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Dr. Alan Y. Sugawara

A Korean Sex Stereotype Measure (KSSM) was developed to assess the awareness of sex-trait stereotypes among Korean children. The KSSM contains 32 descriptions of psychological characteristics, 16 of which represent the male-trait stereotypes, and 16 of which represent the female-trait stereotypes. In a test situation, subjects were asked to associate the sex-trait stereotypes with either a male, female or "both" a male and a female silhouette figure drawing. Reliability assessments, including internal consistency and stability estimates, indicated the KSSM to be a highly reliable instrument, particularly among third- and sixth-grade Korean children. The KSSM was applied to 180 first-, third-, and sixth-grade Korean boys and girls, using four different scoring procedures. These scoring procedures represented different concepts of sex roles identified as (1) sex-trait awareness-cultural, (2) sex-trait stereotyping-association, (3) sex-trait awareness-egalitarian, and (4) sex-trait awareness-confirmation. The following general results were obtained when considering all scoring procedures together. Korean children's awareness of the sex-trait stereotypes increased with age from the first- to the sixth-grades. In addition, these children were more aware, and sex-typed

more male- than female-traits. Furthermore, while boys were more aware, and sex-typed more male- than female-traits, there were no differences between girls' awareness and sex-typing of male- and female-traits. Finally, sixth-grade children appeared to sex-type more opposite sex-traits as appropriate for "both" males and females than their own sex-traits. Findings were interpreted on the basis of previous theory and research. Discussion also occurred regarding the advantages and disadvantages of using the different scoring procedures in assessing children's awareness of the sex-trait stereotypes. Emphasis was placed on the importance of understanding the concept of sex role being assessed when using these different scoring procedures. Although certain findings were obtained which cut across different scoring procedures, other results obtained appeared to be characteristic of a particular scoring procedure. Therefore, future studies might wish to further clarify the conceptual differences between these scoring procedures in assessing children's awareness of the sex-trait stereotypes.

Developmental Aspects of the Awareness of Sex-Trait Stereotypes Among Korean Children

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Jae Yeon Lee

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APPROVED:

Redacted for Privacy

Associate Professor of Human Development and Family Studies
in charge of major

Redacted for Privacy

Head of Department of Human Development and Family Studies

Redacted for Privacy

Dean of Graduate School

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I. REVIEW OF RELATED LITERATURE

Introduction

The belief that men and women possess contrasting personality characteristics contains within it one of the most pervasive stereotypes in our society. In a culture, certain characteristics are believed to be more descriptive of men than of women, while other characteristics are more descriptive of women than of men. Although there are impressive similarities in these stereotypes across cultures, some of these stereotypes vary from culture to culture (Block, 1973; D'Andrade, 1966; Hoffman, 1977). These stereotypes are known as sex-trait stereotypes, and represent culturally defined characteristics differentially ascribed to men and women.

During the process of socialization, children acquire an awareness of sex-trait stereotypes within the context of a culture. The learning of these sex-trait stereotypes is an important aspect of children's personality development. According to some cognitive-developmental theorists (Kohlberg, 1966, 1969; Kuhn, Nash, & Brucken, 1978; Parish, & Bryant, 1978), once children have determined their own sex group, they become intensively committed to molding their behaviors in accordance with their perceptions of the culture's established standards. These sex-trait stereotypes influence the way children think, feel, and behave.

In recent years, changing conceptions of sex roles have led researchers in the American culture to investigate the cross-cultural aspects of sex role learning among young children. According to their research findings (Best, 1980; Best, Williams, Cloud, Davis, Robertson,

Edwards, Giles, & Fowles, 1977; Tarrier, & Gomes, 1981; Williams, Best, Tilquin, Keller, Voss, Bjerke, & Baarda, 1981), although there is some variation between cultures, generally the learning of sex-trait stereotypes in these cultures begins prior to five years of age, increases throughout the early childhood years, and is nearly completed during adolescence. In most cultures, the male-trait stereotypes are learned somewhat earlier than the female-trait stereotypes.

Although impressive similarities in the developmental aspects of sex role learning have been found among young children from various cultures, interpretations of these results must be made with caution. The major problem encountered involves the validity of the measurement devices used. All measurement devices were developed in the American culture, and were translated into other languages. Although researchers did encounter problems in the translation of these instruments, no serious attempts were made to deal with these problems. Little regard was given to the validity of these measurement devices in their application to another culture, particularly to an Oriental culture. Therefore, in previous research studies involving the administration of translated versions of American-based sex role measures, it was difficult to rule out any rival hypothesis regarding children's learning of sex role stereotypes within a cross-cultural context. As indicated by Jenkin and Vroegh (1969), there are additional traits necessary for understanding sex role learning among children in other cultures, in addition to those "common traits" which cut across cultures.

In a study with eight-year-old Korean children, Lee and Sugawara (in press) concluded from their findings that while some assumptions

regarding children's awareness of sex-trait stereotypes derived from the American culture can be applied to the Korean culture, other assumptions may not be, possibly due to a variety of different socio-cultural and familial circumstances. The measurement device used to assess Korean children's knowledge of sex role concepts in Lee and Sugawara's study was developed with children from the American culture. In the translation of this instrument into the Korean language, it was noted that several sex-trait stereotypes unique to the Korean culture were not included in the measurement device. In addition, as is usually the case with translated measures, difficulty was encountered in translating selected stereotypes into the Korean language, due to the absence of any Korean words to express their specific meanings. In another study by Gough, Chun, and Chung (1968), using 8th and 9th grade children as subjects, a translated version of the Femininity Scale of the California Psychological Inventory was used. These researchers concluded that the translated version of the instrument did not accurately assess the sex role concepts of Korean subjects. Therefore, the problems encountered in using American-based sex role learning instruments in other cultures indicate a pressing need for the development of a new sex role measurement device for use with Korean children.

Awareness of Sex-Trait Stereotypes

Research with American children two to three years of age, indicates that they are aware of the sex role stereotypes within their culture. These children are capable of discriminating between various objects, toys, and activities culturally associated with the sexes (Schell & Silber, 1968; Thompson, 1975). Objects related to sports,

machines, aggression, speed, and power roles are regarded as masculine, while objects associated with the kitchen and home, babies, personal attractiveness, and fantasy roles are regarded as feminine (Kagan, 1964).

American children at three years of age prefer and adopt these objects and activities for their sexes (Biller & Borstelmann, 1967; Edelbrock & Sugawara, 1978; Hartup & Zook, 1960; Sugawara, O'Neill, & Edelbrock, 1976). This favoring of objects and activities associated with the sexes has been used as an indication of children's sex role identification or orientation (Biller & Borstelmann, 1967).

More recently, however, researchers have not only focused their attention upon understanding American children's abilities to discriminate, prefer, adopt or identify with objects and activities associated with the sexes, but have also centered upon studying selected psychological characteristics associated with these sex role stereotypes (Best et al., 1977; Williams, Bennett, & Best, 1975). Known as sex-trait stereotypes, these traits represent a constellation of psychological characteristics believed to be more descriptive of one sex than another (Williams, Daws, Best, Tilquin, Wesley, Bjerke, 1979).

Despite historical and geographical differences, and the present egalitarian movement, research findings with young adults continue to show that there are pervasive sex-trait stereotypes in the American culture (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Williams et al., 1979). Females are generally characterized as dependent, sensitive, affectionate, and sociable, while males are characterized as aggressive, ambitious, rational, and independent (Goodenough, 1957; Kagan, 1964; Whiting & Edwards, 1973).

Studies with American children (Best et al., 1977; Etaugh & Riley, 1979; Williams et al., 1975) have provided us with information regarding children's developmental knowledge of sex-trait stereotypes. Best et al. (1977) administered the Sex Stereotype Measure II (SSM II) to five to 11 year old children in the United States. Knowledge of sex-trait stereotypes was found to develop in a linear fashion between the ages of five and 11. At age five, these children demonstrated an appreciable knowledge of the sex-trait stereotypes. However, their knowledge included only a few of the more salient sex-stereotypic characteristics. By age 11, they had acquired all but a few of the more subtle characteristics. For example, at age five, these children were aware that women were supposed to be gentle and affectionate, and that men were supposed to be strong, aggressive, and dominant. By age eight, they had learned that females were considered weak, emotional, appreciative, excitable, soft-hearted, sophisticated, meek, and submissive, and that males were considered disorderly, cruel, coarse, adventurous, independent, ambitious, loud, and boastful. By age 11, they had learned that females were expected to be talkative, rattlebrained, and complaining, while males were expected to be confident, steady, and jolly. The learning of certain aspects of the male and female stereotypes continues throughout the adolescent years.

While the learning of sex-trait stereotypes occurs linearly, American children at all age levels, were found to know more of the male-trait stereotypes than the female-trait stereotypes. This asymmetrical development in children's knowledge of the male- and female-trait stereotypes has been explained by sociocultural theorists (Broverman

et al., 1972; Feinman, 1981; Flerx, Fidler, & Rogers, 1976; Runge, Frey, Gollwitzer, Helmreich, Spence, 1981; Stoppard & Kalin, 1978) on the basis that attributes and functions stereotypically assigned to the male traits are frequently more highly valued and clearly defined. On the other hand, cognitive theorists (Williams et al., 1975) have suggested another plausible explanation. They indicate that a large proportion of the male-trait stereotypes have obvious behavioral references in comparison to the female-trait stereotypes, therefore, they are much easier to learn. This proposition was recently supported in a research study by Koblinsky, Cruse, and Sugawara (1978) indicating that children are more proficient in remembering the sex role behaviors of story characters than their sex role traits.

Furthermore, evidence is present indicating a difference between American boys and girls in the learning of sex-trait stereotypes. Boys show a greater awareness of the male- than female-trait stereotypes, while girls are equally aware of both. Several investigators have found that boys are more sex-typed and less flexible in their role commitment than girls (Lynn, 1959; Minuchin, 1965; Nadelman, 1974). The explanation of this disparity has been attributed by social learning theorists to the differential socialization pressures placed on boys and girls in learning sex appropriate behaviors (Feinman, 1981; Hoffman, 1977; Runge et al., 1981). For example, boys are often discouraged from engaging in activities identified with the female role, while girls are allowed more freedom to experiment with both male and female roles.

Based on research findings with children from the American culture, a group of researchers have studied children from other

countries to determine whether a correspondence exists between children's learning of sex-trait stereotypes within these cultures (Best, 1980; Tarrier & Gomes, 1981; Lee & Sugawara, in press; Williams et al., 1981). Using a translated version of the SSM II, a device developed for children in the United States, these studies gathered data from children in 24 countries.[1] A summary of the results obtained from these studies indicated that while some variation between the cultures did exist, a general similarity in the characteristics associated with men and women by young children in these cultures was found. The learning of sex-trait stereotypes did approximate the developmental aspects previously found with American children. Provocative though these findings may be, interpretation of them must be made with caution. Validity problems encountered in the application of a measure developed in the American culture to other cultures are still present.

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[1] Australia, Brazil, Canada, Chile, England, Finland, France, Germany, India, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Nigeria, Norway, Patkistan, Peru, Spain, Taiwan, Thailand, United States, Venezuela.

