in masculine preference. Likewise, a girl's score reflects her preference for the feminine sex role.

Sex Role Confirmation. Sex role confirmation is the desire to adhere to one's own perceptions of masculine and feminine sex roles. As in the case of preference, confirmation is a motivational concept involving the relationship between choices and outcomes. In the SERLI,

sex role confirmation is operationally defined as the degree to which the child chooses drawings of selected activities and roles that the child has designated as being appropriate for his or her own sex. Measurement is based on the order of choices of the items that the child has designated as being appropriate for his or her own sex. It is assumed that the more the child prefers to adhere to his or her own sex role designations of the items, the more likely the child will choose the items the child designated as being sex-appropriate. It is also assumed that the child will choose items associated with preferred designations, before choosing those items associated with the other designation. Again, for the purpose of scoring it is assumed that the dominant preference is for the items that the child has designated as being sex-appropriate. Hence, a girl's sex role confirmation score measures her preference for the feminine role as she perceives it, while a boy's score would measure his preference for the masculine role as he perceives it.

Description of the SERLI

As a measure of cognitive aspects of early sex role learning, the goals of the development of the SERLI have been to establish (1) adequate and justified content validity, (2) a representative sample of items, (3) consistent item quality, (4) minimal social desirability biases, and (5) scoring procedures that account for the order of choices.

The purpose of this section of the review of literature is to describe the content, format, and administration and scoring procedures of the SERLI, delineating how the above goals have been met.

Content. The SERLI consists of 60 black-and-white line drawings, organized into five sections. The Adult Figures sections include ten adult activities and roles, with one section depicting male adult figures, and one section depicting female adult figures. The Child Figures sections include ten children's activities, with one section depicting male children, and the other depicting female children. Finally, the Objects section includes 20 objects that are associated with the activities shown in the Adult and Child Figures sections. The items include:

Adult Activities

<u>Masculine</u>		<u>Feminine</u>	
<u>Activity</u>	<u>Object</u>	<u>Activity</u>	<u>Object</u>
Sawing	Saw	Serving juice	Pitcher
Policeman	Badge	Feeding baby	Bottle
Fire fighter	Firehat	Teacher	Desk
Soldier	Rifle	Combing hair	Brush
Doctor	Stethoscope	Making pie	Apples

Child Activities

<u>Activity</u>	<u>Object</u>	<u>Activity</u>	<u>Object</u>
Hammering	Hammer/nails	Ironing	Iron
Digging	Shovel	Sweeping	Broom
Car play	Car	Cooking	Stove
Boxing	Boxing gloves	Dishwashing	Dishes
Baseball	Bat and ball	Sewing	Needles

These items were chosen on the basis of previous research on sex role learning in young children, involving the measures developed by Benjamin (1932), DeLucia (1963), Fauls and Smith (1956), Foster (1930), Hartley and Hardesty (1964), Honzik (1951), Rabban (1950), Rosenberg

and Sutton-Smith (1959), Terman and Miles (1936), and Ward (1968).

In addition, the content validity of most of the items in the present form of the SERLI has been established in a previous pilot study (Edelbrock, 1975). In this study, a sample of 21 boys and 24 girls, aged 41 to 72 months were administered a preliminary form of the SERLI. All of the items tested were highly sex stereotyped by this sample of preschool children ($Z > 3.13$, $p < .01$). Furthermore, boys showed the highest preference for the fire fighter, digging, soldier, car play, boxing and sawing items, while girls display little preference for these items. Conversely, girls highly preferred the sweeping, hairbrushing, cooking, ironing, and pie making items, while boys showed very little preference for these items. Significant developmental trends were also noted in these data, with older children making more stereotyped sex role discriminations and more sex appropriate preferences than young children.

Four of the item pairs included in the SERLI were not tested in this preliminary pilot study. These items were (1) dishwashing, (2) feeding the baby, (3) teacher, and (4) doctor. Several studies, however, suggest that these items will be highly sex stereotyped by young children, and will differentiate between the preferences of boys and girls (Brown, 1956b; DeLucia, 1963; Honzik, 1951; Kagan, 1964).

Format. The SERLI items include 60 black-and-white line drawings measuring $3\frac{1}{2}$ by 4 inches, which are mounted on poster board cards and covered with clear plastic. In drawing the items the artist attempted to control for size, scale, detail, complexity, and shading. The items are divided into five main sections including the (1) Male Adult Figures section, (2) Female Adult Figures section, (3) Male Child Fig-

ures section, (4) Female Child Figures section, and (5) Object section. Each of the first four sections contains ten items which are spaced $\frac{1}{2}$ inch apart in three rows on a $16\frac{1}{2}$ by 14 inch white poster board sheet. The top and bottom rows contain three items each, centered and spaced $\frac{1}{2}$ inch from the top and bottom of the sheet, respectively. The middle row contains four items, centered and spaced $\frac{1}{2}$ inch from the top and bottom rows and from the sides of the sheet. The positions of the items on the sheet were determined randomly. The object items are individually mounted on $3\frac{1}{2}$ by 4 inch poster board cards and covered with plastic.

Administration. The SERLI is administered by a trained experimenter seated across a table from the subject. To begin testing, the experimenter tells the child, "I am going to show you some pictures, and I want you to tell me if they are for boys, girls, or both boys and girls." The experimenter then places three boxes, measuring six inches square, with a slot in the top, in a row on the table. The child is told that the box on his left is for boys things, the box on his right is for girls things, and the box in the middle is for things that are for both boys and girls. The boxes are pointed to and labeled several times until the child understands.

Next, the child is shown each item in the Object section, individually, in a standardized random order. The experimenter says, "Here is a picture of a(n) (item name) . Who would use a(n) (item name) to (activity name) , boys, girls, or both boys and girls? The specific item and activity names are listed in Appendix A. The order of the three alternatives is alternated randomly. After

responding verbally to the question, the child is given the object card and is instructed to place it in the correct box. This procedure is repeated until all of the objects have been sorted into the three boxes.

Following the sorting of the object items and the recording of the responses on a scoring sheet, the items placed in the box for "both boys and girls" are removed and the child is asked to sort them into either the boys' box or girls' box. The experimenter says, "These items are for both boys and girls, but who would use a(n) (item name) to (activity name) more, boys or girls? Again, the alternatives are alternated randomly, and the responses are recorded on a scoring sheet.

After completing the Object section, the child is shown the Child Figures section, with the figures that correspond to the sex of the child. Hence, girls see only female figures, while boys see only male figures participating in the activities. This is thought to reduce social desirability biases that may be caused by the presence of an adult experimenter. To administer this section, the experimenter first points to and names each activity, from top left to bottom right of the board, and then asks the child, "If you could do any one of these things, which one would you like to do best?" Verbal responses are clarified by pointing, and the experimenter can encourage the child to choose by saying, "Can you point to one?", or "Point to the one that you would like to do best." The child's choice is removed from the board, and the procedure is repeated, asking which one the child would like to do next, until all of the items have been removed. The order

of the child's choices are recorded on a scoring sheet.

Following the administration of the Child Figures section, the Adult Figures section is administered, using the section that corresponds to the sex of the child. The procedure is the same as the Child Figures section, except that the child is asked, "Which one of these would you like to do or be when you grow up?" Again, the order of the child's choices are recorded on a scoring sheet.

Scoring. In the SERLI sex role discrimination is scored as percent agreement between the child's sex role designations of the SERLI objects and the cultural sex role stereotypes of those objects. Hence, if a child designated a hammer, which is culturally defined as being masculine, as being "for boys," the child's score would increase. A child's own sex role discrimination score refers only to those items culturally defined as being appropriate for the child's sex. Opposite sex role discrimination, on the other hand, refers to the score regarding those objects culturally defined as being appropriate for the sex opposite that of the child.

The scoring of sex role preference is based upon the order in which the child chooses those items in a SERLI section that are culturally defined as being appropriate for the child's sex. Each time the child chooses a sex-appropriate item, the child receives a score inversely proportional to the probability of choosing an item from the subset of sex-appropriate items on the board. Hence, starting with five of the ten items defined as being sex-appropriate, the probability of choosing a sex-appropriate item on the first choice is .50. If the child's first choice was sex-appropriate, then the child would

would receive .50 points. A sex-inappropriate choice always receives zero points. For the child's second choice, the probability of choosing a sex-appropriate item would be either .555 or .444, depending upon whether the first choice was inappropriate or appropriate, respectively. Hence, the child would receive .555 points if the second choice was sex-appropriate, and so on until all of the sex-appropriate items had been chosen. A matrix representing all possible orders of choices of five sex-appropriate items from a set of ten items, and the probabilities of the sex-appropriate choices, is shown in Figure 1.

The sum of the probabilities of the sex-appropriate choices equals the raw score, which ranges from 2.781 to 5.000. Since increasing scores represent a decreasing preference for the sex-appropriate items, the raw scores are reflected by subtracting 5.000, yielding a distribution of reflected scores that ranges from zero to 2.219, corresponding to low and high preference, respectively. The reflected scores are then converted into standard scores by the formula:

$$\text{Standard Score} = 100 + 10 \frac{(X_{RS} - \bar{X}_{RS})}{\sigma_{RS}}$$

where X_{RS} represents a raw score, \bar{X}_{RS} represents the mean of the raw score distribution, and σ_{RS} represents the standard deviation of the raw score distribution.

The distribution of standard scores has a mean of 100 and a standard deviation of 10. Furthermore, an increase in standard scores represents an increase in preference for sex-appropriate items. In other words, an increase in a boy's sex role preference score represents an increase in his preference for the masculine role, as defined by the

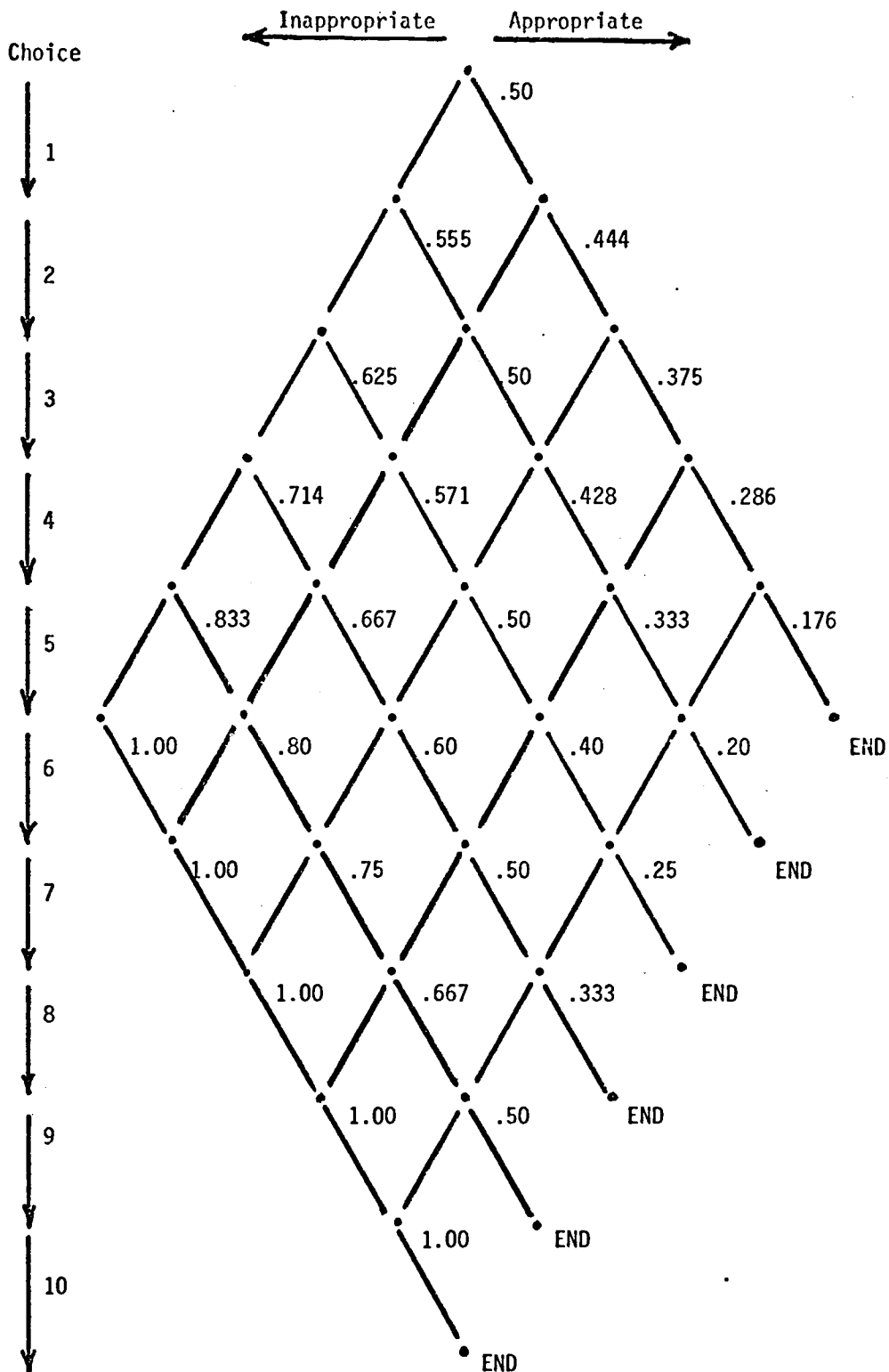


Figure 1. A Schematic representation of all possible orders of choices of five sex-appropriate items. The probabilities of appropriate choices, which are used in scoring, are shown.

culture.