Inadequacies of Previous Research

Research instruments developed in the American culture are commonly used to study children from other cultures because of their greater availability. However, using these measurement devices in other cultures raises several methodological problems in cross-cultural research. One of the major criticisms raised has to do with the validity problems encountered when applying these measurement devices to countries other than where they were developed (Brislin, Lonner, Thorndike, 1973; Brown & Sechrest, 1980; Gough et al., 1968; Triandis, 1980). Often, these measurement devices contain items which reflect Western cultural characteristics and conditions. In the translation of these instruments for use in other cultures, little regard is given to their applicability in other cultures (Brislin et al., 1973; Davidson, 1977). As Van der Flier (1977) and Lord (1977) noted, one of the major problems which confront researchers in cross-cultural studies is the fact that instruments used may contain items which do not have the same meanings for the subjects studied. This circumstance often occurs as a result of the different cultural backgrounds and environmental experiences of the subjects. In these research studies, therefore, plausible rival hypotheses regarding the behaviors being studied cannot be easily ruled out.

Recently, the Sex Stereotype Measure II (SSM II) has been used in 24 countries to assess children's awareness of sex-trait stereotypes (Best, 1980; Best et al., 1977; Lee & Sugawara, in press; Tarrier & Gomes, 1981; Williams et al., 1981). Despite its present wide use, the problem related to the validity of the measurement device in its

application to other cultures is still apparent, and has not been dealt with.

The SSM II is a picture-story questionnaire developed on the basis of male and female stereotypes defined by college students in the United States. It has been translated from the original American-English version into other languages for use with children in other cultures. As indicated by Brislin et al. (1973), translation is the single most important adaptation procedure undertaken when instruments developed in one culture are applied to another culture. Such a procedure assumes that the items found in the translated and original versions of the test are comparable. While several researchers (Best, 1980; Tarrier & Gomes, 1981; Williams et al., 1981) using the SSM II have reported the translation of such a device to be relatively easy, due to its brevity and the simple vocabulary used, other researchers (Brislin et al., 1973; Sechrest, Fay, & Zaidi, 1972; Lee & Sugawara, in press) have reported difficulties in the translation process. Finding equivalent test items in the language of different cultures has caused some difficulties. However, if an accurate assessment of the behavior being studied is to be obtained, it is necessary for researchers to remove the specific influence of language on the subjects' responses in a test. The adoption of the "back translation" technique has helped in dealing with this problem. However, the lack of equivalence between test items may be due to the absence of same concepts in the languages of different cultures. Such a circumstance was reported in the use of the SSM II with Korean children (Lee & Sugawara, in press). While certain traits in the SSM II, such as "independent" (toklib simi kanghan), and

"talkative" (sooda sleoun), have equivalent Korean words, others such as "whiny" and "flirt" do not have Korean word equivalents.

There may be other problems inherent in using the SSM II with Korean children as well. The test itself may have a Western bias built into it (Berry, 1980; Brown & Sechrest, 1980; Irvine & Carroll, 1980; Witkin, 1977). The SSM II items were chosen by college students to represent salient features of the stereotypes in the United States. This may have led to the development of a biased pool of items, which represents only the American cultural stereotypes. While there are certain "common" traits associated with sex roles which cut across cultures, additional traits are present which are unique to particular cultures (Jenkin & Vroegh, 1969). For example, in Lee and Sugawara's (in press) study with Korean children, translation of the SSM II led to the discovery that some traits attributed to men and women in the Korean culture were not included in the test. One trait, "yamchun han," which is often used to describe women who have a combination of traits such as "modest," "well-behaved," and "gentle" was not included in the SSM II. Another trait, "maumi nulbun" often used to describe men as "broad-minded" was also not included in the test. Whatever, the merits of the original test, and its initial validity, translation and application of such a test in another culture is always questionable (Gough et al., 1968). In discussing problems associated with using measurement devices across cultures, Triandis (1977) suggests the development of tests based on characteristics of a particular culture, using identical procedures to generate measurement devices across cultures, instead of using identical measurements.

The second area in which the SSM II has received much criticism is in its scoring procedure. In a test situation, subjects are forced to associate each sex-trait found in the SSM II with either a male or a female silhouette figure drawing. This same forced-choice scoring procedure was used by Horance (1977) in his study. A point of one is given if a subject associated a sex-trait with the "appropriate" silhouette figure drawing (e.g., male-trait to a male silhouette figure drawing, and a female-trait to a female silhouette figure drawing). However, a point of zero was given if a subject associated a sex-trait with the "inappropriate" silhouette figure drawing. The subject's sex-trait awareness score, therefore, was simply the sum of the number of appropriate associations made by the subject in the SSM II.

In any test situation, when subjects are forced to choose between two predetermined response categories, problems may arise in understanding the meaning of their responses. This is so because of the fact that in such a situation, subjects are forced to choose between two alternatives, even though they may not agree with any one of these alternatives. Therefore, inclusion of a response category that represents neither one or the other of these alternatives, but "both" of them, may allow for a more accurate understanding of the subjects' responses. Furthermore, considering the concept of androgyny which has permeated recent sex role theory and research, inclusion of the "both" category into the test administration and scoring procedure appears worthwhile. Masculinity and femininity are no longer looked upon as representing characteristics at opposite ends of the same continuum. According to present day researchers (Bem, 1974; Jenkin & Vroegh, 1969), individuals possess varying degrees of what has been stereotyped

as both masculine and feminine traits. Therefore, in the present study the "both" male and female category was used in the test administration and scoring procedure.

Despite this fact, however, the scoring procedure of the SSM II developed by Best et al (1977) continued to be used as one among four different ways of scoring the data obtained in this study. A point of one was given only if a subject associated a sex-trait with the "appropriate" silhouette figure drawing. All other responses of the subject were given a point of zero. The concept of sex role that is being assessed here has been identified as sex-trait awareness-cultural. It is defined as the degree to which a subject's classification of a trait agrees with the cultural sex-typing of that trait. This concept will become important later when additional concepts of sex roles, based on different scoring procedures, are identified for comparison purposes.

Although Best et al (1977), in developing the SSM II, did not use the "both" male and female category in their test administration and scoring procedure, other studies are present in which the "both" category has been used. One of these studies is Gropper's (1977) study, in which neutral items, in addition to sex-typed items were included in a test. More specifically, in Gropper's study, 12 miniature objects, three identified as male-typed, four identified as female-typed, and five identified as neutral, were included in the test. Subjects' responses to each of these objects were categorized as male-typed, female-typed, or both. In scoring subjects' responses (1) an agreement score was given if subjects identified male-typed and female-typed objects as male-typed and female-typed, respectively, (2) a disagreement

score was given if subjects identified male-typed objects as female-typed, and female-typed objects as male-typed, (3) a neutral score was given if subjects identified sex-typed objects as "both", (4) a neutral agreement score was given if subjects identified neutral objects as non-sex-typed, and (5) a neutral disagreement score was given if subjects identified neutral objects as sex-typed. In addition, a sum of the agreement, disagreement, neutral disagreement scores of the subjects represented their sex-typing scores.

Several concerns can be raised about the use of this scoring procedure in assessing children's awareness of the sex role stereotypes. Both the use of different numbers of objects associated with each of the sex-typed categories in the test, and the assignment of percentages as scores to subjects' responses based on these numbers of objects (e.g., three male-typed objects, two agreement scores = 66% or 66 points; four female-typed objects, two agreement scores = 50% or 50 points; and five neutral items, two agreement scores = 40% or 40 points) to assess subjects' knowledge of the sex role stereotypes do appear problematic. Use of different numbers of objects within each of the sex-typed categories may have led to a violation of the assumption regarding the constancy of variance among subjects' scores across all sex-typed categories, when they were combined for subjects' sex-typing scores to be used in data analyses. Despite the fact that subjects' scores in each sex-typed category were standardized using percentages, this scoring procedure gave more weight to agreement responses associated with male-typed objects than to either agreement responses associated with female-typed and neutral objects, respectively. Such problems do lead one to

question the adequacy of this scoring procedure in assessing subjects' awareness of the sex role stereotypes.

In addition, the inclusion of neutral objects in any test of children's awareness of sex role stereotypes may not be necessary. As indicated previously, since Gropper (1977) was interested in finding out about the degree to which subjects sex-typed various objects, the use of neutral objects in a test may have been worthwhile. However, since the interest of this study focuses upon children's knowledge of the sex role stereotypes, the inclusion of neutral objects in a test does not appear necessary. The sex role stereotypes have already been identified. In this study, the primary interest is on assessing children's knowledge of the sex role stereotypes.

Despite the concerns raised regarding Gropper's (1977) scoring procedure, the present study also utilized her scoring procedure in analyzing the data obtained in this study. This means that subjects were given a point of one, if they associated a sex-trait with either the male or the female silhouette figure drawings, and given a point of zero, if they associated a sex-trait with the "both" male and female silhouette figure drawings similar to the sex-typing score in Gropper's study (1977). The concept of sex role that is being assessed here has been identified as sex-trait stereotyping-association. It represent the degree to which subjects identify a particular trait as being descriptive of one sex or the other, whatever, their cultural sex-typing may be. Scores of subjects based on this concept of sex role were compared with other concepts of sex roles assessed in this study.

Another group of studies is present, which uses the "both" category in its scoring procedure (Flerx et al., 1976; Koblinsky & Sugawara, 1979). In assessing subjects' awareness of the sex role stereotypes, this group of studies was interested in assessing the degree to which subjects' classification of an object was in agreement with the cultural sex-typing of that object, as well as the degree to which subjects sex-typed a particular object. For example, a point of two was given, if a subjects' classification of an object was in agreement with the cultural sex-typing of that object, and a point of one was given if a subjects' classification of an object was in the direction opposite that of the cultural sex-typing of that object. However, a point of zero was given if a subject classified an object as being applicable to "both" males and females. In using this scoring procedure, therefore, subjects' classification of objects were scored from most stereotypic (2) to most egalitarian (0).

This scoring procedure does overcome concerns raised about Gropper's (1977) scoring procedure summarized preciously in a number of ways. First, an equal number of male- and female-typed objects were included in the test. Therefore, the problem regarding the violation of the assumption associated with the constancy of variance across sex-typed categories was no longer a problem. Second, the equal numbers of male- and female-typed objects present in the test, do not lead the researcher into giving more weight for subjects' responses to male- than female-typed objects. Finally, neutral objects were not included in the test, since the interest of this study was on assessing children's awareness of the sex-trait stereotypes rather than children's sex-

typing of them into male and female categories. Using the scoring procedure developed by Flerx et al. (1976) and Koblinsky and Sugawara (1979) in analyzing the data obtained in this study, therefore, represents the third concept of sex role that was studied. This concept of sex role has been identified as sex-trait awareness-egalitarian.

It shoud be noted, however, that while the scoring procedure of Flerx et al. (1976), and Koblinsky and Sugawara (1979) did overcome problems associated with Gropper's (1977) scoring procedure, their scoring procedure does harbor within it a major problem. This problem has to do with the combining of an assessment of the subjects' awareness of the sex role stereotypes with that of the subjects' sex typing of an object. In this case, more weight was given if the subjects' classification of an object was in agreement with the cultural sex-typing of that object than when the subjects' classification of an object was in a direction opposite that of the cultural sex-typing of that object. For example, when using the scoring procedure of Flerx et al. (1976) and Koblinsky and Sugawara (1979), if a subject classified all 16 male-typed objects as female, a score of 16 would be obtained. On the other hand, if another subject classified eight of the male-typed objects as male, and the remaining eight as "both" male and female, a score of 16 would also be given. Yet, one cannot say that these subjects had the same degree of knowledge of the sex role stereotypes.

In order to overcome this major problem, a fourth scoring procedure was used to score the data obtained in this study. This

fourth scoring procedure focused upon assessing the degree to which subject's own conception of a set of sex-traits confirmed the cultural sex-typing of those traits. This concept of sex role was suggested by Edelbrock and Sugawara (1978) in a previous study, and has been identified as sex-trait awareness-confirmation. It is calculated by comparing the proportion to which a subject's classification of a set of sex-traits agrees with the cultural sex-typing of those traits, with the proportion to which a subject sex-types a set of sex-traits. For example, in order to calculate a subject's sex-trait awareness-confirmation score for a set of male-traits in a test, the number of times a subject classifies the male-traits as male-typed is compared with the number of times a subject classifies the male-traits as male-typed or female-typed. In this manner, unlike the Flerx et al. (1976) and Koblinsky and Sugawara (1979) scoring procedure, the subject's knowledge of the sex-trait stereotypes is separated from the subject's sex-typing of those traits. In this scoring procedure, the "both" category continues to be given a point of zero, but it can also affect the proportional sex-trait awareness-confirmation scores of the subjects.

Purpose of Study

On the basis of a review of literature regarding the inadequacies of previous research in assessing children's awareness of sex-trait stereotypes within a cross-cultural context, it appears worthwhile to pursue the development of a new sex role measure for use with first-, third-, and sixth-grade Korean boys and girls. Procedures used in developing this new measurement device were similar to those used in

developing the SSM II (Best et al., 1977), previously designed for American children. Furthermore, due to important issues raised regarding the use of a variety of scoring procedures in assessing children's awareness of the sex-trait stereotypes, four different scoring procedures were used in data analyses. These different scoring procedures represent different concepts of sex roles identified as (1) sex-trait awareness-cultural, (2) sex-trait stereotyping-association, (3) sex-trait awareness-egalitarian, and (4) sex-trait awareness-confirmation.

II. METHOD

Subjects

The subjects for this study consisted of 180 Korean children, 60 each at the first-, third, and sixth-grade levels. Each grade level included 30 boys and 30 girls. All subjects were enrolled in a primary school in Kwangju-City, a state capital of Korea. The mean ages of the first, third, and sixth grade subjects were 6 years-2 months, 8 years-3 months, and 11 years-3 months, respectively. All subjects came from intact families, had at least one opposite-sexed sibling, and possessed no learning problems as judged by their teachers. While lines differentiating social classes in Korea are not as clear-cut as those in the United States, Chung, Palmore, Lee and Lee's (1972) Index of Social Position was adapted for use in determining the social class of families from which the subjects came. With this measure, parents' education and occupation are used to determine a family's social class. All subjects came from middle-class Korean families.

Korean Sex-Trait Stereotype Measure (KSSM)

The Korean Sex-Trait Stereotype Measure (KSSM), developed for this study, was used to assess subjects' awareness of the sex-trait stereotypes asscciated with the Korean culture. This measure consists of 32 descriptions of psychological characteristics known as sex-trait stereotypes. Sixteen of these descriptions represent characteristics typically attributed to males, while the remaining 16 characteristics are typically attributed to females. Each of these 32 sex-trait descriptions are included in simple statements asking subjects to

associate each of these descriptions with one of three silhouette figure drawings; one containing a male figure, another a female figure, and still another containing "both" a male and a female figure. The statements are read aloud to the subjects by the examiner, and presented one at a time.

Development of KSSM

The development of the KSSM was undertaken in five different phases.

Phase I: During Phase I, traits describing males and females in the Korean culture were identified. Sixty Korean adults (30 males and 30 females) who were enrolled at Oregon State University or had a spouse enrolled were asked to complete a questionnaire requesting them to generate as many traits they felt were representative of the male and female stereotypes in the Korean culture. In addition, a Korean dictionary (Minjung Seokwan, 1968) and the extensive Adjective Check List developed by Gough and Heilbrun (1965) were examined for possible traits that might be representative of males and females in the Korean culture. In total, 310 traits (155 for each sex) were generated using these procedures.

Phase II: Following identification of the traits in Phase I, 100 male and 100 female college students in Korea were asked to judge each trait according to whether it was representative of males, females or "both" males and females in the Korean culture. The criterion used for possible inclusion of a trait in the KSSM involved a 75% agreement among the male and the female college students that a trait was characteristic of either the male or the female stereotype in the Korean

culture. The traits which met this criterion included 61 male-traits and 59 female-traits. From this list of male and female traits, 32 traits, 16 each representing the male- and female-trait stereotypes in the Korean culture, were selected for inclusion in the KSSM. Selection of these 32 traits was done by four Korean graduate students at Oregon State Univeristy with academic backgrounds in child development, education, and psychology. Criteria used by these Korean graduate students in selecting the 32 traits that made up the final KSSM were:

(1) Of the 32 traits selected, 16 had to be male-trait stereotypes, while the remaining 16 had to be female-trait stereotypes.

(2) When groups of traits were present and considered to be synonymous with each other, the trait judged as most accurate in describing that trait was selected.

(3) When certain traits had direct male or female counterparts (e.g., independent-dependent), only one in the pair of traits was selected.

(4) Traits judged as highly subjective and evaluative in nature were excluded (e.g., attractive, charming).

(5) Traits that might be markedly influenced by the children's teachers were eliminated (e.g., talkative).

(6) A reasonable balance between traits judged as positive and negative representing males and females in Korea was selected. Nine of the male- and nine of the female-traits were judged in the KSSM as positive, while seven of the male- and seven of the female-traits were judged as negative.

Phase III: After selecting the 32 traits for inclusion in the KSSM, the traits were translated into a language understandable to Korean children. Four judges knowledgeable in the language, culture, and children of Korea were used in this translation process. In addition, these judges were asked to construct statements including each of the 32 traits selected for inclusion in the KSSM. These statements were

known as sex-trait descriptions. The content of each sex-trait description consisted of a definition of the trait, and whenever possible, the actual trait. All judges had to agree upon the statement before inclusion in the KSSM. An example of a female-trait description for the female-trait "shy", translated from Korean is as follows:

> One of these people is shy. They are afraid to talk and blush easily in front of others. Which is the shy person? A man, a woman or both?

An example of a male-trait description for the trait "ambitious" is as follows:

> One of these persons had always wanted to own a big company. They worked hard, saved money, and was able to establish one. Which person is ambitious? A man, a woman or both?

Table 1 summarizes the 16 male- and 16 female-traits included in the KSSM, and the descriptions associated with them. The order in which these traits were included in the KSSM was varied.

Phase IV: Once the sex-trait descriptions were developed, each sex-trait description was paired with three drawings, containing four silhouette figures. One of these drawings contained a male silhouette figure, a second contained a female silhouette figure, and a third contained both a male and a female silhouette figure. These drawings were full-length silhouette figures, and were adapted from the drawing pool developed for the SSM II by Best et al. (1977). The position of the silhouette figure drawings alongside each sex-trait description was altered to avoid problems associated with position response, and a simple alternation response set.

Phase V: A final check of the KSSM, before administering it to the subjects of this study, was undertaken by submitting it for review

Table 1. Male (M) and Female (F) Traits and Their Descriptions from the Korean Sex Stereotype Measure (KSSM)*

Item	Sex	Trait	Description
1	F	shy	-afraid to talk and blushes easily, is shy?
2	M	blunt	-talks as if angry with you, is blunt?
3	M	ambitious	-works hard, saves money, able to establish a big company, is ambitious?
4	F	sentimental	-cries easily, is sentimental?
5	F	affectionate	-likes and hugs children a lot, is affectionate?
6	M	strong	-is strong?
7	M	dependable, reliable	-appears to manage things well, is dependable?
8	F	gentle, kind	-answers with a smile, is gentle?
9	F	winsome	-wants to get attention?
10	M	dominant	-wants others to follow their own rules and ideas?
11	M	dull	-insensitive to one's feelings?
12	F	timid	-surprised to hear a door slam?
13	F	soft-hearted	-feels sorry when a puppy gets hurt?
14	M	active	-eagerly participates in various activities, is active?
15	M	untidy	-leaves clothes all over the floor, is untidy?
16	F	fashionable	-likes to keep up with the latest fashion, is fashionable?
17	F	fickle	-changes their minds often, is fickle?
18	M	stern	-frowns when things are done wrong, is stern?
19	M	aggressive	-gets into fights, is aggressive?
20	F	well-behaved, modest	-behaves nicely?
21	F	thrifty, prudent	-makes the best use of even a little amount of money?
22	M	independent	-does things by themselves, is independent?
23	M	broadminded	-is always understanding, is generous?
24	F	delicate, fine	-is sensitive and cares about small matters, is delicate?
25	F	submissive, docile	-does as they are told without complaining, is submissive?
26	M	courageous, brave	-plunges into the river to save a child despite risks, is brave?
27	M	have leadership quality	-takes the initiative in doing things together?
28	F	jealous	-is jealous?
29	F	neat, tidy	-arranges things in order, is neat?
30	M	dignified	-behaves like an adult, is dignified?
31	M	coarse	-uses bad words, is coarse?
32	F	fussy	-always makes a fuss about things, is fussy?

* Translated from the Korean language. In some cases, English language equivalents were difficult to find.

to 10 of the 30 graduate students used in Phase I of this study. These graduate students were asked to comment upon whether the sex-trait stereotypes included in the KSSM could be used to assess children's knowledge of the sex-trait stereotypes in the Korean culture. They also were asked to comment upon whether each of the sex-traits were described accurately. In addition, a pilot study using six Korean children ages six to 11 years as subjects was conducted with the KSSM. No major modifications in the KSSM were required as a result of this check and pilot study.

Scoring

Four different approaches to scoring the KSSM, derived on the basis of previous studies on children's sex role learning, were used in this study. Table 2 describes these four scoring procedures.

Sex-Trait Awareness-Cultural. The concept of sex-trait awareness-cultural refers to the degree to which subject's classification of a trait agrees with the cultural sex-typing of that trait. It was developed by Best et al. (1977) in a study using five- to 11-year-old children as subjects. In the KSSM, if a subject classifies a trait in a manner that agrees with the cultural sex-typing of that trait, a point of one is given. This can happen in two ways: (1) when a male-trait is associated with the male silhouette figure drawing, and (2) when a female-trait is associated with the female silhouette figure drawing. However, if a subject classifies a trait in a manner that disagrees with the cultural sex-typing of that trait, a point of zero is given. This can happen in four ways: (1) when a male-trait is associated with the female silhouette figure drawing, (2) when a female-

Table 2

Description of the Four Different Scoring Procedures

(M = Male; F = Female; B = Both)

	Sex-Trait Awareness-Cultural (A)	Sex-Trait Stereotyping-Association (B)	Sex-Trait Awareness-Egalitarian	Sex-Trait Awareness-Confirmation
Scoring Procedure	M-Trait F-Trait (Responses) M : 1 F : 1 F, B : 0 M, B : 0	M-Trait F-Trait (Responses) M, F : 1 B : 0 B : 0	M-Trait F-Trait (Responses) M : 2 F : 2 F : 1 M : 1 B : 0 B : 0	M-Trait F-Trait Proportion of $\frac{(A)}{(B)}$
Scores*	M Score : 7 F Score : 11 Total Score : 18	M Score : 10 F Score : 14 Total Score : 24	M Score : 17 F Score : 25 Total Score : 42	M Score : $\frac{7}{10}$ (.70) F Score : $\frac{11}{14}$ (.79) Total Score : $\frac{18}{24}$ (.75)

* Example of Raw Data: This subject identified 7 male-traits as male-typed; 3 male-traits as female-typed; and 6 male-traits as appropriate for both males and females. In addition, this subject identified 11 female-traits as female-typed; 3 female-traits as male-typed; and 2 female-traits as appropriate for both males and females.

trait is associated with the male silhouette figure drawing, (3) when the male-trait is associated with the "both" male and female silhouette figure drawing, and (4) when the female-trait is associated with the "both" male and female silhouette figure drawing.