This scoring technique is very sensitive to the order of the choices made by the subject. For example, there are 30 possible ways to choose five sex-appropriate items from a set of ten, in eight attempts. Scoring techniques that do not account for the order of choices would assign the same score to all of these possibilities, although they signify different degrees of preference for the sex-appropriate items. A child who made inappropriate choices on his first, second, and third responses, for instance, would typically be given the same score as the child who missed his first, second and seventh choices, even though the second child had demonstrated a higher preference for the sex-appropriate items. Using the scoring technique outlined above, the first child would receive a score of 103.0, while the second child would be correctly assigned a higher score of 108.5. Furthermore, the difference between these scores represents a meaningful difference in the degree to which the children's choices departed from a pattern of choices that would be expected of purely random choosing.

The scoring of sex role confirmation is also based upon the order of the child's choices of sex-appropriate items. However, in this case the child, rather than the culture, has designated which items are appropriate for the child's sex. Other than this, the scoring of sex role preference and sex role confirmation are identical. The choice of individually designated sex-appropriate items receives a score equal to the probability of choosing a sex-appropriate item from the subset of those items designated as being sex-appropriate by the child. Again, the distribution of raw scores is reflected and converted into standard scores with a mean of 100 and a standard deviation of 10. The conver-

sion to standard scores allows for comparisons of sex role confirmation scores regardless of the number of items the child designates as being sex-appropriate. Furthermore, the standard scores allow for the direct comparison of sex role preference and sex role confirmation scores.

Summary

As a measure of early sex role learning, the SERLI was designed to overcome many of the conceptual and methodological inadequacies of previous measures. The items were selected on the basis of an extensive review of the contents of previous measures of sex role learning, and were further evaluated and refined in two pilot studies. In drawing the items, the artists also attempted to balance for size, scale, complexity, shading and detail. In order to overcome social desirability biases, without resorting to a projective device, the SERLI was designed so that each child would see only figures of his or her own sex, engaged in a wide range of both sex-appropriate and sex-inappropriate activities. Furthermore, the SERLI scoring technique accounts for the order of choices, and offers a sensitive measure of the degree to which the child's choices deviate from a theoretical distribution of scores representing purely random choosing.

At the conceptual level, the SERLI distinguishes between discrete behavioral choices and the probability relations regarding these choices, through the concept of sex role designation. Moreover, the SERLI was designed to measure a new concept, sex role confirmation, which accounts for individual differences in the ability to discriminate between the test stimuli on the basis of culturally defined masculinity-femininity.

CHAPTER III

METHODS

Subjects

Twenty-eight boys and 28 girls, ranging in age from 38 to 64 months (average age = 53.2 months) served as subjects for this study. Of this sample, 49 children were obtained from the three preschools operated by the Family Life Department at Oregon State University. The other seven children (three boys and four girls) were obtained from the Treehouse Learning Center, a privately operated day care facility. All of the subjects were Caucasian and from intact families.

For purposes of analysis, the sample was broken down into equal size groups on the basis of sex, age, and sex of experimenter. Table 1 summarizes the sizes and average ages of these groups.

Two control criteria were also imposed on this sample, including intelligence, as measured by the Peabody Picture Vocabulary Test (PPVT) (Dunn, 1965), and socioeconomic class, as measured by Hollingshead's "Two Factor Index of Social Position," (Hollingshead, 1957). The PPVT was chosen because of its established validity and reliability with preschool aged children, as well as its simple administration and scoring procedures. All of the subjects scored in the average range or above on the PPVT IQ scale. The scores ranged from 92 to 132, with an overall average of 117.9 (s.d. = 9.1). The average IQ of the girls was 118 (s.d. = 8.6), and the average IQ of the boys was 117.8 (s.d. = 9.7). The distribution of IQ scores, according to the ranges and classifications used by Dunn (1965) is shown in Table 2.

Table 1. Description of the Total Sample by Sex and Age Classifications, and by Sex, Age, and Sex of Experimenter Classifications.

Classification	N	Average age (mo.)
Sex x Age		
Older Boys	14	59.7
Younger Boys	14	47.9
Older Girls	14	58.1
Younger Girls	14	46.5
Sex x Age x Sex of Experimenter		
Male Experimenter		
Older Boys	7	59.7
Younger Boys	7	47.9
Older Girls	7	59.0
Younger Girls	7	46.3
Female Experimenter		
Older Boys	7	59.7
Younger Boys	7	47.9
Older Girls	7	57.2
Younger Girls	7	46.7

Table 2. Description of the Sample by IQ Score Ranges and Classifications.

IQ Score	N	Classification
above 125	16	Very Rapid Learners
110 - 124	32	Rapid Learners
90 - 109	8	Average Learners
75 - 89	0	Slow Learners
below 75	0	Very Slow Learners
Total	56	

For this study, the socioeconomic classes of the children's families were determined by Hollingshead's "Two Factor Index of Social Position," (Hollingshead, 1957). In this index, education and occupation of the father are given scale scores ranging from one to seven, and are multiplied by factor weights of four and seven, respectively. The sum of these products yields a raw score distribution which ranges from 11 to 77, corresponding to a range of five categories from upper to lower class, respectively. The distribution of socioeconomic class scores, according to these categories, is shown in Table 3.

Table 3. Description of the Sample by Socioeconomic Class Categories.

Category	N
I Upper	20
II Upper-Middle	26
III Middle	10
IV Lower-Middle	0
V Lower	0
Total	56

Finally, a subsample of 36 children (18 boys and 18 girls) was selected from the total sample and used to estimate the test-retest reliabilities of the SERLI scales. This subsample was also broken down by sex and age for purposes of analysis. The sizes and average ages for each of these groups is shown in Table 4.

Table 4. Description of the Reliability Subsample by Age.

Classification	N	Average age (mo.)
Boys		
Older	9	58.6
Younger	9	49.1
Girls		
Older	9	59.0
Younger	9	45.9
Total	36	

Approximately half of the boys and half of the girls in this subsample were tested by a male experimenter, and the rest were tested by female experimenters. The average IQ for the boys in this subsample was 119.5 (s.d. = 8.6), and the average IQ for the girls was 118.3 (s.d. = 9.3). The subjects in this subsample also came predominantly from the upper two socioeconomic class categories (Hollingshead, 1957).

Instruments

Two instruments were used to collect data for this study, including the Sex Role Learning Index (SERLI), and the Peabody Picture Vocabulary Test (PPVT) (Dunn, 1965).

The Sex Role Learning Index (SERLI)

The Sex Role Learning Index (SERLI) was used in this study to measure sex role discrimination, sex role preference and sex role confirmation in each of the subjects. The contents, format, and administration and scoring procedures of the SERLI are described in detail in the section on "The Development of the SERLI," in the preceeding chapter.

The Peabody Picture Vocabulary Test (PPVT)

The Peabody Picture Vocabulary Test (PPVT), developed by Dunn (1965), was used to measure the intelligence of each subject. The PPVT measures receptive vocabulary through the use of 150 plates of drawings representing words of increasing difficulty. Generally, the child is shown one plate at a time containing four line drawings, and is asked to point to the drawing representing a test word spoken by the experimenter. The subject is required to achieve five correct responses in a row to establish a baseline, and then proceeds until he misses six out of eight attempts. The ceiling item minus the number of errors equals the raw score, which can be converted into mental age or IQ estimates. Alternate form test-retest reliabilites for preschool aged children have ranged from .72 to .81 (Dunn, 1965). In addition, the PPVT IQ scores correlate highly (.82 to .86) with the 1960 Stanford-Binet Intelligence Scale (Dunn, 1965).

Procedures

Prior to data collection, the subjects were divided into equal size groups on the basis of sex and age. Then half of the subjects in each

group were randomly assigned to be tested by a male experimenter, while the subjects in the other half of each group were randomly assigned to be tested by female experimenters. One male and three female experimenters were trained in the administration of the SERLI and PPVT and then, the week prior to testing, spent a minimum of six hours establishing rapport with the subjects they were assigned to test.

In asking the child to participate in the study, the experimenter said:

" Child's Name , I have a game I brought to play with you, would you like to come with me and play it now?"

Most of the children responded willingly to the first request and were accompanied to the testing room. However, if the child refused due to other involvements in the preschool activities, the experimenter said:

" Okay, maybe we can play later on."

Children who refused the initial request were asked to participate twice more on other days. If they refused both of these requests, they were not included in the study. Two children, one boy and one girl, were not included on this basis, and were replaced by new children who entered the preschools during the data collection period.

All subjects were tested individually in small rooms adjoining the preschools, which were free from distractions. The SERLI was administered and scored according to the directions given in the sections on "Administration," and "Scoring," in the preceding chapter. Testing time was approximately ten minutes. The PPVT was administered and scored according to the directions given in Dunn (1965). Testing times ranged from

ten to 15 minutes.

Generally, only the SERLI was administered during the first (pre-test) session. In the second (posttest) session, the subjects included in the reliability study were given the SERLI, followed by the PPVT. The rest of the subjects were given only the PPVT during the posttest. The test-retest interval for the subjects included in the reliability study was approximately three weeks (average 23.4 days). The original intention was to retest all of the subjects with the SERLI at a three week retesting interval. However, illness and other uncontrollable factors made this schedule impossible for 20 subjects. These children were given only the PPVT during the posttesting session, approximately four to five weeks after the pretest session. An exception to this general testing schedule was the sample of children from the Treehouse Learning Center, who were given both the SERLI and the PPVT during the initial pretesting session (the SERLI being given first). All data were collected between January 14th and March 5th, 1976.

CHAPTER IV

ANALYSIS OF DATA

Introduction

The hypotheses tested in this study regard the adequacy of the SERLI as a measure of cognitive aspects of sex role learning in early childhood. For each scale, the sex and age hypotheses are related to validity of the SERLI, while the sex of experimenter hypotheses deal with evaluating social desirability influences as a potential source of bias in the measurement process. Comparisons between own and opposite discrimination, and between preference and confirmation, were also made, due to the theoretical importance of differences between these concepts. In addition, the Adult and Child Figures sections of the SERLI were compared, in order to determine the sensitivity of the children's responses to this as yet unexplored dimension of the instrument. Finally, the test-retest reliabilities of each of the SERLI scales, by section, were determined.