On the basis of this scoring procedure, a subject's response to each sex-trait was scored as stereotypic (1) or non-stereotypic (0). Since there are 32 sex-trait descriptions in the KSSM, a total sex-trait awareness-cultural score, ranging from zero to 32 can be obtained by a subject. In addition, since 16 of the 32 sex-trait descriptions are male-traits, and 16 are female-traits, separate male- and female-trait awareness-cultural scores, ranging from zero to 16 can also be obtained by a subject.

Sex-Trait Stereotyping-Association. The concept of sex-trait stereotyping-association refers to the degree to which a subject identifies a particular trait as being descriptive of one sex or the other. This concept was developed in a study by Gropper (1977) with children ages four to eight. In the KSSM, if a subject associates a trait whether culturally sex-typed as male or female, to either a male or a female, a point of one is given. This can occur in four ways: (1) when a male-trait is associated with the male silhouette figure drawing, (2) when a male-trait is associated with the female silhouette figure drawing, (3) when a female-trait is associated with a female silhouette figure drawing, and (4) when a female-trait is associated with a male silhouette figure drawing. However, if a subject classifies a trait, whether culturally sex-typed as male or female, as being descriptive of "both" males and females, a point of zero is given. This can occur in

two ways: (1) when a male-trait is associated with the "both" male and female silhouette figure drawing, and (2) when a female-trait is associated with the "both" male and female silhouette figure drawing. On the basis of this scoring procedure, a subject's response to each sex-trait was scored as sex-typing (1) and non-sex-typing (0). Since there are 32 sex-trait descriptions in the KSSM, a total sex-trait stereotyping-association score, ranging from zero to 32 can be obtained by a subject. Furthermore, since 16 of the 32 sex-trait descriptions are male-traits, and 16 are female-traits, separate male- and female-trait stereotyping-association scores, ranging from zero to 16 can also be obtained by a subject.

Sex-Trait Awareness-Egalitarian. The concept of sex-trait awareness-egalitarian refers to the degree to which a subject is aware of the sex-trait stereotypes, when the degree to which a subject classifies a trait agrees with the cultural sex-typing of that trait, and the degree to which a subject stereotypes a trait are used in the scoring procedures. This scoring procedure was used by Flerx et al. (1976) and Koblinsky and Sugawara (1979) in studies with children, three to six years of age, to give serious attention to a subject's classification of a trait as being descriptive of "both" males and females, as well as to either males or females. In the KSSM, if a subject classifies a trait in a manner that agrees with the cultural sex-typing of that trait, a point of two is given. This can occur in two ways: (1) when a male-trait is associated with the male silhouette figure drawing, and (2) a female-trait is associated with the female silhouette figure drawing. However, if a subject classifies a trait in a manner that is opposite that of the cultural sex-typing of that trait,

a point of one is given. This was done because in this case, the subject is still sex-typing the trait, although it is in a direction opposite that of the cultural definition. This can happen in two ways: (1) when a male-trait is associated with the female silhouette figure drawing, and (2) when a female-trait is associated with the male silhouette figure drawing. Furthermore, if a subject classifies a trait, whether male-typed or female-typed, as being descriptive of "both" males and females, a point of zero is given, since the subject is not stereotyping the trait to either sex at all. This can occur in two ways: (1) when a male-trait is associated with the "both" male and female silhouette figure drawing, and (2) when a female-trait is associated with the "both" male and female silhouette figure drawing.

On the basis of this scoring procedure, a subject's response to each sex-trait was scored from most stereotypic (2) to most egalitarian (0). Since there are 32 sex-trait descriptions in the KSSM, a total sex-trait awareness-egalitarian score, ranging from zero to 64 can be obtained by a subject. In addition, since 16 of the 32 sex-trait descriptions in the KSSM are male-traits, and 16 are female-traits, separate male- and female-trait awareness-egalitarian scores, ranging from zero to 32 can be obtained by a subject.

Sex-Trait Awareness-Confirmation. The concept of sex-trait awareness-confirmation refers to the degree to which a subject's own conception of a set of sex-traits confirms the cultural sex-typing of those traits. This concept was suggested in a study by Edelbrock and Sugawara (1978) with children three to five years of age. In the KSSM, sex-trait awareness-confirmation is derived by calculating the

proportion to which a subject's classification of a set of sex-traits agrees with the cultural sex-typing of those traits. For example, the KSSM contains 16 male-traits. If a subject associates seven of the male-traits to the male silhouette figure drawing, three of them to the female silhouette figure drawing, and six of them to the "both" male and female silhouette figure drawing, then the male-trait awareness-confirmation score for this subject would be 7/10 or .70. Likewise, since the KSSM contains 16 female-traits, if the same subject associates 11 of these female-traits to the female silhouette figure drawing, three of them to the male-silhouette figure drawing, and two of them to the "both" male and female silhouette figure drawing, the female-trait awareness-confirmation score of the subject would be 11/14 or .79. To obtain a total sex-trait awareness-confirmation score for this subject, simply add the number of times the subject associates the male-traits to the male silhouette figure drawing to the number of times the subject associates the female-traits to the female-silhouette figure drawing, then divide that sum by the number of times the subject associates the male-traits to the male and female silhouette figure drawings plus the number of times the subject associates the female-traits to the female and male silhouette figure drawings. The resultant quantity for this subject would then be:

$$\frac{7 + 11}{10 + 14} = \frac{18}{24} = .75$$

This quantity would represent the subject total sex-trait awareness-confirmation score.

Reliability

In order to estimate the reliability of the KSSM as a measure of children's awareness of the sex-trait stereotypes, two types of reliability studies were undertaken.

The Kuder-Richardson Method (Formula 20) was used to obtain an estimate of the internal consistency for the KSSM. This method of estimating reliability provides the researcher with a means of assessing the degree to which items in a test are homogeneous in terms of how subjects responde to the items. The subjects for this reliability study included 60 subjects at the first-, third-, and sixth-grades with an equal numbers of boys and girls represented at each grade level. According to Bruning and Kintz (1977), a Kuder-Richardson (K-R) value of .70 indicated a high reliability for a test. K-R values were calculated for various age, sex, and type of sex-trait groupings. Table 3 summarizes the K-R values obtained. Findings revealed that the KSSM was highly reliable (internally consistent) among third- and sixth-graders for the total KSSM, and for various sex and type of sex-trait grouping at these age levels. Among first-graders, however, the KSSM was less reliable. While the K-R values obtained among first-graders for the total KSSM, among boys, girls, and both boys and girls combined, were high; the K-R values obtained for boys, girls, and both boys and girls combined, when male- and female-traits were analyzed separately, were low. However, since the K-R values calculated for the total KSSM overall first-graders were high, the lower K-R values associated with the KSSM at this age level may have been a product of the characteristics of the subject population studied rather than the

Table 3

Kuder-Richardson 20 (K-R) Values Estimating

the Internal Consistency of the KSSM

	First grade			Third grade			Sixth grade		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	.48	.67	.59	.73	.71	.72	.78	.80	.79
Female-Trait	.67	.32	.56	.79	.73	.76	.77	.69	.73
Total	.72	.74	.73	.86	.84	.85	.84	.86	.85

homogeneity of items found in the test. These low internal consistency estimates may be indicative of the subjects' random response to the test items due to a number of reasons, including (1) lack of attention to the test, (2) lack of comprehension of the test, and (3) limited knowledge of the sex-trait stereotypes.

In addition to a measure of internal consistency, a test-retest reliability study was also undertaken for the KSSM using a two week time interval between testings. Subjects for this reliability study included 20 first-, 60 third-, and 60 sixth-grade Korean children. An equal number of boys and girls were represented at each of these grade levels. Subjects' sex-trait stereotype scores at each testing were calcualted on the basis of the degree to which they identified the cultural sex-trait stereotypes "correctly". The Pearson product-moment correlation method was used to estimate the test-retest reliability coefficients for the KSSM among various age, sex, and type of sex-trait groupings. These reliability coefficients provide the researcher with an estimate of stability for the KSSM. Table 4 summarizes the reliability coefficients obtained. Findings revealed that the KSSM was highly stable among third- and sixth-graders for the total KSSM, and for various sex and type of sex-trait groupings at these age levels. All coefficients obtained at these age levels were significant at the $p < .001$ level. Among first graders, however, the KSSM appeared less stable. While the reliability coefficients obtained among first graders were significant at the $p < .01$ level when all subjects were combined for the total KSSM, and for male- and female-traits analyzed separately, the reliability coefficients obtained for boys and for girls, when

Table 4

Test-Retest Reliability Coefficients for the KSSM

	First grade			Third grade			Sixth grade		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	.49*	.54*	.52**	.70***	.77***	.73***	.63***	.80***	.77***
Female-Trait	.51*	.54*	.53**	.86***	.83***	.85***	.79***	.80***	.79***
Total	.52*	.55*	.54**	.84***	.89***	.86***	.77***	.81***	.80***

* $p < .10$

** $p < .01$

*** $p < .001$

male- and female-traits were analyzed separately and combined were significant only at the $p < .10$ level. However, since the reliability coefficients calculated for the total KSSM overall first graders were significant at the $p < .01$ level, the lower reliability coefficients associated with the KSSM at this age level may have been due to the smaller sample size used at this age level.

Procedures

Two investigators were used to administer the test to the subjects of this study. Prior to administering the test to the subjects, administration procedures were explained to the investigators. Group administration procedures were used to test the third- and sixth-grade Korean subjects. The 32 sex-trait descriptions included in the KSSM were complied in individual test booklets and were read aloud by the investigator as the subjects followed along. Each sex-trait description was presented one at a time, accompanied by the three silhouette figure drawings; one containing a male figure, another a female figure, and still another containing both a male and female figure. The position of presenting these silhouette figure drawings for each sex-trait description was varied. Subjects were asked to associate each of the sex-trait descriptions with either one of these three silhouette figure drawings.

The first-grade subjects were administered the KSSM individually in a private room, separate, but adjoining the school classroom. For these subjects, the three silhouette figure drawings were placed on separate cards rather than in a test booklet for ease of test administration. Administration of the KSSM to all subjects took approximately 25 minutes.

III. RESULTS

The primary purpose of this study was to develop a new sex role measure, called the Korean Sex Stereotype Measure (KSSM), to assess the awareness of sex-trait stereotypes among 180 first-, third-, and sixth-grade Korean boys and girls. Procedures used in developing this measurement device was similar to those used by Best et al. (1977) in developing the SSM II, previously designed for American children. Furthermore, due to important issues raised regarding the use of a variety of scoring procedures in assessing children's awareness of the sex-trait stereotypes, four different scoring procedures representing different sex role concepts, including sex-trait awareness-cultural, sex-trait stereotyping-association, sex-trait awareness-egalitarian, and sex-trait awareness-confirmation were used.

To determine the effects of age, sex, and type of sex-trait on Korean children's awareness of the sex-trait stereotypes, three 3 (age) x 2 (sex) x 2 (type of sex-trait) split-plot analyses of variances were used to analyze the subject's sex-trait awareness-cultural, sex-trait stereotyping-association, and sex-trait awareness-egalitarian scores. The split-plot ANOVA statistic was used in these data analyses because it estimated the main and interaction effects of age and sex of subjects on two (male and female) types of sex-traits conjointly (total sex-trait stereotype score), and then separately (male- vs. female-trait stereotype scores).

In the split-plot ANOVA design, the age and sex of subjects are treated as a factorial set of treatments (whole plot). The two types

of sex-traits (split-plot) represent two measures on each subject in the whole plot.

The F-values generated from the whole plot analysis are used for testing the statistical significance of the main and interaction effects of age and sex of subjects on the two types of sex-traits conjointly. For example, a significant F-value for the main effect of age would indicate that subjects from different age groups were significantly different from each other in their total sex-trait stereotype scores.

F-values generated from the split-plot analysis are used for testing the statistical significance of the difference between the two types of sex-traits, and their interactions with other experimental treatments. For example, a significant sex x type of sex-trait interaction would indicate that boys and girls differ in their male- and female-trait stereotype scores.

Aside from using the three split-plot ANOVAs in data analyses, four other types of analyses were undertaken to determine the effects of age, sex and type of sex-trait on subjects' sex-trait awareness-confirmation scores. These analyses were undertaken after arcsin transformation of the sex-trait awareness-confirmation scores of the subjects. Arcsin transformation of scores was designed for use with data involving a binomial proportion to stabilize the unconstant variances which violate the assumption of constant variance in the analysis. The split-plot ANOVA could not be applied to the proportional total sex-trait awareness-confirmation scores of subjects, since the sum of the proportional male-trait, and proportional female-trait

awareness-confirmation scores of the subjects is not the same as the proportional total sex-trait awareness-confirmation scores of the subjects.

Therefore, due to these scoring procedures, the analysis of variance was applied to the total sex-trait awareness-confirmation scores of subjects. This was done to determine the effects of age and sex on subjects' total sex-trait awareness-confirmation scores. Second, a multivariate analysis of variance was used to analyse the male-trait and female-trait awareness-confirmation scores simultaneously. This was done to determine the effects of age and sex on the male-trait and female-trait awareness-confirmation scores of subjects considered at the same time. Finally, male- and female-trait awareness-confirmation scores of each subject were paired together to determine the difference between the subjects' male- and female-trait awareness-confirmation scores. A pair t-test was used to determine their difference. Furthermore, the analysis of variance was applied to estimate the effects of age and sex on the difference between subject's male- and female-trait awareness-confirmation scores.

Since this study represented an initial evaluation of a new measurement device, the results of post-hoc analyses were not specified, but exploration of the means were undertaken to detect general trends in the data.

Sex-Trait Awareness-Cultural

The effects of age, sex, and type of sex-trait on subjects' sex-trait awareness-cultural scores were tested using the 3 x 2 x 2 split-plot ANOVA statistic previously described. Table 5 summarizes the mean sex-trait awareness-cultural scores of subjects by age, sex, and type of sex-trait. There was a significant main effect for age, F (2, 174) = 8.79, $p < .001$. Inspection of the mean values associated with this analysis in Table 5 indicates that overall the sex-trait awareness-cultural scores of subjects generally increased with age.

While no significant main effect for sex was obtained, a significant main effect for type of sex-trait, F (1, 174) = 7.09, $p < .05$, and a significant interaction effect for type of sex-trait x sex, F (1, 174) = 17.43, $p < .001$, on subjects' sex-trait awareness-cultural scores were obtained. As revealed in Table 5, overall, subjects had generally higher male-trait than female-trait awareness-cultural scores. In addition, as shown in Figure 1 and summarized in Table 5, while boys had generally higher male-trait than female-trait awareness-cultural scores, there appeared to be no difference between girls' male-trait and female-trait awareness-cultural scores. These findings indicate that while subjects were generally more aware of the male-trait than female-trait stereotypes, this appeared to be more characteristic of boys than of girls.

Table 5

Summary of the Mean Male- (M), Female- (F), and Total Sex-Trait Awareness-Cultural Scores of the Subjects

	First grade			Third grade			Sixth grade			All subjects		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	9.87	9.80	9.83	10.97	11.13	11.05	12.90	10.90	11.90	11.25	10.61	10.93
Female-Trait	9.13	9.97	9.55	9.33	10.87	10.10	11.50	11.83	11.67	9.99	10.90	10.44
Total	19.00	19.77	19.38	20.30	22.00	21.15	24.40	22.73	23.57	21.23	21.50	21.37

Error for whole-plot = 15.05

Error for split-plot = 3.03

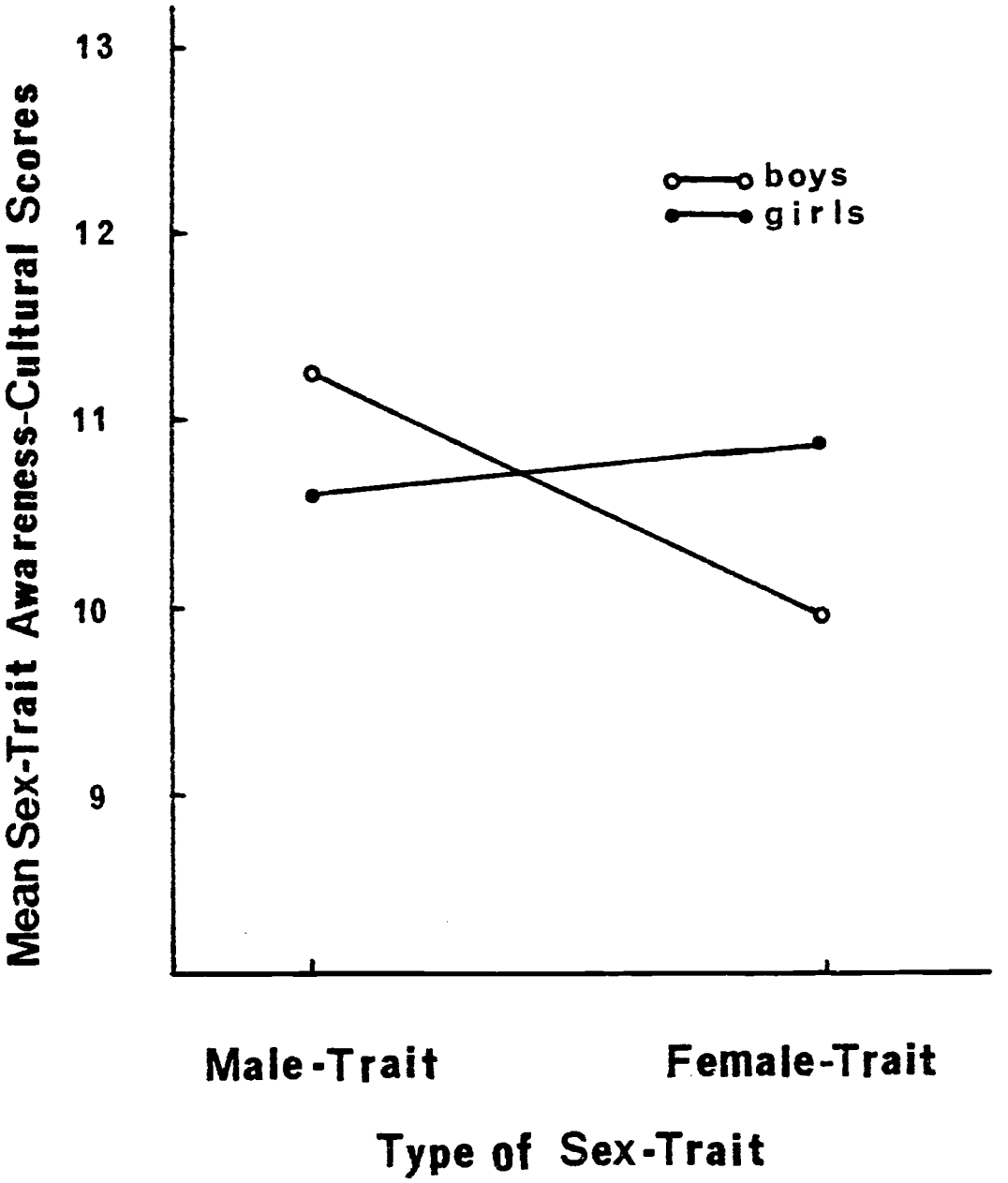

Figure 1. Mean Male- and Female-trait Awareness-Cultural scores of boys and girls.

Sex-Trait Stereotyping-Association

The effects of age, sex, and type of sex-trait on subjects' sex-trait stereotyping-association scores were tested using the 3 x 2 x 2 split-plot ANOVA statistic. Table 6 summarizes the mean sex-trait stereotyping-association scores of subjects by age, sex, and sex-trait.

There were no significant main effects for age and sex, and no significant interaction effect for sex x age on subjects' sex-trait stereotyping-association scores. However, there was a significant main effect for type of sex-trait, F (1, 174) = 11.08, $p < .05$, a significant interaction effect for type of sex-trait x sex, F (1, 174) = 4.87, $p < .05$, and a significant interaction effect for type of sex-trait x age x sex, F (2, 174) = 3.08, $p < .05$. As indicated in Table 6, male-traits were generally more sex-typed than female-traits. In addition, as shown in Figure 2 and summarized in Table 6, boys generally sex-typed more male-traits than female-traits, while there appeared to be no difference between girls' sex-typing of male- and female-traits. However, as shown in Figure 3 and summarized in Table 6, first- and third-grade boys and girls appeared to sex-type more male-traits than female-traits. However, while sixth-grade boys sex-typed more male-traits than female-traits, the converse was true for sixth-grade girls. This may have accounted for the significant type of sex-trait x age x sex interaction effect. In acuality what appears to occur among sixth-grade subjects was the fact that they identified more opposite sex-traits as "appropriate" for "both males and females" than sex-traits associated with their own sex.