Hypotheses I through XIV were tested by $2 \times 2 \times 2 \times 2$ (sex of experimenter \times sex \times age \times variable) split-plot analyses of variance (ANOVA). These analyses were designed to estimate the main and interaction effects of the sex of the experimenter, and the sex and age of the child, on two "variable" scores considered conjointly, and then separately. For Hypotheses I through IV, the variable refers to the own and opposite sex role discrimination scores of the subjects. For Hypotheses V through XII, the variable refers to the Adult and Child Figures section scores; analyzed first for preference (Hypotheses V

through VIII), and then for confirmation (Hypotheses IX through XII). For Hypotheses XIII and XIV, the variable refers to the subjects' preference and confirmation scores; analyzed first for the Adult Figures section (Hypothesis XIII), and then for the Child Figures section (Hypothesis XIV).

In the split-plot ANOVA design, the sex and age of the child are treated as a factorial set of treatments (sub-plot), which are randomized on the main sex of experimenter treatment (main plot). The variable scores (split-plot) represent two measures on each of the subjects in the sub-plot groups.

The F-value in the main plot estimates the general effect of the sex of the experimenter on the subjects' scores, regardless of sex or age. A significant F-value here would indicate that the subjects tested by a female experimenter were scoring significantly higher or lower than those tested by a male experimenter. The F-values in the sub-plot estimate the main effects of sex and age, as well as their interactions with the sex of the experimenter, on the variable scores considered conjointly. A significant F-value for the main effect of age, for example, would indicate that younger and older children had significantly different scores on the variable measures. The specific differences could be explored and tested by examination of the appropriate table of means with the Least Significant Difference (LSD) test.

The F-values in the split-plot estimate difference between the two variable scores, as well as the interactions of variable differences with the other experimental treatments. A significant sex x variable interaction, for example, would indicate that boys and girls showed a different pattern of scores on the two variables. Again, specific

differences could be determined through the use of the appropriate table of means and LSD estimates.

The advantage of the split-plot ANOVA is that the experimental error for the sub-plot is typically lower than that of the main plot. Moreover, the experimental error for the split-plot is usually even lower than the error for the sub-plot (Snedecor and Cochran, 1967). Hence, while the overall effect of the sex of the experimenter in the main plot is not estimated with precision, the significance of the main and interaction effects in the sub- and split-plots are tested with successively increasing power.

Two major assumptions are required in the split-plot ANOVA design. First, it is assumed that the split-plot variables are measured on the same scales - an assumption that is implicit in the definition and scoring of the compared SERLI measures. Second, it is necessary to assume that the population variances of the two split-plot measures are equal. This assumption was justified by testing the homogeneity of the variances of the compared measures.

Hypotheses XV through XX were tested by the Pearson product-moment correlation technique. In addition, Hypotheses II through IV were further investigated using regression analysis.

Since this study represents the initial evaluation of a new measurement device, the .10 level of significance was chosen in order to detect trends in the data which can be explored in more detail in further research.

Sex Role Discrimination

There will be no significant differences between the sex role dis-

Table 5. Summary of the Split-Plot ANOVA for Own and Opposite Sex Role Discrimination.

Source of Variation	df	MS	F
Main Plot			
Block	6	147.92	--
Exp	1	89.28	4.35
Error(a)	6	20.54	--
Sub Plot			
Sex	1	32.14	.24
Exp X Sex	1	57.14	.43
Age	1	603.57	4.59**
Exp X Age	1	57.14	.43
Sex X Age	1	128.57	.98
Exp X Sex X Age	1	89.28	.68
Error(b)	36	131.45	--
Split Plot			
Concept	1	357.14	3.75*
Exp X Concept	1	3.57	.04
Sex X Concept	1	32.14	.34
Exp X Sex X Concept	1	14.28	.15
Age X Concept	1	3.57	.04
Exp X Age X Concept	1	228.57	2.40
Sex X Age X Concept	1	.00	.00
Exp X Sex X Age X Concept	1	89.29	.94
Error(c)	48	95.24	--
Total	111		

*p < .10

**p < .05

crimination scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis I)
2. Sex of the child (Hypothesis II)
3. Age of the child (Hypothesis III)
4. Concept - Own vs. Opposite Discrimination (Hypothesis IV)

Hypotheses I through IV were tested by a 2 x 2 x 2 x 2 split-plot ANOVA of the design previously described. Table 5 presents a summary of this ANOVA, where "Exp" refers to the sex of the experimenter, and "Concept" refers to the variables of own and opposite sex role discrimination. The F-values for the effects of age and concept were significant at the .05 and .10 levels, respectively. The mean values and LSD estimates for this ANOVA are shown in Table 6.

Table 6. A Summary of Mean Values and LSD Estimates for Own and Opposite Sex Role Discrimination.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Own	92.86	95.71	94.29	90.71	97.85	94.28
Opposite	88.57	90.71	89.64	88.57	95.00	91.79
Total	90.72	93.21	91.97	89.64	96.43	93.04

LSD_{.01} = 3.74 LSD_{.05} = 2.49 LSD_{.10} = 1.90

(NOTE: The LSD estimates are for sex x age x concept comparisons)

Inspection of Table 6 indicates that older children scored significantly higher than younger children on both own and opposite sex role discrimination, thus accounting for the age effect. In addition, scores for own sex role discrimination were significantly higher than scores for opposite sex role discrimination for both sexes in both age groups, resulting in a significant concept difference.

Due to these significant findings, and because of the importance of sex differences in this area, a further analysis of the sex role discrimination scores was undertaken. The sex x age regression analyses for own and opposite sex role discrimination are summarized in Tables 7 through 10, and are graphically depicted in Figure 2. These tables present the significance tests for the regressions, using a generalized "least squares" ANOVA model. Significant, positive age relationships were found for boys' opposite sex role discrimination, and for girls' own and opposite sex role discrimination scores.

Examination of Figure 2 indicates that the boys' own discrimination scores are already very high by 36 months of age, and do not appreciably increase over the age range of the sample. The opposite discrimination scores of the boys, however, appear quite low at 36 months of age, and increase sharply to converge with the own discrimination score level by 64 months of age. The own and opposite discrimination scores of the girls fall between the boys scores at 36 months, with own discrimination being higher. Both scores increase rapidly and converge at a level higher than that of the boys' by 64 months of age. Hence, these regression analyses support the ANOVA findings regarding sex and concept differences, and further suggest that sex x age x concept interaction exist in the sex role discrimination scores.

Table 7. Analysis of Variance Table for the Regression of Boys' Own Sex Role Discrimination Scores on Age.

Source of Variation	df	SS	MS	F ^a
Total	27	1285.71	47.62	
Regression	1	37.45	37.45	.78
Residual	26	1248.26	48.01	

^a The F-value is not significant.

Table 8. Analysis of Variance Table for the Regression of Boys' Opposite Sex Role Discrimination Scores on Age.

Source of Variation	df	SS	MS	F
Total	27	5296.43	196.16	
Regression	1	602.46	602.46	3.34*
Residual	26	4693.97	180.54	

* $p < .10$

Table 9. Analysis of Variance Table for the Regression of Girls' Own Sex Role Discrimination Scores on Age.

Source of Variation	df	SS	MS	F
Total	27	1496.43	55.42	
Regression	1	280.85	280.85	6.01**
Residual	26	1215.58	46.75	

** $p < .05$

Table 10. Analysis of Variance Table for the Regression of Girls' Opposite Sex Role Discrimination Scores on Age.

Source of Variation	df	SS	MS	F
Total	27	3171.43	117.46	
Regression	1	531.98	531.98	5.24**
Residual	26	2639.45	101.52	

** $p < .05$

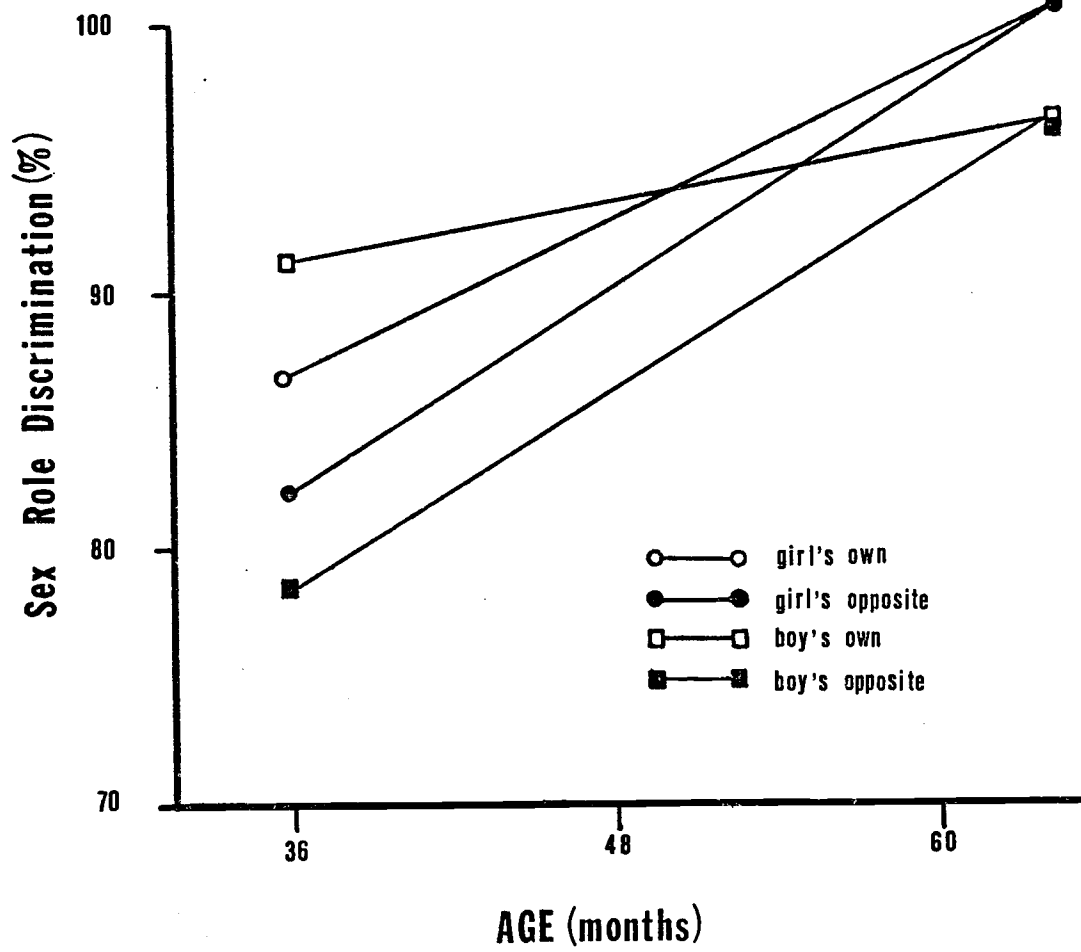


Figure 2. The Regression of Boys' and Girls' Own and Opposite Sex Role Discrimination Scores on Chronological Age.

Summary. Hypothesis 1, regarding the effects of the sex of the experimenter on the sex role discrimination scores, must be accepted, since the main and interaction effects of the sex of the experimenter were not significant. While the ANOVA did not reveal significant sex differences in the sex role discrimination scores, the more powerful regression analysis suggested that there were significant sex x age x concept interactions. Hence, Hypothesis 2, dealing with sex differences, was rejected. Furthermore, on the basis of both the ANOVA and regression findings, Hypotheses III and IV, regarding age and concept differences, were also rejected.

Sex Role Preference

There will be no significant differences between the sex role preference scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis V)
2. Sex of the child (Hypothesis VI)
3. Age of the child (Hypothesis VII)
4. Section of the SERLI - Adult vs. Child Figures
(Hypothesis VIII)

Hypotheses V through VIII were tested by the split-plot ANOVA shown in Table 11, where "Section" refers to the comparison of the subjects' preferences scores in the Adult and Child Figures sections of the SERLI. Only one significant F-value was found, indicating a significant sex x section interaction. Inspection of Table 12 shows that boys scored higher than girls in the Child section but not in the Adult section. Furthermore, while boys had higher scores in the Child Figures section

Table 11. Summary of the Split-Plot ANOVA for Sex Role Preference, for the Adult and Child Figures Sections of the SERLI.

Source of Variation	df	MS	F
Main Plot			
Block	6	80.28	--
Exp	1	26.42	.43
Error(a)	6	61.56	--
Sub Plot			
Sex	1	169.54	2.27
Exp X Sex	1	22.50	.30
Age	1	54.88	.73
Exp X Age	1	2.77	.04
Sex X Age	1	114.82	1.54
Exp X Sex X Age	1	38.19	.51
Error(b)	36	74.67	--
Split Plot			
Section	1	.36	.01
Exp X Section	1	14.86	.21
Sex X Section	1	440.83	6.32**
Exp X Sex X Section	1	40.56	.58
Age X Section	1	.04	.00
Exp X Age X Section	1	106.47	1.53
Sex X Age X Section	1	50.22	.72
Exp X Sex X Age X Section	1	39.60	.57
Error(c)	48	69.76	--
Total	111		

** $p < .05$

than in the Adult Figures section, girls demonstrated an opposite pattern of scores. Hypotheses V and VII were therefore accepted, while Hypotheses VI and VIII were rejected.

Table 12. A Summary of Mean Values and LSD Estimates for Sex Role Preference, by Sex, Age, and Section.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Adult	106.84	107.51	107.18	107.66	109.71	108.69
Child	111.99	110.06	111.03	102.02	107.00	104.60
Total	109.42	108.79	109.10	104.93	108.36	106.64

LSD_{.01} = 3.85 LSD_{.05} = 2.57 LSD_{.10} = 1.96

(NOTE: The LSD estimates are for sex x age x section comparisons)

Sex Role Confirmation

There will be no significant differences between the sex role confirmation scores of the subjects with regard to the effects of:

1. Sex of the experimenter (Hypothesis IX)
2. Sex of the child (Hypothesis X)
3. Age of the child (Hypothesis XI)
4. Section of the SERLI - Adult vs. Child Figures
(Hypothesis XII)

Table 13. Summary of the Split-Plot ANOVA for Sex Role Confirmation, for the Adult and Child Figures Sections of the SERLI.

Source of Variation	df	MS	F
Main Plot			
Block	6	64.90	--
Exp	1	45.01	.51
Error(a)	6	88.21	--
Sub Plot			
Sex	1	72.32	.97
Exp X Sex	1	6.60	.09
Age	1	24.70	.33
Exp X Age	1	9.96	.13
Sex X Age	1	262.92	3.54*
Exp X Sex X Age	1	140.85	1.89
Error(b)	36	74.34	--
Split Plot			
Section	1	32.36	.46
Exp X Section	1	12.22	.17
Sex X Section	1	643.20	9.17***
Exp X Sex X Section	1	67.27	.96
Age X Section	1	.66	.01
Exp X Age X Section	1	19.39	.28
Sex X Age X Section	1	30.87	.44
Exp X Sex X Age X Section	1	7.61	.11
Error(c)	48	70.18	--
Total	111		

* $p < .10$
 *** $p < .01$

Hypotheses IX through XII were tested by the split-plot ANOVA shown in Table 13, where "Section" refers to the comparison of the subjects' confirmation scores in the Adult and Child Figures sections of the SERLI. The F-values show significant sex x age, and sex x section interactions. Inspection of the mean values and LSD estimates for this ANOVA (Table 14) shows that girls generally increased in their confirmation scores with age, while boys decreased, accounting for the sex x age interaction. Girls scored higher than boys in the Adult Figures section, while boys scored higher than girls in the Child Figures section, thus accounting for the sex x section interaction. Hypothesis IX was therefore accepted, while Hypotheses X through XII were rejected.

Table 14. A Summary of the Mean Values and LSD Estimates for Sex Role Confirmation, by Sex, Age, and Section.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Adult	107.89	104.78	106.34	109.06	109.98	109.52
Child	112.50	107.60	110.05	101.99	105.31	103.15
Total	110.20	106.19	108.20	105.53	107.65	106.34

LSD_{.01} = 3.87 LSD_{.05} = 2.58 LSD_{.10} = 1.97

(NOTE: The LSD estimates are for sex x age x section interactions)

Sex Role Preference vs. Sex Role Confirmation

There will be no significant differences between the sex role preference and sex role confirmation scores of the subjects in:

1. The Adult Figures section of the SERLI (Hypothesis XIII)
2. The Child Figures section of the SERLI (Hypothesis XIV)

Hypotheses XIII and XIV were tested by the split-plot ANOVAs shown in Tables 15 and 16, respectively. For each SERLI section, the entire ANOVA table is shown, although the hypotheses concern only the split-plot sections where differences between preference and confirmation are estimated. For these two tables, the experimental effects in the main and sub-plots are the result of considering the subjects' preference and confirmation scores conjointly - a situation that is not directly related to any hypotheses in this study. Furthermore, since the preference and confirmation scores of the subjects have already been analyzed separately, the main and sub-plot sections of Tables 15 and 16 simply reiterate previously discussed findings, and therefore will not be mentioned here. The split-plot sections of these tables, however, provide powerful comparisons between the preference and confirmation scores, and precisely estimate the main and interaction effects of the experimental treatments on these concept differences.

Tables 15 and 16 showed no significant differences between the subjects' sex role preference and sex role confirmation scores, in either the Adult or Child Figures sections of the SERLI. The mean values for these negative findings are shown in Tables 17 and 18. For older boys, the difference between the mean values for sex role preference and sex

Table 15. Summary of the Split-Plot ANOVA for the Adult Figures Section of the SERLI, for Sex Role Preference and Sex Role Confirmation.

Source of Variation	df	MS	F
Main Plot			
Block	6	105.30	--
Exp	1	27.01	.54
Error(a)	6	49.62	--
Sub Plot			
Sex	1	121.97	1.44
Exp X Sex	1	142.22	1.68
Age	1	.66	.01
Exp X Age	1	16.36	.19
Sex X Age	1	431.36	5.11**
Exp X Sex X Age	1	39.36	.44
Error(b)	36	84.38	
Split Plot			
Concept	1	37.03	.64
Exp X Concept	1	3.64	.06
Sex X Concept	1	.96	.02
Exp X Sex X Concept	1	1.16	.02
Age X Concept	1	23.96	.42
Exp X Age X Concept	1	7.40	.13
Sex X Age X Concept	1	1.16	.02
Exp X Sex X Age X Concept	1	68.52	1.18
Error(c)	48	57.80	--
Total	111		

** $p < .05$

Table 16. Summary of the Split-Plot ANOVA for the Child Figures Section of the SERLI, for Sex Role Preference and Sex Role Confirmation.

Source of Variation	df	MS	F ^a
Main Plot			
Block	6	80.96	--
Exp	1	33.01	.30
Error(a)	6	109.87	--
Sub Plot			
Sex	1	154.16	2.07
Exp X Sex	1	13.16	.18
Age	1	.51	.01
Exp X Age	1	95.46	1.28
Sex X Age	1	51.03	.68
Exp X Sex X Age	1	116.44	1.56
Error(b)	36	74.54	--
Split Plot			
Concept	1	.00	.00
Exp X Concept	1	18.98	.29
Sex X Concept	1	19.72	.29
Exp X Sex X Concept	1	4.01	.06
Age X Concept	1	42.26	.62
Exp X Age X Concept	1	4.89	.07
Sex X Age X Concept	1	12.35	.18
Exp X Sex X Age X Concept	1	2.83	.04
Error(c)	48	67.89	--
Total	111		

^a None of the F-values are significant.

Table 17. A Summary of the Mean Values and LSD Estimates for Sex Role Preference and Confirmation in the Adult Figures Section of the SERLI.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Preference	106.84	107.50	107.17	107.66	109.71	108.69
Confirmation	107.89	104.80	106.35	109.06	109.98	109.52
Total	107.39	106.15	106.77	108.36	109.85	109.11

(NOTE: None of the differences between the preference and confirmation means were significant.)

Table 18. A Summary of the Mean Values and LSD Estimates for Sex Role Preference and Confirmation in the Child Figures Section of the SERLI.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Preference	111.99	110.06	111.03	102.20	107.00	104.60
Confirmation	112.50	107.60	110.50	101.99	105.31	103.15
Total	112.20	108.83	110.77	102.10	106.16	103.88

(NOTE: None of the differences between the preference and confirmation means were significant.)

role confirmation appears to be significant. However, this difference should be interpreted cautiously, since the ANOVA showed no significant concept or sex x age x concept effects. Hence, Hypotheses XIII and XIV were accepted.

Reliability

There will be no significant relationship between the pretest and posttest scores of the subjects for:

1. Own Sex Role Discrimination (Hypothesis XV)
2. Opposite Sex Role Discrimination (Hypothesis XVI)
3. Sex Role Preference
 - A. Adult Figures section (Hypothesis XVII)
 - B. Child Figures section (Hypothesis XVIII)
4. Sex Role Confirmation
 - A. Adult Figures section (Hypothesis XIX)
 - B. Child Figures section (Hypothesis XX)

The test-retest product-moment correlations for each SERLI scale by section, as well as by age and sex groups, are shown in Table 19. This table shows that the correlation coefficients for girls were generally higher than those of the boys, and the correlation coefficients for older children were generally higher than those of younger children. In addition, this table shows that, with age groups combined, the pretest and posttest scores for the SERLI scales were significantly related, with the conspicuous exception of the confirmation scale for boys.

Since the failure to find significant test-retest correlation coefficients for this scale for boys is critical both methodologically

Table 19. A Summary of the Test-Retest Reliability Coefficients for the SERLI, by Section, and Age and Sex Groups.

	<u>Boys</u>			<u>Girls</u>		
	<u>Younger</u>	<u>Older</u>	<u>Total</u>	<u>Younger</u>	<u>Older</u>	<u>Total</u>
Sex Role Preference						
Child Figures	.31	.42	.38*	.55	.60*	.59***
Adult Figures	.65*	.33	.48**	.48	.09	.74***
Sex Role Confirmation						
Child Figures	.06	.08	.04	.30	.45	.42*
Adult Figures	.04	.41	.31	.77**	.88***	.82***
Sex Role Discrimination						
Own	.45	.80***	.57**	.66**	1.00***	.76***
Opposite	.32	.45	.39*	.36	.95***	.53**

*** $p < .01$ ** $p < .05$ * $p < .10$

and theoretically, the boys' pretest and posttest confirmation scores were examined further, Table 20 presents the distribution of absolute value differences between the boys' pretest and posttest scores for sex role confirmation for the Child Figures section.

Table 20. Summary of the Distribution of the Boys' Pretest-Posttest Differences Scores for Sex Role Confirmation for the Child Figures Section of the SERLI.

Difference	Frequency
0 - 5 pts.	12
6 - 10 pts.	2
11 - 15 pts.	1
16 - 20 pts.	1
21 - 25 pts.	0
26 - 30 pts.	2

Examination of this table shows that for most of the boys, the pretest and posttest scores are within five points of each other. This suggests that the low test-retest correlation coefficient is due to the influence of the two major outliers. To document this contention, the two major outliers, with difference scores greater than 26 points, were excluded from the sample and the correlation rerun, resulting in a highly significant coefficient of $r = .69$. A similar pattern of difference scores was seen for the boys' confirmation scores in the Adult Figures section. Excluding the one major outlier here resulted in a significant coefficient of $r = .49$.

On this basis, Hypotheses XV through XX were rejected.