Table 6

Summary of the Mean Male- (M), Female- (F), and Total

Sex-Trait Stereotyping-Association Scores of the Subjects

	First grade			Third grade			Sixth grade			All subjects		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	13.10	12.97	13.03	13.07	13.37	13.22	13.87	12.07	12.97	13.35	12.80	13.07
Female-trait	12.70	12.57	12.64	12.13	12.73	12.43	12.57	12.57	12.57	12.46	12.62	12.54
Total	25.80	25.53	25.67	25.20	26.10	25.65	26.43	24.63	25.53	25.81	25.42	25.62

Error for whole-plot = 12.79

Error for split-plot = 2.26

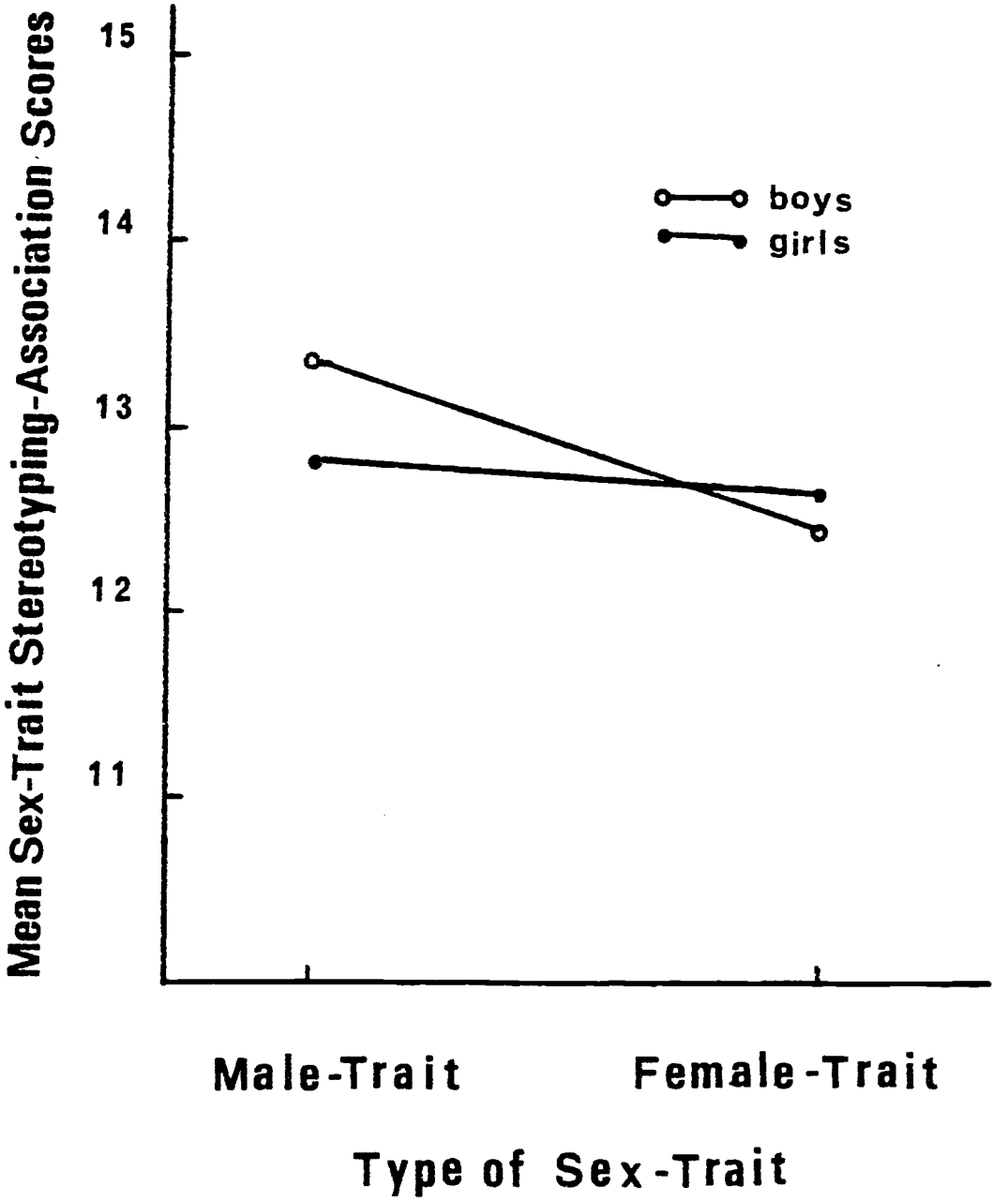

Figure 2. Mean Male- and Female-Trait Stereotyping-Association Scores of Boys and Girls.

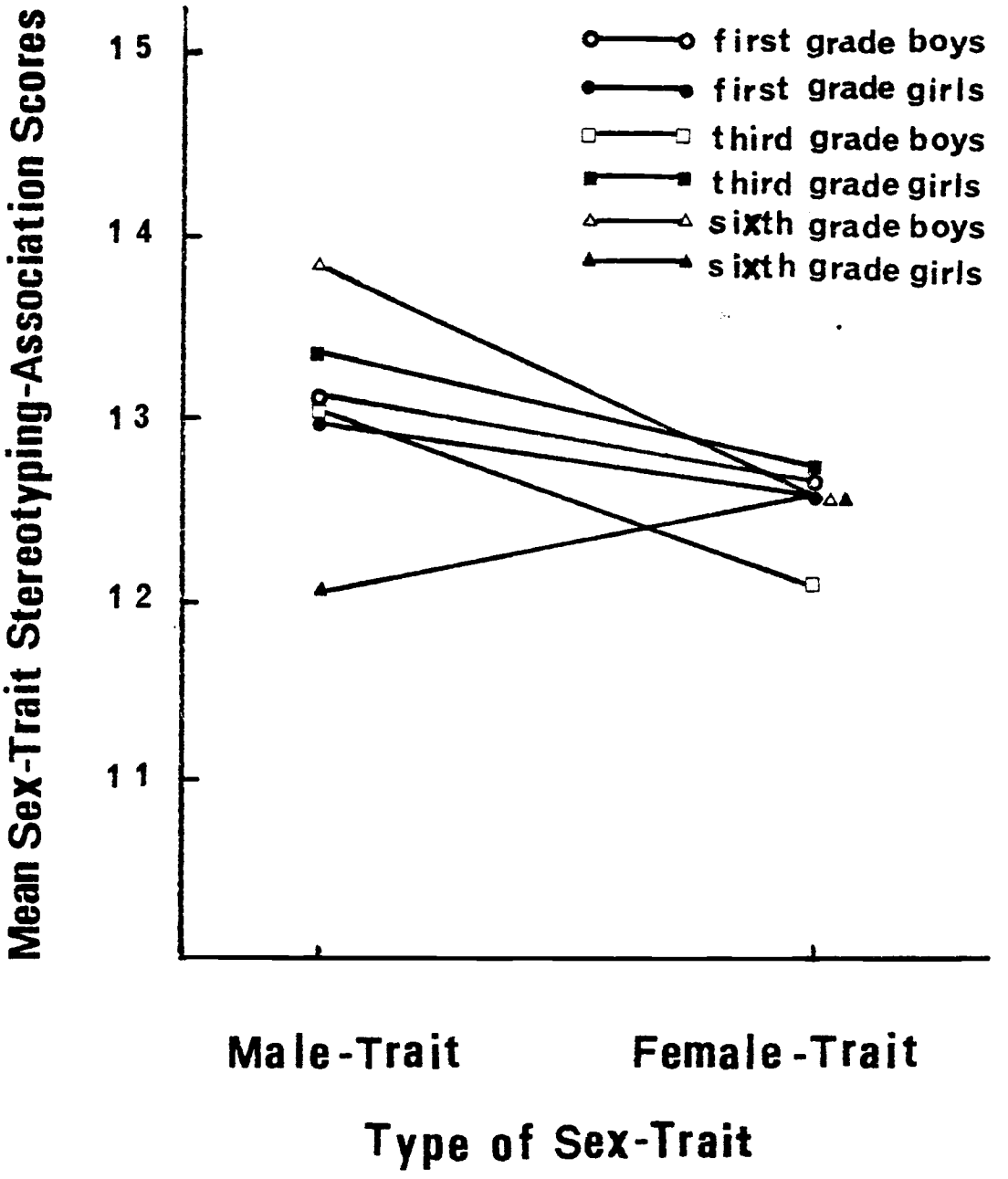

Figure 3. Mean Male- and Female-Trait Stereotyping-Association Scores of First-, Third-, and Sixth-Grade Boys and Girls.

Sex-Trait Awareness-Egalitarian

Table 7 summarizes the mean sex-trait awareness-egalitarian scores of subjects by age, sex, and type of sex-trait. Results obtained through the application of the 3 x 2 x 2 split-plot ANOVA statistic on the subjects' sex-trait awareness-egalitarian scores revealed no significant main effects for age and sex. However, the F-value obtained for the main effect of age was significant at the $p < .10$ level, F (2, 174) = 2.34. Although the p-value associated with this age effect was slightly larger than the $p = .05$ level, inspection of the means in Table 7 indicates that generally the sex-trait awareness-egalitarian scores of subjects tended to increase with age.

There was a significant main effect for type of sex-trait, F (1, 174) = 10.45, $p < .05$, and a significant interaction effect for type of sex-trait x sex, F (1, 174) = 12.61, $p < .001$, on subjects' sex-trait awareness-egalitarian scores. As indicated in Table 7, overall, subjects had generally higher male-trait than female-trait awareness-egalitarian scores. In addition, as shown in Figure 4 and summarized in Table 7, while boys had generally higher male-trait than female-trait awareness-egalitarian scores, there appeared to be no difference between girls' male-trait and female-trait awareness-egalitarian scores. These findings indicate that while subjects were generally more aware of the male-trait than female-trait stereotypes, this appeared to be more characteristic of boys than of girls.

Table 7

Summary of the Mean Male- (M), Female- (F), and Total Sex-Trait Awareness-Egalitarian Scores of the Subjects

	First grade			Third grade			Sixth grade			All subjects		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	22.97	22.77	22.87	24.03	24.50	24.27	26.77	22.97	24.87	24.58	23.41	24.00
Female-Trait	21.83	22.53	22.18	21.47	23.60	22.53	24.07	24.40	24.23	22.46	23.51	22.98
Total	44.80	45.30	45.05	45.50	48.10	46.80	50.83	47.37	49.10	47.04	46.92	46.98