CHAPTER V

SUMMARY AND DISCUSSION

Summary

While several researchers have developed measures of early sex role learning (DeLucia, 1963; Fauls and Smith, 1956; Honzik, 1951; Rabban, 1950), the most commonly used instrument in recent years has been Brown's (1956a,b) It Scale for Children (ITSC). The ITSC is a semi-projective device, consisting of 36 drawings of objects and human figures, which has been used as a measure of sex role preference and sex role discrimination. To measure sex role preference, the child is asked to choose items from sets of the drawings for an ambiguous "It" figure. It is assumed that the child will reveal his or her own sex role preferences in choosing the items for It (Brown, 1956b). To measure sex role discrimination, the It figure has been designated as being either male or female (Hartup and Zook, 1960; Schell and Silber, 1968), or has been replaced by a clear drawing of a boy or girl (Reed and Asbjornson, 1968; Sugawara, 1971).

Research with the ITSC has shown that by three or four years of age, most children are well aware of sex role stereotypes, and have developed definite preferences for the objects and activities associated with one or the other sex role. Boys have typically shown a higher preference for the masculine role than girls have shown for the feminine role. In addition, boys appear to consistently increase in their preference for the masculine role with age, while girls show a more variable pattern until early adolescence. Girls, however, have been found to be better than boys at making opposite sex role discriminations.

The use of the ITSC as a research instrument has been widely criticized, on a variety of methodological and conceptual grounds. From a methodological viewpoint, the ITSC items do not appear to represent a very wide range of masculine and feminine roles, and the drawings themselves contain several potential biases. In addition, the selection of the items has been limited predominantly to drawings of children's toys and play activities, with little representation of adult activities and roles. The scoring procedures, furthermore, do not account for the order of the child's choices and, therefore, lose valuable information regarding the child's relative preferences for the items. Finally, there has been a continuing controversy regarding the ambiguity of the It figure, with some research showing that the It figure appears more masculine than feminine to young children (Hartup and Zook, 1960; Sher and Lansky, 1968; Sugawara, 1971).

From a conceptual viewpoint, the concept of sex role preference, as measured by the ITSC, is based on the assumption that the child can already discriminate perfectly between the test stimuli on the basis of masculinity-femininity (Schell and Silber, 1968). Since research has shown that the child's awareness of sex role stereotypes is just emerging during the preschool years, this assumption would appear to present a major limitation to interpreting the ITSC scores as a measure of sex role preference.

The purpose of this study has been the development of the Sex Role Learning Index (SERLI), a picture choice instrument for assessing cognitive aspects of sex role learning in early childhood. The goal of the development of the SERLI has been to overcome many of the conceptual and methodological problems inherent in the ITSC and other measures of

early sex role learning. The SERLI consists of 60 black-and-white line drawings depicting common objects, children's activities, and adult roles. The SERLI is based on a conceptual framework similar to that of the ITSC, utilizing the concepts of sex role preference and sex role discrimination. The SERLI however, uses the additional concept of sex role confirmation in order to account for individual differences in ability to discriminate between the stimuli on the basis of masculinity-femininity.

In administering the SERLI, the child is first asked to designate whether the objects, which are representative of the activities and roles used later, are associated with either the masculine or feminine sex role. This is achieved by having the child sort the object cards into boxes labelled "for boys," or "for girls." The child's sex role discrimination score is the degree to which these classifications agree with the cultural sex role stereotypes of the objects.

The child is then shown sets of the activity and role items, depicting figures of the child's own sex. The child is asked to choose items from these sets that the child would like best to do, or be. The order of the child's choices are used to rank the items from most to least preferred. Scoring of the SERLI is based upon the degree to which the order of the child's choices of sex-appropriate items departs from what would be expected of purely random choosing. The scoring of sex role preference involves the order of the child's choices of the items that are culturally defined as being sex-appropriate. Sex role confirmation is scored relative to the child's own designations of the sex-appropriateness of the items.

To test the validity and reliability of the SERLI, the test was

administered to a sample of 56 preschool aged children, and the effects of the sex of the experimenter, and the sex and age of the child were determined. In addition, comparisons were made between the various SERLI scales and sections. The sample of subjects ranged in age from 38 to 64 months and had a mean intelligence score of 117.9 as measured by the Peabody Picture Vocabulary Test (Dunn, 1965). Furthermore, all of the children came from the middle socioeconomic class or above, as measured by Hollingshead's "Two Factor Index of Social Position," (Hollingshead, 1957). Test-retest reliabilities (three week interval) were also determined for a subsample of 36 children drawn from this total sample.

The children's scores on the various SERLI scales and sections were analyzed by $2 \times 2 \times 2 \times 2$ (sex of experimenter \times sex \times age \times variable) split-plot analyses of variance (ANOVA). In addition, the sex role discrimination scores were further examined by regression analysis. The test-retest reliabilities were determined by the Pearson product-moment correlation technique.

The sex role discrimination scores showed significant age and concept differences, with older children scoring higher than younger children on both own and opposite sex role discrimination, and the own sex role discrimination scores being consistently higher than the opposite sex role discrimination scores. Regression analyses of these data further suggested significant sex \times age \times concept interactions in the development of the child's awareness of sex role differences. There was no sex of experimenter effect on the children's sex role discrimination scores.

A significant sex \times section interaction was found for the subjects'

sex role preference scores, with girls scoring higher on the Adult Figures section than on the Child Figures section, and boys showing an opposite pattern of scores. A similar sex x section interaction was seen for the sex role confirmation scores, with the addition of a significant sex x age interaction. This latter finding was due to the fact that boys showed decreasing sex role confirmation scores with age, while girls showed increasing scores. The sex of the experimenter did not significantly influence either the sex role preference or sex role confirmation scores of the subjects.

With age groups combined, the reliability coefficients for the SERLI scales were significant, with the exception of sex role confirmation for boys. Further examination revealed that the boys' pretest and posttest confirmation scores were, for the majority, within five points of each other. Exclusion of the major outliers significantly increased the test-retest reliability coefficients for both the Adult and Child Figures sections of the confirmation scale for boys.

Discussion

In the following discussion, the results of the present study will first be related to previous research and then will be interpreted from a variety of theoretical frameworks. The focus of the first section is simply on the areas where the present findings agreed or disagreed with previous research. The second section is aimed at offering theoretical interpretations of the current results, and accounting for the relationships to previous research findings.

Relationships to Previous Research

The purpose of this section of the discussion is to relate the current findings to previous research. For the most part, research with the ITSC will be cited, since this is where the most systematic and controlled studies have been done. Results obtained with other picture-choice measures, however, will be mentioned as well. In addition, since the effects of the sex of the experimenter were negligible for all of the SERLI scales, the results on this experimental treatment will be discussed first, in order to simplify subsequent discussions.

The Sex of the Experimenter. The effects of the sex of the experimenter were not significant for any of the SERLI scales, including sex role discrimination, sex role preference, and sex role confirmation. In addition, the sex of the experimenter showed no significant interaction effects with any of the other experimental variables. While it was important to evaluate this potential source of bias in the SERLI, these negative results were consistent with several previously reported findings using the ITSC and other picture-choice measures (Doll, Fagot, and Himbert, 1973; Borstelmann, 1961).

Doll et al (1973) investigated the influence of the sex of the experimenter on the ITSC scores of 240 white and black lower class girls aged six to twelve years. While the variables of age and race were significantly related to the ITSC scores, they reported no significant sex of experimenter effects. Borstelmann (1961) used 32 children ranging in age from 40 to 60 months to evaluate sex of experimenter biases in the ITSC and the instruments developed by Faulstich and Smith (1956) and Rabban (1950). He found no significant sex of experimenter effects on either the pretest scores or the test-retest reliabilities for these

three instruments.

One study, however, has reported significant sex of experimenter effects, and therefore is in disagreement with the current findings. Reed and Asbjornson (1968) found that the own sex role discrimination scores of 48 girls aged 43 to 65 months were significantly higher when the modified ITSC was given by a male experimenter than when given by a female experimenter.

Sex Role Discrimination. In this study, the general age trends for both own and opposite sex role discrimination agree with previously reported ITSC findings (Hartup and Zook, 1960; Reed and Asbjornson, 1968; Schell and Silber, 1968). Hartup and Zook (1960) modified the ITSC to measure sex role discrimination, by referring to the It figure as either a "little boy," or "little girl." They found for 161 subjects ranging in age from 30 to 60 months, that older children scored higher than younger children on both own and opposite sex role discrimination. Schell and Silber (1968) used the same technique with 64 subjects between the ages of 33 and 51 months, and reported similar age results. Reed and Asbjornson (1968) modified the ITSC by replacing the It figure with a clear drawing of either a boy or girl. In testing 98 children ranging in age from 33 to 51 months, they also reported that older children were better than younger children at making both own and opposite sex role discriminations.

The present findings regarding the difference between own and opposite sex role discrimination also agree with the results of four major previous studies where children were consistently found to be better at making own, rather than opposite sex role discriminations (Hartup and Zook, 1960; Reed and Asbjornson, 1968; Schell and Silber,

1968; Sugawara, 1971).

The sex x age x concept interaction suggested by the regression analyses in this study generally support previous results. Reed and Asbjornson (1968) and Sugawara (1971) have reported that, in addition to age and concept differences, girls appear to be better than boys at making opposite sex role discriminations. In other words, in using the modified ITSC, girls chose more masculine items for the male figure, than boys chose feminine items for the female figure. While the present analyses support this finding, they further suggest that boys may be better than girls at making own sex role discriminations at younger ages - a finding not previously discussed. Furthermore, the results of the current study suggest that the boys' and girls' own and opposite sex role discrimination scores converge at approximately 5½ years of age. Masters and Wilkinson (1976) have also reported this finding, but have estimated the age of convergence to be developmentally much later (8 years of age) than the age estimated in this study.

Sex Role Preference. In this study, the findings on sex role preference in the Child Figures section agree with previous research, but the findings in the Adult Figures section do not. Boys scored higher in the Child Figures section than in the Adult Figures section, while girls showed an opposite pattern of scores. In addition, boys' scores were higher than girls' in the Child Figures section. This result agrees with several previous reports (Brown, 1956b; DeLucia, 1963; Fauls and Smith, 1956; Hartley, 1959; Hartup and Zook, 1960; Honzik, 1951; Rabban, 1950; Reed and Asbjornson, 1968, Schell and Silber, 1968;

Sugawara, 1971). The findings in the Adult Figures section, however, indicate that boys and girls have equal preference for their own sex role, a finding that does not agree with the above studies. Furthermore, preference scores in both sections of the SERLI failed to support previously reported findings regarding the age increase in boys' sex role preference scores.

Sex Role Confirmation. No previous research has been done on sex role confirmation. In this study, boys scored higher in the Child Figures section than the Adult Figures section, while girls showed an opposite pattern. While boys scored higher than girls in the Child Figures section, girls scored higher than boys in the Adult Figures section. Furthermore, boys showed decreasing scores with age, while girls showed increasing scores. These results have not been previously reported.

Reliability. In this study, the test-retest reliability coefficients for the SERLI scales were in the ranges previously reported for other picture-preference measures of sex role learning. The test-retest reliabilities for the ITSC, for example, have ranged from .64 to .82 for boys and girls (Brown, 1956b; Borstelmann, 1961; Hartup and Zook, 1960). The higher coefficients found for the sex role discrimination scale of the SERLI are also in agreement with modified ITSC findings reported by Sugawara (1971). Using 20 subjects ranging in age from 41 to 52 months, Sugawara reported test-retest reliabilites (ten day interval) ranging from .90 to .93 for both own and opposite sex role discrimination, for boys and girls.

Summary. With a few important exceptions, the findings in this study have agreed with previous research results. The negative findings

for the effects of the sex of the experimenter are consistent with most previous research on picture-choice measures of sex role learning. The findings on sex role discrimination has supported previously discussed age and concept differences, and have further suggested that sex x age x concept interactions exist in the development of the child's awareness of sex role differences. The findings on sex role preference in the Adult Figures section of the SERLI also agreed with previous research results. However, the significant sex x section interaction suggests that children's sex role preferences are sensitive to the age of the figure in the test items. Since sex role confirmation is a new research concept, the results in this study cannot be directly related to previous research. The finding for sex role confirmation, however, generally parallel those for sex role preference, with an added sex x age interaction effect. This sex x age interaction is due to a decrease in boys' confirmation scores with age, and an increase in girls' scores with age - a new research discovery. Finally, the test-retest reliability estimates for the SERLI scales are in the range expected for picture-choice measures of early sex role learning.

Theoretical Interpretations

The purpose of this section of the discussion is to offer some theoretical interpretations of the results obtained with the SERLI. As in the previous section, the results regarding the effects of the sex of the experimenter will be discussed initially, in order to simplify the discussion of the other findings.

The Sex of the Experimenter. The consistent lack of main and inter-

action effects of the sex of the experimenter, across all SERLI scales, suggests that the social desirability pressures on the child due to the presence of an adult experimenter, are minimal. The negative findings further suggest that the assessment techniques used in the SERLI were effective in reducing social desirability biases. Specifically, for sex role discrimination, the technique of having the child sort the object cards into boxes labelled "for boys," or "for girls" was relatively free from major biases due to the sex of the experimenter. Also, the technique of showing the children only figures of their own sex appeared to result in choices that were unbiased by the presence of a male or female experimenter.

For sex role discrimination, the lack of significant sex of experimenter effects is inconsistent with one study (Reed and Asbjornson, 1968), where the presence of a male experimenter resulted in an increase in girls' own sex role discrimination scores, as measured by the modified-ITSC. The SERLI and the modified-ITSC, however, differ in many important ways. In the modified-ITSC, the child chooses items not for himself, but for a drawing of a figure of either sex. Hence, the biases due to the sex of the experimenter may have been due to differences in the child's perception of the sex of the test figure, rather than differences in the perception of the masculinity or femininity of the test stimuli. The SERLI, on the other hand, does not use a test figure at all. Instead, the items are administered individually as a simple Q-sort. Furthermore, the discrimination task on the modified-ITSC requires the child to make selections from sets containing both sex-appropriate and sex-inappropriate items. The child's discrimination of masculinity or femininity, therefore, is based on comparisons between the

test stimuli. In the SERLI, each item in the discrimination scale is sorted individually into a masculine or feminine category. Hence, the discrimination task requires the child to compare each stimulus against an internal standard regarding masculinity-femininity. These differences between the SERLI and the modified-ITSC may account for the disparate findings regarding sex of experimenter biases.

Overall, the elimination of the sex of the experimenter as a source of bias in this study can be translated into an increased confidence in the validity of the SERLI scales.

Sex Role Discrimination. The findings on both own and opposite sex role discrimination indicate that by three or four years of age, children are quite aware of sex role stereotypes. In addition, the findings indicate that children become more aware of both their own and opposite sex role as they grow older. This age relationship has been explained by both social learning and cognitive developmental theories.

Social learning theory (Mischel, 1966, 1970; Mussen, 1969; Sears, 1965) emphasizes observation, modeling, and reinforcement in the learning process. Hence, the child learns to associate certain characteristics, activities, and objects with one sex or the other through observing and modeling peers, parents, and other adults, as well as through being differentially rewarded or punished for certain sex-typed behaviors. Several studies have supported the contention that parents encourage sex-typed activities in their children through differential reinforcement (Fling and Manosevitz, 1972; Lansky, 1967).

Cognitive developmental theory (Kohlberg, 1966; Kohlberg and Zig-

ler, 1967) has offered an alternative approach to accounting for the early acquisition of awareness of sex role stereotypes. According to this approach, the child's own expanding concept of sex categories is central to the learning that certain behaviors and objects are associated with one or the other sex. The emergence of the child's awareness of sex roles, then, parallels the development of cognitive skills, particularly those skills involving class inclusion (Kohlberg, 1966).

However, it is obvious from the current findings, as well as previous research that the child does not develop an awareness of both sex roles equally, but is more aware of his own sex role. Social learning theory would maintain that the child will tend to model the same-sexed parent, and therefore adopt sex-appropriate behaviors. Subsequently, the child will encounter more situations involving the learning of appropriate, rather than inappropriate behaviors. The cognitive-developmental approach would maintain that in addition to differences in the modeling of sex-appropriate behaviors, children's ability to retrieve learned information differs in a fundamental way, with information regarding one's own sex category being more readily recalled (Masters and Wilkinson, 1976).

Two additional findings in this study were that girls appear to be more aware of their opposite sex role than boys, while young boys appear to be more aware of their own sex role than young girls. Common explanations of these differences have involved sociocultural factors (Brown, 1956b; DeLucia, 1963; Hartup, Moore, and Sager, 1963; Kagan, 1964; Lynn, 1969). From the sociocultural point of view, boys are more aware of the masculine role than the feminine role because of the prestige, power, clarity, and attractiveness of the masculine role in our

culture. Considering the prominence of the masculine role, girls would be expected to be more aware of their opposite sex role than boys.

Social learning theory would maintain that boys are more likely to be punished for adopting sex-inappropriate behaviors, than girls. Several research studies have supported the contention that more social pressure against adopting sex-inappropriate behaviors is aimed at boys than at girls (Fling and Manosevitz, 1972; Hartup, Moore, and Sager, 1963; Lansky, 1967). Hence, girls appear to have more freedom to experiment with both sex roles than boys do, and therefore would be expected to be less aware of their own sex role and yet more aware of their opposite sex role.

An alternative explanation of these findings involves a reinterpretation of the relationship between discrimination learning and the acquisition of sex role preferences. Most theorists have argued that the child's awareness of sex stereotypes is a determinant of the child's sex role preferences (Kohlberg, 1966). DeLucia (1972), however, has produced evidence that an opposite process is occurring. In examining the child's ability to learn an arbitrarily set discrimination task, DeLucia found that children would learn the task more quickly if the items were highly preferred by the children. Boys, for example, learned most rapidly when the discrimination task involved a tractor and a tool set (highly preferred), and learned more slowly when the stimuli were a cosmetic set and a broom (least preferred). Conversely, girls' learning was facilitated by the cosmetics and broom stimulus set (highly preferred) and impeded when the stimuli were the tractor and the tool set (least preferred).

On the basis of DeLucia's findings, it can be argued that boys are

more aware of their own sex role than girls because, at an early age, they demonstrate a higher preference for their own sex role than girls do. Hence, boys would be expected to learn to discriminate aspects of their own sex role readily when they encounter learning situations at home and at school. Alternatively, since boys show very little preference for the feminine role, they would not learn to discriminate aspects of femininity very rapidly. Girls, in showing a mixture of preferences for both sex roles, would be expected to be less aware of their own sex role, and yet more aware of their opposite sex role than boys.

Finally, the results in this study show that the own and opposite sex role discrimination scores of boys and girls converge at about age $5\frac{1}{2}$, suggesting that children become equally aware of both sex roles in early childhood. Masters and Wilkinson (1976) using a toy classification technique, reported this convergence to occur about eight years of age. The difference in these two estimates may indicate that these two measurement techniques differ in their sensitivity in detecting small differences in the child's awareness of sex roles.

In summary, social learning theory and sociocultural explanations of sex role learning have emphasized the process through which the environment shapes the child's awareness of sex role stereotypes. Some evidence, however, would suggest that aspects of the child, such as cognitive skills and preset preferences, determine the child's responsiveness to the social environment and subsequently play a major role in shaping early sex role discrimination learning.

Sex Role Preference. As previously mentioned, the current findings on sex role preference in the Child Figures section of the SERLI agree with previous research, while the findings in the Adult Figures section

do not. In the Child Figures section, boys were found to be more masculine in their preferences than girls were feminine - a finding that has been reported in several previous studies (Brown, 1956b; DeLucia, 1963; Fauls and Smith, 1956; Hartley, 1959; Hartup and Zook, 1960; Honzik, 1951; Rabban, 1950; Reed and Asbjornson, 1968; Schell and Silber, 1968; Sugawara, 1971). Explanations of this difference have been drawn from the theories discussed in the previous section.

The sociocultural approach has emphasized the prestige, power, clarity, and attractiveness of the masculine role as a primary determinant of early sex role preferences (Brown, 1956b; Hartley, 1959). Within this general framework, Parsons and Bales (1955) have theorized that young children identify not only with their parents, but with their parents' social roles as well. Both boys and girls identify initially with the mother, and her expressive role within the home. Boys, however, soon see the father's instrumental role in an expanded frame of reference, as being more attractive and powerful. Hence, while the young girl identifies with her mother, the young boy identifies with the masculine role as defined by the culture. Boys, therefore, would be expected to develop strong masculine preferences. Girls, on the other hand, in observing the varied activities of the mother within the family framework, would show a mixture of masculine and feminine preferences.

From a social learning point of view, more social pressure from parents is placed on boys to develop sex-appropriate behaviors and preferences than on girls - resulting in similar expectations. Lansky (1967), for example, presented parents of preschool children with hypothetical situations where children displayed sex-inappropriate behaviors. More strong negative reactions (mainly from fathers) were obtained for

boys' adoption of feminine behavior, than for girls' adoption of masculine behavior. This finding has been supported by several other studies on parents (Maccoby and Jacklin, 1974). Girls, therefore, appear to have more latitude in adopting the behaviors and preferences associated with their opposite sex.

The results obtained with the Adult Figures section, however, do not agree with these theoretical explanations. In this section of the SERLI, girls scored equally as high on feminine preference, as boys did on masculine preference. The sex role preferences of children, therefore, appear to be sensitive to the age of the figures depicted in the test items. For example, when faced with alternatives involving children's toys and play activities, the liberated four-year-old girl will show a mixture of masculine and feminine preferences. However, in considering alternatives depicting adult figures, she will display a dominant preference for the feminine sex role. This discovery has not been previously reported in sex role learning literature.

One interpretation of this finding is that the young girl may have a well-developed concept of the feminine role as seen in her mother, but this concept of femininity has not yet extended to her activities and relations with her peer group. On the other hand, the young boy's concept of the masculine sex role has been described as preceding in the opposite direction from a notion of "we boys," which includes peers, toward a concept of "we males," which includes the father and other adult males (Kohlberg, 1966, Kohlberg and Zigler, 1967). Hence, for the young girl, the concept of femininity, as defined by the culture, is not as an important determinant of play behavior and peer relations as it is in the determination of anticipated adult activities and roles.

A major negative finding in this study was the failure to find significant age trends in the development of sex role preference. While girls would be expected to show a varying pattern of sex role preference scores over the tested age span, boys were expected to increase in their preference for the masculine role, but did not. This may have been due to the limited age range of the sample, or the possibility that since boys' sex role preference were already quite high by 3½ to 4 years of age, they may be hitting the top of the SERLI scales.

Sex Role Confirmation. Sex role confirmation is scored relative to each child's designations of the masculinity-femininity of the test items. Hence, sex role confirmation can be interpreted as a measure of the degree to which the child adheres to an internal perception regarding sex roles, rather than the cultural sex role standard as in the case of sex role preference.

In contrast to the findings for sex role preference, a significant sex x age interaction was found for sex role confirmation. The boys' confirmation scores were generally higher than girls' scores. However, the boys' scores decreased with age, while the girls' scores increased. This suggests that as boys grow older they adhere less to an internal perception of sex-appropriate behavior, while girls adhere more to their own perceptions as they grow older,

Examination of the raw data regarding the subjects' sex role designations and preferences showed that when younger boys designated feminine-stereotyped items as sex-appropriate, those items were ranked relatively high in desirability, in term of the order which

they were chosen. Furthermore, when younger boys designated masculine stereotyped items as being sex-inappropriate, those items were not ranked high in desirability. These two patterns of responses result in high sex role confirmation scores, since the boys' choices agreed with their own perceptions of sex-appropriateness, rather than with cultural sex role stereotypes.