Error for whole-plot = 50.92

Error for split-plot = 8.90

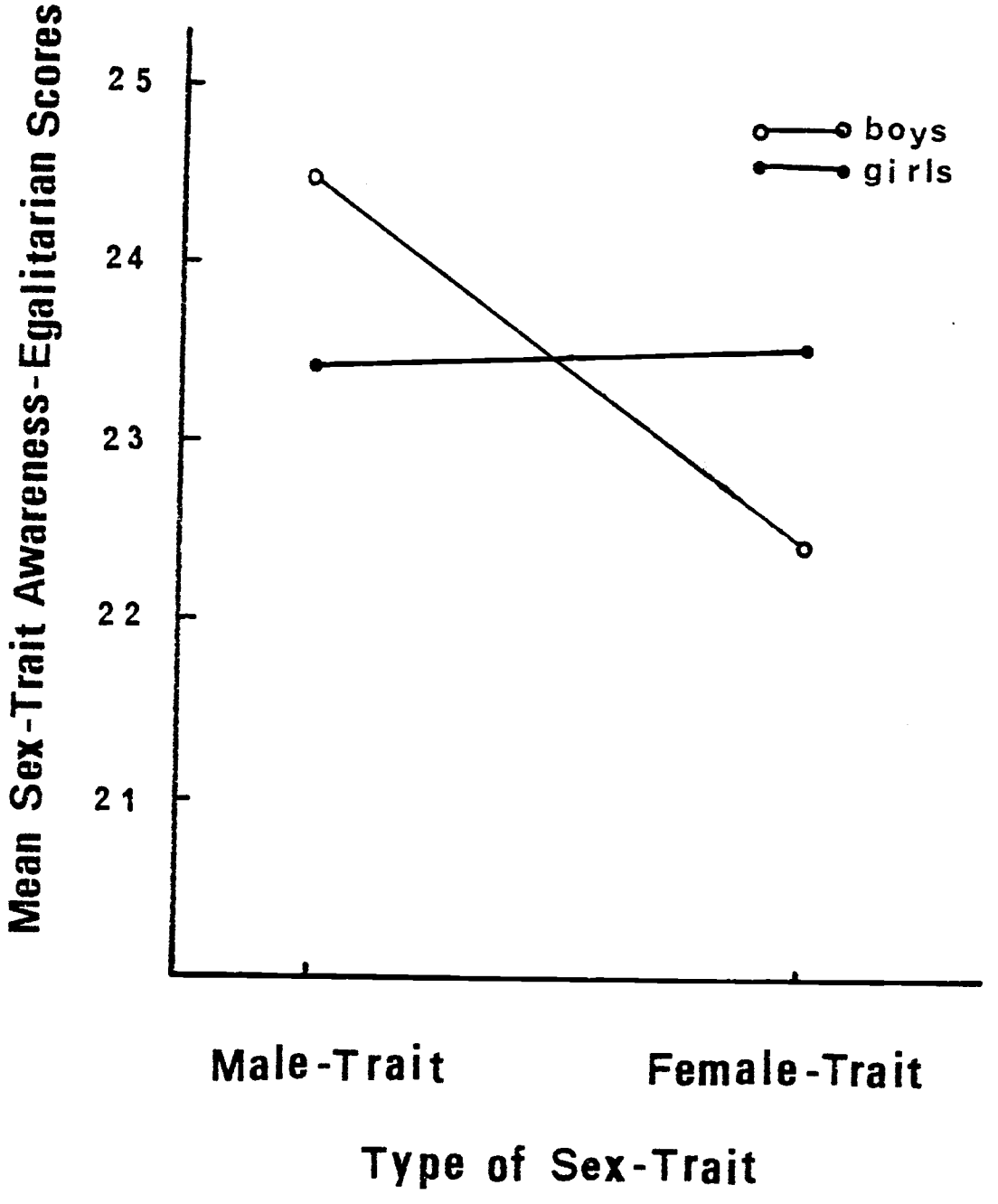

Figure 4. Mean Male- and Female-Trait Awareness-Egalitarian Scores of Boys and Girls.

Sex-Trait Awareness-Confirmation

The effects of age and sex on subjects' total sex-trait awareness-confirmation scores were tested using the 3 x 2 ANOVA statistic. Table 8 summarizes the mean sex-trait awareness-confirmation scores of subjects by age, sex, and type of sex-trait. While no significant main effect for sex, and no significant interaction effect for sex x age, were obtained, there was a significant main effect for age, F (2, 174) = 18.2, $p < .001$. Inspection of the mean values associated with this analysis in Table 8 indicates that overall, the total sex-trait awareness-confirmation scores of subjects generally increased with age.

In addition, application of the multivariate analysis of variance (MANOVA) statistic on the male-trait and female-trait awareness-confirmation scores of subjects simultaneously, to determine age and sex effects, also revealed similar results. While no significant main effect for sex, and no significant interaction effect for sex x age were obtained, there was a significant main effect for age, F (4, 346) = 17.80, $p < .001$. Inspection of the mean values associated with this analysis in Table 8 indicates that overall, subjects' awareness of both male- and female-trait stereotypes generally increased with age.

Finally, to further determine the effect of type of sex-trait on subjects' sex-trait awareness-confirmation scores, a paired t-test was used in data analysis. In addition, the analysis of variance was applied to estimate the effects of age and sex on the difference between subjects' male- and female-trait awareness-confirmation scores. Results from these analyses revealed no significant difference between

Table 8

Summary of the Mean Male- (M), Female- (F), and Total Sex-Trait Awareness-Confirmation Scores of the Subjects

	First grade			Third grade			Sixth grade		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Male-Trait	75	75	75	84	83	84	92	88	90
Female-Trait	70	79	74	76	84	80	90	92	91
Total	73	77	75	81	84	83	92	92	92

subjects' male-trait and female-trait awareness-confirmation scores. In addition, no interaction effects of type of sex-trait with age and sex were found. Therefore, on the basis of subjects' sex-trait awareness-confirmation scores, subjects displayed an equal awareness of the male- and female-trait stereotypes.

IV. DISCUSSION

In this study, an attempt was made to develop a new measurement device, called the Korean Sex Stereotype Measure (KSSM), to assess the awareness of sex-trait stereotypes among Korean children. Procedures used in developing this measurement device was similar to those employed in developing the Sex Stereotype Measure II (SSM II), designed for use with American children.

As with the SSM II, the KSSM contained 32 descriptions of psychological characteristics known as sex-trait stereotypes; 16 of which represented male-trait stereotypes, and 16 of which represented female-trait stereotypes. In a test situation, subjects are asked to associate the sex-trait stereotypes with either a male, female, or "both" a male and a female silhouette figure drawing. Reliability assessments, including both internal consistency and stability estimates, have indicated the KSSM to be a highly reliable instrument, particularly among third- and sixth-grade subjects. These relaibility estimates were calculated for various age, sex, and type of sex-trait groupings. The lower internal consistency estimates for subjects at the first-grade level may have been due to the subjects' lack of attention in the test, their lack of comprehension of the test, and their limited knowledge of the sex-trait stereotypes. Lower stability estimates for subjects at this grade level may have been due to the small sample size ($n = 10$ for each sex) used in assessing the reliability of the KSSM. Despite this fact, however, internal consistency and stability estimates for the total KSSM at this age level also met the criteria established

for determining the reliability of the test.

The KSSM differed from the SSM II in three major ways. First, since the SSM II was originally developed for use with American children, the sex-trait stereotypes included in such a test were all related to the American culture. As such, concerns were raised regarding the adequacy of the SSM II in assessing Korean children's awareness of the sex-trait stereotypes. Therefore, in developing the KSSM only sex-trait stereotypes specifically associated with the Korean culture were used.

Second, while the SSM II forced subjects into classifying the sex-trait stereotypes into male and female categories, the KSSM also allowed subjects to classify the sex-trait stereotypes into the "both" male and female category. This was done to overcome problems associated with presenting subjects with only two predetermined alternatives in which to classify their responses, even if they disagreed with both alternatives. Furthermore, this was done to take into account the concept of androgyny which has permeated recent sex role theory and research.

Finally, due to criticisms raised regarding the scoring procedure used in the SSM II and a number of possible alternative scoring procedures suggested in the literature, scoring the data obtained with the KSSM was undertaken in four different ways. These four different scoring procedures represented different sex role concepts, including sex-trait awareness-cultural, sex-trait stereotyping-association, sex-trait awareness-egalitarian, and sex-trait awareness-confirmation. The results of the application of these four different scoring procedures in assessing the awareness of the sex-trait stereotypes

among 180 first-, third-, and sixth-grade Korean children, using an equal number of boys and girls at each grade level, are summarized in Table 9 and discussed in the following paragraphs.

Sex-Trait Awareness-Cultural

The sex-trait awareness-cultural scores of subjects represent the degree to which subjects' classification of a trait agreed with the cultural sex-typing of that trait. Results obtained using this scoring procedure with the KSSM indicated that subjects' awareness of the sex-trait stereotypes increased with age from the first- to the sixth-grades. In addition, while subjects were generally more aware of the male- than female-trait stereotypes, this appeared more characteristic of boys than of girls.

These results are consistent with previous findings obtained in research with American children (Best et al., 1977; Williams et al., 1975), using the SSM II. They are also consistent with findings regarding sex differences revealed in previous research with eight-year-old Korean children (Lee & Sugawara, in press), using a translated version of the SSM II.

However, despite the consistency of findings obtained with previous research, differences between the scoring procedures of the KSSM and SSM II in assessing subjects' awareness of the sex-trait stereotypes must be taken into account. Since the SSM II forced subjects to classify the sex-trait stereotypes into male and female categories, results obtained may have been influenced by a specific chance effect not present in the KSSM. Inclusion of the "both" category in the KSSM, therefore, appears to provide the researcher with more

Table 9

Summary of the Results Obtained Using the

Four Different Scoring Procedures

	Sex-Trait Awareness-Cultural	Sex-Trait Stereotyping Association	Sex-Trait Awareness-Egalitarian	Sex-Trait Awareness-Confirmation
Age	$p < .001$	-	$p < .10$	$p < .001$
Sex	-	-	-	-
Age x Sex	-	-	-	-
Type of Sex-Trait	$p < .05$	$p < .05$	$p < .05$	-
Type of Sex-Trait x Age	-	-	-	-
Type of Sex-Trait x Sex	$p < .001$	$p < .05$	$p < .001$	-
Type of Sex-Trait x Age x Sex	-	$p < .05$	-	-

confidence in the accuracy of information obtained on subjects' awareness of the sex-trait stereotypes.

It should be indicated, however, that while the KSSM appears to provide the researcher with more confidence in the accuracy of information obtained on subjects' awareness of the sex-trait stereotypes, it does lead to some loss of information in the process. Under the present KSSM scoring procedure, subjects' classification of a sex-trait into a category opposite that of the cultural sex-typing of that trait and the "both" category are not distinguished from each other. Consideration of these two different classifications of sex-traits as similar, therefore, does point to a disadvantage of this KSSM scoring procedure.

Sex-Trait Stereotyping-Association

The sex-trait stereotyping-association scores of subjects represent the degree to which subjects identify a particular sex-trait as being descriptive of one or another. Conversely, it can also be used to represent the degree to which subjects identify a particular sex-trait as being applicable to "both" males and females. Results obtained using this scoring procedure with the KSSM revealed no general age and sex differences in subjects' sex-typing of various traits. However, male-traits were generally more sex-typed than female-traits, and boys generally sex-typed more male- than female-traits, while no difference was found between girls sex-typing of male- and female-traits. Furthermore, in exploring the means associated the significant age x sex x type of sex-trait interaction effect, while first- and third-grade boys and girls appeared to sex-type more male- than female-traits,

sixth-grade boys and girls sex-typed more of their own sex-traits than their opposite sex-traits (i.e., identified more opposite sex-traits as "appropriate" for both males and females than their own sex-traits). These findings are similar to those found by Gropper (1977) in her study with American children, although that study focused on the degree to which subjects sex-typed objects rather than traits.

Using this scoring procedure in assessing subject's awareness of the sex-trait stereotypes has one major drawback. In this scoring procedure, a distinction between a subject's classification of a sex-trait with the cultural sex-typing of that trait, and a subject's classification of a sex-trait opposite that of the cultural sex-typing of that trait is not made. Therefore, it is difficult to obtain an accurate assessment of the subject's awareness of the sex-trait stereotypes. However, if a researcher is interested in assessing the degree to which a subject sex-types a trait, whether it is a male- or female-trait, this scoring procedure can be most useful. Furthermore, the finding that sixth-grade subjects classified more opposite sex-traits into the "both" category than own sex-traits, suggest that the "both" category may be important in understanding the development of children's awareness of the sex-trait stereotypes.