Older boys, however, showed an opposite pattern of responses. When they designated feminine stereotyped items as being sex-appropriate, those items were not ranked high in desirability, while masculine stereotyped items designated as being sex-inappropriate were. This resulted in relatively lower sex role confirmation scores, since the older boys' choices agreed more with the cultural stereotypes, than with their own designations. Developmentally, boys' confirmation scores decreased with age, suggesting that they were becoming more influenced by the culturally defined masculine sex role stereotype.

Alternatively, young girls who designated masculine stereotyped items as being sex-appropriate did not rank those items high in desirability, while older girls did. Moreover, younger girls who designated feminine stereotyped items as being sex-inappropriate, ranked those items high in desirability, while older girls did not. These two patterns of responses in girls resulted in increasing sex role confirmation scores with age, suggesting that they are becoming more influenced by their own perceptions of what is sex-appropriate.

These findings can be well explained using Lynn's (1962) concepts of parental and sex role identification. Parental identification refers to the internalization of the characteristics of one's own parent, while sex role identification refers to the internalization of the role considered appropriate for one particular sex. In Lynn's theoretical

framework, both boys and girls are postulated to identify initially with the mother. Boys, but not girls, must then shift their identification from the mother to the father. Due to the lack of availability of the father in the home environment, boys learn to identify with the culturally defined masculine sex role stereotype. In other words, boys internalize the masculine sex role stereotype, while girls internalize characteristics of their own mothers (Lynn, 1959, 1962).

In pursuing the theoretical implications of this fundamental difference in the early identification process, Lynn postulated that boys should initially be more concerned with their own internal perceptions than girls, but should become more influence by the masculine sex role stereotype as they grow older. Girls, on the other hand, should initially be more receptive to the standards of others. These hypotheses were supported by the current results on sex role confirmation.

The sex x age interaction found for sex role confirmation also supports Lynn's (1962) theoretical formulations regarding parental and sex role identification. Girls would be expected to score higher than boys on the Adult Figures section, and also higher in the Adult Figures section than in the Child Figures section, since their adult mother figure is assumed to be the major determinant of their sex role behavior. Boys, however, in identifying with the masculine sex role stereotype, would be expected to clarify their notions of sex-appropriate behavior first as they apply to their peer group, and later as they apply to adult behavior. Consequently, boys should score higher on the Child Figures section than girls, and also higher on the Child Figures section than the Adult Figures section.

Sex Role Preference vs. Sex Role Confirmation. The lack of significant differences between sex role preference and sex role confirma-

tion was not expected, since it was assumed they were two distinct dimensions of early sex role learning. The negative findings suggest that the young child has internalized the cultural sex role stereotypes to such a degree that variations due to individual perceptions are minimal. The majority of children in this study perfectly, or nearly perfectly, agreed with the cultural sex role stereotypes of the test stimuli. For these children, sex role preference and sex role confirmation would be identical by definition. The concept of sex role confirmation becomes a meaningful research concept only when the child does not perfectly discriminate the test stimuli. Hence, further research on a larger sample of younger children, who are more likely to deviate from traditional sex role designations, would be critical to evaluating the usefulness of the concept of sex role confirmation as opposed to sex role preference.

However, a significant sex x age interaction was found for sex role confirmation and not for sex role preference. This may indicate that the concept of sex role confirmation is supplying unique information regarding early sex role learning.

Reliability. Generally, the test-retest reliabilities for the SERLI scales were the range expected for preschool aged children. The tendency was for older children to be more stable in their scores than younger children, and for girls to be more stable than boys. The reliabilities for sex role discrimination were also higher than those for sex role preference and sex role confirmation. Older children would be

expected to be more consistent in their responses, due increasing cognitive maturity, and the clarification of their awareness and likes and dislikes regarding sex roles. Kohlberg and Zigler (1967) further maintained that girls should be more stable in their sex role preferences due to the availability of the same-sexed parent as a model. The fact that the reliabilities for sex role discrimination were relatively higher than other scales suggests that the degree of the child's awareness of sex roles is more concrete and stable than the child's likes or dislikes regarding sex roles.

The initially low reliability coefficients for sex role confirmation for boys may indicate that boys are unstable in their adherence to an internal standard about appropriate masculine behavior. However, the significant increases seen when the one or two main outliers were excluded suggests that boys scores were relatively stable and that the real problem in this study was the limited sample size. Finally, the test-retest reliability data of sex role discrimination reported by Sugawara (1971) suggests that a shorter retesting interval may appreciably raise the reliability estimates for the SERLI scales.

Summary

Overall, the SERLI appears to offer some important advantages over other picture-choice measures of early sex role learning. The items were chosen to represent a broad range of masculine and feminine roles, and were illustrated with equal size, scale, clarity, complexity, detail, and shading. More important, the use of an ambiguous projective figure has been avoided in the SERLI without resultant social desirability biases, by having each child view and respond only to pictures depicting figures of his or her own sex. The testing time for the SERLI is short, and

children typically found the test to be interesting and enjoyable. The reliability estimates for the SERLI are also in the range expected for a personality measure used with young children.

In addition, the SERLI appears to offer three other major advantages. First, the significant sex x age x concept interaction found for sex role discrimination suggests that this scale is a sensitive measure of children's awareness of sex roles. Second, the introduction of both adult and child figures in the SERLI proved to add a very significant variable in the assessment of sex role learning, which has been previously overlooked. Finally, the SERLI measures the new concept of sex role confirmation, which shows a different developmental pattern than sex role preference, and may prove to be a theoretically important research concept.

Limitations of the Study

Although the major purpose of the development of the SERLI has been to overcome the conceptual and methodological inadequacies of previous research, there are several limitations to this study.

The items included in the SERLI represent a limited sample of sex-typed objects, activities, and roles, that may not be adequate in assessing children's awareness and preferences regarding sex roles. The SERLI scoring is also based on the assumption that the child's designation of the object item would be the same as the designation of the activity or role associated with that object. This methodology was adopted in order to avoid biases in attempting to measure both awareness and preference for the same activities and roles. The SERLI also uses a forced choice technique that requires the child to designate an item as being for either boys or girls. The child does not have the freedom to design-

nate an item as being appropriate for both sexes. This approach was adopted in order to relate SERLI findings to previous research which has used the forced choice technique. However, with the anticipated changes in sex roles, it would be useful at this time to evaluate the "both" category. Hence, in administering the SERLI in this study, the child was first given the opportunity to designate the items as being appropriate for both boys and girls before being forced to decide one way or the other. The data on these free choice designations, therefore, will be available for further analysis.

Another limitation of this study was the small and limited nature of the sample. The sample was limited to children from a university community and selected socioeconomic classes, family structures, intelligence ranges, and racial origins. The purpose of these limitations was to increase the sensitivity of the SERLI scores to the main experimental treatments of sex, age, and the sex of the experimenter. However, this selection process also limits the degree to which the results of this study can be generalized to other populations.

Several variables were also not controlled for in this study, such as parent attitudes, family structure, the sex and personalities of the preschool teachers, the education environments of the preschools, and the peer relations of the subjects. Since these variables have been shown to influence early sex role learning, the lack of control of these variables diminishes the validity of the interpretations of the results. Finally, while the sex of the experimenter was an important experimental treatment in this study, the child's perception of the sex and masculinity-femininity of the experimenter was not accounted for, and could have been an influence on the child's responses to the SERLI.

Suggestions for Further Research

Several suggestions can be made for improving and extending this research. The validity of the SERLI could be further explored by relating SERLI scores to child, parent, and family variables. Preliminary analyses indicate that the SERLI scores for this sample of children are significantly related to parental encouragement of traditional sex role behaviors. The concurrent validity of the SERLI could also be assessed by comparing SERLI scores to other measures of early sex role learning.

Regarding the measurement process, the free choice administration procedure, where the child has the freedom to designate the items as being appropriate for both boys and girls, may provide new insights into the process of sex role learning. In addition, the failure to find significant age trends for sex role preference and confirmation may have been due to the problem of the children reaching the top of the SERLI scales at an early age. Hence, rescaling the initial probability distributions used in scoring the SERLI may result in the illumination of age trends in the SERLI scores.

The reliability of the SERLI scales could be further investigated with a larger sample and a shorter test-retest interval. In addition, since there are potential pretesting biases in the SERLI scores, split-half or internal consistency measures of reliability may give more accurate estimates of the reliability of the SERLI scales.

The sample used in this study could also be extended to include a broader age range. The inclusion of younger children than those in this study would be critical to the evaluation of the concept of con-

firmation. The sample could also be extended to include variations in family structures and socioeconomic classes, since these variables have been shown to be important determinants of early sex role acquisition. Ultimately, a multi-variable study accounting for family structure, race, sibling status, intelligence, and socioeconomic class, would be a major step toward putting together the whole picture of the process of early sex role acquisition.

BIBLIOGRAPHY

- Barry, A., Bacon, M., and Child, I.L. A cross cultural survey of some sex differences in socialization. *Journal of Abnormal and Social Psychology*, 1957, 55, 327-332.
- Benjamin, H. Age and sex differences in the toy preferences of young children. *Journal of Genetic Psychology*, 1932, 41, 417-429.
- Biller, H. A multi-aspect investigation of masculine development in kindergarten boys. *Genetic Psychology Monographs*, 1968, 78, 89-138.
- Biller, H., and Borstelmann, L.J. Masculine development: an integrative review. *Merrill-Palmer Quarterly*, 1967, 13, 253-294.
- Bridges, K.M.B. A preschool character rating chart. *Psychological Clinic*, 1929, 17, 61-72.
- Bridges, K.M.B. Occupational interests of three-year-old children. *Journal of Genetic Psychology*, 1927, 34, 415-423.
- Brown, D.G. It Scale for Children. Missoula, Montana, Psychological Test Specialists. 1956a.
- Brown, D.G. Sex role preference in young children. *Psychological Monographs*, 1956b, 70, 1-19.
- Brown, D.G. Sex role preference in young children: methodological problems. *Psychological Reports*, 1962, 11, 477-478.
- Brown, D.G., and Tolor, A. Human figure drawings as indicators of sexual identification and inversion. *Perceptual and Motor Skills*, 1957, 7, 199-211.
- Buck, J.N. The H-T-P technique: a qualitative and quantitative scoring manual. *Journal of Clinical Psychology*, 1948, 4, 317-396.
- Constantinople, A. Perceived instrumentality of the college as a measure of attitudes towards college. *Journal of Personality and Social Psychology*, 1967, 5, 196-201.
- Davidson, D., Suppes, P., and Siegel, S. *Decision-making: An Experimental Approach*. New York, Scribners, 1957.
- DeLucia, L. The toy preference test: a measure of sex role identification. *Child Development*, 1963, 54, 107-117.
- Doll, P.A., Fagot, B., and Himbert, J.D. Examiner effect on sex role preference among black and white lower class female children.