Sex-Trait Awareness-Egalitarian

The sex-trait awareness-egalitarian score of a subject represents the degree to which a subject is aware of the sex-trait stereotypes, when the degree to which a subject classifies a trait agrees with the cultural sex-typing of that trait (sex-trait awareness-cultural), and

the degree to which a subject sex-types a trait (sex-trait stereotyping-association) are used in the scoring procedures. Results obtained using this scoring procedure with the KSSM indicated that subjects' awareness of the sex-trait stereotypes increased with age from the first- to the sixth-grades. In addition, while subjects were generally more aware of the male- than female-trait stereotypes, this appeared more characteristic of boys than of girls.

The developmental aspects of the above findings were supported by Flerx et al. (1976), although subjects used in that study were younger children, ages three to five. In addition, Flerx et al. (1976) found that boys were more aware of the sex-trait stereotypes than girls, which was not found in this study. The fact that no difference was found between boys and girls in their awareness of the sex-trait stereotypes in this study may represent a developmental phenomenon, since children by six years of age (e.g., first grade) are already well aware of the sex-trait stereotypes within a culture. However, no study could be found focused on the significant interaction effect between type of sex-trait and sex of subject found in this study.

Using this scoring procedure in assessing subjects' awareness of the sex-trait stereotypes harbor within it an advantage as well as a disadvantage. The advantage of this scoring procedure involves the distinction made between the degree to which a subject classifies a trait agrees with the cultural sex-typing of that trait (sex-trait awareness-cultural), and the degree to which a subject sex-types a trait (sex-trait stereotyping-association). The former is given more weight (2 points) than the latter (1 point) in this scoring procedure. Thus,

this scoring procedure involves a combination of two concepts of sex roles. However, while the combination of these concepts represents an advantage in this scoring procedure, this advantage can also be looked at as a disadvantage. The combination of the two concepts of sex roles mentioned above in assessing subjects' sex-trait awareness-egalitarian scores, may obscure information that can be gained from using them separately. Inspection of the results obtained through application of the split-plot ANOVA revealed a significant main effect for age only at the $p < .10$ level. However, when the split-plot ANOVA was applied to the sex-trait awareness-cultural scores of subjects, a significant main effect for age was found at the $p < .001$ level, while no significant main effect for age was found when the same statistic was applied to the sex-trait stereotyping-association scores of subjects. Thus, the combination of the two concepts of sex roles in obtaining subjects' sex-trait awareness-egalitarian scores may not have provided the researcher with an accurate indication of subjects' awareness of the sex-trait stereotypes.

Sex-Trait Awareness-Confirmation

The sex-trait awareness-confirmation scores of subjects refers to the degree to which subjects' own conception of a set of sex-traits confirms the cultural sex-typing of those traits. Results obtained using this scoring procedure with the KSSM indicated that subjects' awareness of the sex-trait stereotypes increased with age from the first to the sixth grades. No significant main effects for sex and type of sex-trait were found. Also, no significant interaction effects between the age, sex, and type of sex-trait variables were found.

Since this study is the first that uses this particular scoring procedure in assessing subjects' awareness of the sex-trait stereotypes, no previous research was available for comparison purposes. However, a number of interesting questions can be raised regarding the findings obtained. The fact that subjects' sex-trait awareness-confirmation scores increased with age is understandable, since subjects' knowledge of the sex-trait stereotypes have been found to increase with age. However, the fact that there was no significant main effect for type of sex-trait, and no significant interaction effect for type of sex-trait x sex are puzzling when considering previous theory and research, and results obtained from using other scoring procedures in this study. Do these findings really indicate that there are definitely no type of sex-trait and sex x type of sex-trait effects on children's awareness of the sex-trait stereotypes, or are they due to the present scoring procedure used in obtaining subjects sex-trait awareness-confirmation scores? Using the proportional scoring procedure and arcsin transformation of data in the analysis may have obscured the "real" effects of these variables. Further research needs to be done regarding whether the results obtained, using this scoring procedure, are purely a product of mathematical manipulation of data or not.

While the calculation of subjects' sex-trait awareness-egalitarian scores were based on a combination of their sex-trait awareness-cultural and their sex-trait stereotyping-association scores, with the former being given more weight than the latter, the sex-trait awareness-confirmation scores of subjects were determined by calculating the proportion between their sex-trait awareness-cultural scores, and their

sex-trait stereotyping-association scores. The value of this scoring procedure lies in the fact that it takes into account children's own conception of what is sex-appropriate in the scoring procedure. Since there were some important differences in the findings obtained under this scoring procedure in comparison with other scoring procedures used in this study, further research is needed to clarify these differences.

Summary

On the basis of the findings obtained in this study, several generalizations can be made about the development of sex-trait awareness among first-, third-, and sixth-grade Korean boys and girls. Generally, Korean children's awareness of the sex-trait stereotypes increased with age from the first- to the sixth-grades. This was evident whether subjects' KSSM scores were calculated on the basis of the sex-trait awareness-cultural, sex-trait awareness-egalitarian, and sex-trait awareness-confirmation scoring procedures. These developmental trends were expected on the basis of previous theory and research (Best et al., 1977; Etaugh & Riley, 1979; Williams et al., 1975). No significant age effect was noticed for subjects' sex-trait stereotyping-association scores. However, these scores were not as important in understanding Korean children's awareness of the sex-trait stereotypes, since they assessed the degree to which subjects sex-typed various traits, rather than the degree to which they were aware of the sex-trait stereotypes.

Item analyses of the KSSM further supported the developmental trends described above. The 75% level of agreement or above among subjects was used in determining whether a trait was perceived by the

subjects as sex-typed or not. First-grade Korean children were aware that women were supposed to be sentimental, timid, and winsome, while men were supposed to be ambitious, strong, and brave. In addition, by third-grade, these children had learned that females were considered to be neat, and males were considered to be dominant, active, aggressive, and to have leadership quality. Furthermore, by the sixth-grade, these children had learned that females were expected to be fashionable, soft-hearted, and well-behaved, while males were expected to be blunt, dependable, stern, dignified, and untidy. Apparently, the learning of certain aspects of the sex role stereotypes occurs during the early childhood years, and continues on through adolescence.

While many sex-traits were added to children's conceptions of sex role stereotypes, a few traits, all of them males, were dropped with increasing age. Among them were dominant, active, and have leadership quality, which were identified as male-traits by third-graders, but not by sixth-graders. In fact six-graders categorized these traits as being applicable to "both" males and females.

In addition to these developmental trends, findings also revealed that Korean children were more aware, and sex-typed more male-traits than female-traits. Furthermore, boys were more aware, and sex-typed more male-traits than female-traits, while there were no differences between girls' awareness and sex-typing of male- and female-traits. These findings were evident whether subjects' KSSM scores were calculated on the basis of the sex-trait awareness-cultural, sex-trait stereotyping-association, and sex-trait awareness-egalitarian scoring procedures. However, they were not evident when subjects' KSSM scores were calculated

on the basis of the sex-trait awareness-confirmation scoring procedures, possibly due to mathematical manipulation of data.

These findings are consistent with previous theory and research. According to some sociocultural theorists (Broverman et al., 1972; Feinman, 1981; Flerx et al., 1976; Runge et al., 1981), children are more aware of the male- than female-trait stereotypes because the male-trait stereotypes are more highly valued and clearly defined. This may be particularly true among individuals in the Korean culture, since the society appears to be more male-oriented. On the other hand, some cognitive theories (Williams et al., 1975) indicate that since a larger proportion of the male-trait stereotypes have obvious behavioral references in comparison to the female-trait stereotypes, they are easier to learn.

With respect to the sex x type of sex-trait differences obtained in this study, some social learning theorists (Lansky, 1967; Hoffman, 1977; Runge et al., 1981) would argue that boys show a greater awareness of the male- than female-trait stereotypes, while girls show no difference in their awareness both because more pressure is placed on boys than on girls in learning sex appropriate behavior. Boys are often discouraged from engaging in activities associated with the female role, while girls are allowed more freedom to experiment with roles associated with both males and females.

Finally, it should be noted that sixth-grade Korean children tended to sex-type more opposite sex-traits as "appropriate" for both males and females than their own sex-traits. This finding may suggest that as children grow older, they may move toward more flexible sex

role conceptions, beginning with opposite sex-traits. Future studies might be conducted to discover whether this trend continues throughout adolescence.

Limitations and Suggestions for Future Research

Despite the fact that the major purpose of this study was to develop a new measurement device to assess Korean children's awareness of sex-trait stereotypes, based on inadequacies of previous research, several limitations were encountered in this study from which suggestions for future research can be derived.

First, the sex-trait stereotypes included in the KSSM may not be representative of the entire Korean culture. In this study the sample used in selecting the sex-trait stereotypes for inclusion in the test was made up of young adults, particularly college students. College students, as a group, are generally known to be more equalitarian in their sex role concepts, therefore, a future study might be conducted using a broader age range of subjects, including those from a variety of non-academic settings in selecting the sex-trait stereotypes for inclusion in the test.

Second, in order to understand children's knowledge of the sex-trait stereotypes, four different concepts of sex roles, based on different scoring procedures were adopted for use in this study. Although general trends were found regarding Korean children's awareness of the sex-trait stereotypes which cut across scoring procedures, some important differences were noted. Therefore, caution must be used in understanding children's awareness of the sex-trait

stereotypes when using these different scoring procedures. Understanding what is being measured when different scoring procedures are used is important. Future studies might be conducted to further clarify the conceptual differences between these sex role concepts.

Third, the size and limited nature of the sample employed to test out the KSSM for use with Korean children in this study might lead to problems regarding generalizability of the results obtained. The sample was limited to children from a large city of a state capital in Korea. All subjects came from intact, middle-class families. While control of subjects in this manner was done to increase the sensitivity of the KSSM by maintaining sample homogeneity, application of the results obtained to Korean children in general is suspect. Researchers of future studies might use a more heterogeneous sample in their investigations.

Fourth, while the KSSM appeared to have an overall adequate reliability for the sample studied, the internal consistency and stability estimates for the test among first-grade children suggests that further reliability studies need to be conducted with this age group. Internal consistency estimates can be improved by evaluating whether items and procedures used in the test are understandable to the subjects. Also, stability estimates can be improved by increasing the sample size used in a test-retest reliability study.

Fifth, a whole host of validity studies can be conducted for the KSSM. Since no other measure is present to adequately assess Korean children's awareness of the sex-trait stereotypes, predictive and concurrent validity studies will be most difficult to undertake. However,

observational data focused on children's sex role behaviors could be collected in studies relating children's behaviors to their performance on the KSSM. In addition, a wide variety of construct validity studies could be conducted, including those involving group differentiation, experimental manipulation, and correlation with other pertinent personality characteristics.

Sixth, as an extension of the present study, future studies might use a broader age range of subjects to assess the developmental aspects of children's awareness of the sex-trait stereotypes. This study limited itself to first-, third-, and sixth-grade subjects. Previous studies have indicated that the acquisition of sex role concepts begins earlier than the first-grade and continues beyond the sixth-grade level. Furthermore, an additional interest in these developmental studies might be an assessment of the sex role flexibility of subjects, as well as their awareness of the sex-trait stereotypes.

Finally, current research on sex role socialization have identified a wide range of child, familial, and sociocultural variables as important determinants of children's sex role learning. Some of these variables include socioeconomic class, variations in family structure, parent-child relationships, sibling status, I.Q., peer interaction, and a variety of sex role intervention programs. Future studies can be conducted in these areas.

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