- Psychological Reports, 1973, 32, 427-434.
- Dunn, L. The Peabody Picture Vocabulary Test: Expanded Manual. Minneapolis, Minnesota, American Guidance Service, 1965.
- Duryea, W.R. Sex role preference in children: individual and group administration of the It Scale for Children. Psychological Reports, 1967, 21, 269-274.
- Edelbrock, C., Cloud, F., Hamilton, G., Hickok, J., Reed, K., and Sugawara, A.I. Child development laboratories research reports: correlates of sex role development. Mimeo, Family Life Department, Oregon State University, Corvallis, Oregon, 1974.
- Edelbrock, C., and Sugawara, A.I. Own and opposite sex role discrimination in preschool aged children. Mimeo, Family Life Department, Oregon State University, Corvallis, Oregon, 1975.
- Edelbrock, P. A Pilot Study for the Sex Role Learning Index (SERLI). Unpublished Master's Degree project. Family Life Department, Oregon State University, Corvallis, Oregon, 1975. 60 pages.
- Emmerich, W. Parental identification in young children. Genetic Psychology Monographs, 1959, 60, 257-308.
- Endsley, R.C. Effects of concealing It on sex role preference of preschool aged children. Perceptual and Motor Skills, 1967, 24, 998.
- Fauls, L.B., and Smith, W.D. Sex role learning if five year olds. Journal of Genetic Psychology, 1956, 89, 105-116.
- Fling, S., and Manosevitz, M. Sex typing in nursery school children's play interests. Developmental Psychology, 1972, 7, 146-152.
- Foster, J.C. Play activities of children in the first six grades. Child Development, 1930, 1, 248-254.
- Frank, K., and Rosen, E. A projective test of masculinity-femininity. Journal of Consulting Psychology, 1949, 13, 247-256.
- Freud, S. The passing of the Oedipus Complex. In Collected Papers, Volume II., London, Hogarth, 1924, 269-282.
- Freuh, T., and McGhee, P. Traditional sex role development and amount of time spent watching television. Developmental Psychology, 1975, 11, 109.
- Goodenough, F.L. A new approach to the measurement of intelligence of young children. Pedological Seminary, 1926, 33, 185-211.
- Hall, M., and Keith, R. Sex preferences among children of upper and

- lower social classes. *Journal of Social Psychology*, 1964, 62, 101-110.
- Handy, G.D. The sex role preferences of children. Master's Thesis. Denver, Colorado, University of Denver, 1954. 150 numbered leaves.
- Hartley, R.E. Sex role pressures and the socialization of the male child. *Psychological Reports*, 1959, 5, 457-468.
- Hartley, R.E. Children's concepts of male and female roles. *Merrill-Palmer Quarterly*, 1960, 6, 153-164.
- Hartley, R.E., and Hardesty, R.P. Children's perceptions and expressions of sex preference. *Child Development*, 1962, 33, 221-227.
- Hartup, W. Some correlates of parental imitation in young children. *Child Development*, 1962, 33, 83-96.
- Hartup, W., Moore, S., and Sager, G. Avoidance of inappropriate sex-typing by young children. *Journal of Consulting Psychology*, 1963, 27, 467-473.
- Hartup, W., and Zook, E.A. Sex role preference in three and four year old children. *Journal of Consulting Psychology*, 1960, 24, 420-426.
- Haworth, M.R., and Normington, C.J. A sexual differentiation scale for the D-A-P test. *Journal of Projective Techniques*, 1961, 25, 441-449.
- Hogan, R.A. Children's sex role preference with the It figure. Master's Thesis. Denver, Colorado, University of Denver, 1957. 190 numbered leaves.
- Hollingshead, A.B. A two factor index of social position. Mimeo, New Haven, Connecticut, 1957. 11 pages.
- Honzik, M.P. Sex differences in the occurrence of materials in the play constructions of the preadolescent. *Child Development*, 1951, 22, 15-35.
- Irwin, F.W. An analysis of the concepts of discrimination and preference. *American Journal of Psychology*, 1958, 71, 152-163.
- James, J.H. The father role as perceived by young children and their fathers. *Journal of Home Economics*, 1967, 59, 428-432.
- Jolles, I. A study of the validity of some hypotheses for the qualitative interpretation of the H-T-P for children of elementary school age: I. sexual identification. *Journal of Clinical Psychology*, 1958, 8, 113-118.

- Kagan, J. Acquisition and significance of sex-typing and sex role identity. In M.L. Hoffman and L.W. Hoffman (Eds.), *Review of Research in Child Development*, Vol. I., New York, Russell Sage Foundation. p. 137-167.
- Kagan, J., and Moss, H. *Birth to Maturity*. New York, John Wiley, 1962.
- Kellogg, R.L. A direct approach to sex role identification of school related objects. *Psychological Reports*, 1969, 24, 839-841.
- Kohlberg, L.A. A cognitive-developmental analysis of children's sex role concepts and attributes. In E.E. Maccoby (Ed.), *The Development of Sex Differences*. Stanford, California, Stanford University Press, 1966. pp. 82-173.
- Kohlberg, L.A., and Zigler, E. The impact of cognitive maturity on the development of sex role attitudes in the years four to eight. *Genetic Psychology Monographs*, 1967, 37, 89-103.
- Landreth, C. Four year old's notions about sex appropriateness of parental care and companionship activities. *Merrill-Palmer Quarterly*, 1963, 9, 175-182.
- Lansky, L.M. The family structure also affects the model: sex role attitudes in parents of preschool children. *Merrill-Palmer Quarterly*, 1967, 13, 139-150.
- Lansky, L.M., and McKay, G. Sex role preferences of kindergarten boys and girls: some contradictory results. *Psychological Reports*, 1963, 13, 415-421.
- Laosa, L.M., and Brophy, J.E. Effects of sex and birth order on sex role development and intelligence among kindergarten children. *Developmental Psychology*, 1972, 6, 409-415.
- Lefkowitz, M.M. Some relationships between sex role preference of children and other parent-child variables. *Psychological Reports*, 1962, 10, 43-53.
- Linton, R. Age and sex categories. *American Sociological Review*, 1942, 7, 581-603.
- Looft, W.R. Sex differences in the expression of vocational aspirations by elementary school children. *Developmental Psychology*, 1971, 5, 366.
- Lowe, W.P. Sex of examiner in relation to sex role preference in kindergarten children. Master's Thesis. Denver, Colorado, University of Denver, 1957. 160 numbered leaves.
- Luce, R.D. *Individual Choice Behavior: A Theoretical Analysis*. New York, John Wiley, 1967.

- Lynn, D.B. A note on sex differences in the development of masculine and feminine identification. *Psychological Review*, 1959, 66, 126-135.
- Lynn, D.B. Sex role and parental identification. *Child Development*, 1962, 33, 555-564.
- Lynn, D.B. Parental and sex role identification. Berkeley, California, McCutcheon, 1969.
- Maccoby, E.E. (Ed.) *The Development of Sex Differences*. Stanford, California, Stanford University Press, 1966.
- Maccoby, E.E., and Jacklin, C.N. (Eds.) *The Psychology of Sex Differences*. Stanford, California, Stanford University Press, 1974.
- Machover, K. *Personality Projection in the Drawings of the Human Figure*. Springfield, Illinois, Thomas, 1949.
- Machover, K. Human figures drawings of children. *Journal of Projective Techniques*, 1953, 17, 85-91.
- Masters, J.C., and Wilkinson, A. Consensual and discriminative stereotypy of sex-type judgements by parents and children. *Child Development*, 1976, 47, 203-217.
- Milton, G.A. The effects of sex role identification on problem solving skills. *Journal of Abnormal and Social Psychology*, 1957, 55, 208-212.
- Mischel, W. A social learning view of sex differences in behavior. In E.E. Maccoby (Ed.) *The Development of Sex Differences*. Stanford, California, Stanford University Press, 1966.
- Mischel, W. Sex-typing and socialization. In P.H. Mussen (Ed.), *Carmichael's Manual of Child Psychology*, Vol. II. New York, John Wiley, 1970.
- Mowrer, O.H. *Learning Theory and Personality Dynamics*. New York, Ronald Press, 1950.
- Murdock, G.P. Comparative data on the division of labor by sex. *Social Forces*, 1937, 15, 551-553.
- Mussen, P.H. Early sex role development. In D.A. Goslin (Ed.), *Handbook of Socialization Theory and Research*. Chicago, Rand McNally, 1969.
- Parsons, T., and Bales, R.F. *Family, Socialization, and Interaction Process*. Glencoe, Illinois, Free Press, 1955.
- Rabban, M. Sex role identification in young children in two diverse

- social groups. *Genetic Psychology Monographs*, 1950, 42, 81-158.
- Rabin, A.I., and Limuaco, J.A. Sexual differentiation of American and Filipino children as reflected in the Draw-A-Person test. *Journal of Social Psychology*, 1959, 50, 207-211.
- Radin, M. Father-child interaction and the intellectual functioning of four-year-old boys. *Developmental Psychology*, 1972, 6, 353-361.
- Reed, M.R., and Asbjornson, W. Experimental alteration of the It Scale in the study of sex role preference. *Perceptual and Motor Skills*, 1968, 26, 15-24.
- Rosenberg, B.G., and Sutton-Smith, B. The measurement of masculinity-femininity in children. *Child Development*, 1959, 30, 373-380.
- Rosenberg, B.G., and Sutton-Smith, B. A revised conception of masculine-feminine differences in play activities. *Journal of Genetic Psychology*, 1960, 96, 165-170.
- Santrock, J.W. Paternal absence, sex-typing and identification. *Developmental Psychology*, 1970, 2, 264-272.
- Schell, R.E., and Silber, J.W. Sex role discrimination in young children. *Perceptual and Motor Skills*, 1968, 27, 379-389.
- Sears, R.R. Development of gender role. In F.A. Beach (Ed.) *Sex and Behavior*. New York, John Wiley, 1965.
- Sher, M., and Lansky, L.M. The It Scale for Children: effects of variations in the specificity of the It figure. *Merrill-Palmer Quarterly*, 1968, 14, 323-330.
- Sherriffs, A.C., and Jarrett, R.F. Sex differences in attitudes about sex differences. *Journal of Psychology*, 1953, 35, 161-168.
- Snedecor, G.W., and Cochran, W.G. *Statistical Methods*. Ames, Iowa, Iowa State University Press, 1967.
- Stewart, L.H. Mother-son identification and vocational interests. *Genetic Psychology Monographs*, 1959, 60, 31-63.
- Strong, E.K. *Vocational Interests of Men and Women*. Stanford, California, Stanford University Press, 1943.
- Sugawara, A.I. Sex role discrimination and preference in preschool aged children. Ph.D. Thesis. Corvallis, Oregon, Oregon State University, 1971. 225 numbered leaves.
- Summers, D.L., and Felker, D.W. Use of the It Scale for Children in assessing sex role preference in preschool Negro children.

- Developmental Psychology, 1970, 2, 330-334.
- Swenson, G.J. Sexual differentiation in the Draw-A-Person test. *Journal of Clinical Psychology*, 1955, 11, 37-41.
- Swenson, G.J., and Newton, K. The development of sexual differentiation in the Draw-A-Person test. *Journal of Clinical Psychology*, 1955, 11, 417-419.
- Tasch, R.J. The role of the father in the family. *Journal of Experimental Education*, 1952, 20, 319-361.
- Terman, L.M., and Miles, C.C. *Sex and Personality Studies in Masculinity and Femininity*. New York, McGraw-Hill, 1936.
- Thomas, L.E. Family correlates of student political activism. *Developmental Psychology*, 1971, 4, 206-214.
- Thompson, N.L., and McCandless, B.R. It score variations by instructional style. *Child Development*, 1970, 41, 425-436.
- Vance, T.F., and McCall, L.T. Children's preferences among play materials as determined by the method of paired comparisons of pictures. *Child Development*, 1934, 5, 267-277.
- Ward, W.D. Variance of sex role preference among boys and girls. *Psychological Reports*, 1968, 23, 467-470.
- Weider, A.P., and Noller, A. Objective studies of children's drawings of human figures: I. Sex awareness and socioeconomic level. *Journal of Clinical Psychology*, 1950, 6, 319-325.

APPENDIX

APPENDIX B

<u>Object</u>	<u>Role or Activity</u>
Needles and thread	Sewing
Iron	Ironing
Hammer and nails	Pounding some nails
Broom	Sweeping the floor
Shovel	Digging
Car	Playing with a car
Stove	Baking
Dishes	Washing and drying the dishes
Boxing gloves	Fighting
Baseball and bat	Playing baseball
Baby bottle	Feeding the baby
Pitcher and glasses	Pouring some juice to drink
Saw	Sawing some wood
Police badge	Being a police officer
Blackboard, desk, and books	Being a teacher
Hairbrush and mirror	Brushing your hair.
Firehat	Being a firefighter
Rifle	Being a soldier
Apples and knife	Making a pie
Stethoscope	Being a doctor