Developmental Sequences of Gender Constancy Judgements in Preschoolers: Self versus Pictured Others

Donna Von Bargen

THESIS

Submitted in partial fulfillment of the requirements for the degree of Master of Arts in Psychology in the Faculty of Graduate Studies at the University of Manitoba, 1979.

Winnipeg, Manitoba

DEVELOPMENTAL SEQUENCES OF GENDER CONSTANCY JUDGEMENTS IN PRESCHOOLERS: SELF VERSUS PICTURED OTHERS

BY

DONNA VON BARGEN

A dissertation submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

Acknowledgments

This research was made possible by many people who contributed their time, energy, and moral support throughout the project. First, I would like to thank the directors, parents, and children of the following Winnipeg day-care centres who put up with many intrusions into their schedules: Campus, Carpathia, Carter, College Co-op, Dante, Fort Rouge, Lord Roberts, Riverview, and Univillage. Second, I would like to express my gratitude to my advisor, Warren Eaton, for his patient instruction in the finer points of doing research. Third, my husband, Michael Dresel, is more than deserving of my gratitude. Not only did he type large portions of the manuscript, format my tables, but he also provided encouragment and support. Finally, financial support came from the Manitoba Research Grant 431-1665-14 to Warren Eaton.

Abstract

Kohlberg (1966) has suggested a sequence in children's understanding of gender, beginning with the identification of one's own gender and ending with the understanding of gender invariance in the face of perceptual transformations. The person referred to on gender constancy scales has varied from the child him- or herself to pictured others, and these varying referents may affect the age of constancy attainment. Self constancy, it was hypothesized, would occur before other constancy because one's own body is constantly available for reference. Also, compared to older children's, younger children's constancy judgments were thought to be more influenced by external stimuli, and hence more affected by perceptual transformations. Therefore, it was hypothesized that younger children would show more variability in constancy judgments. Three subscales of a gender constancy task (self, male-other, and female-other) were administered to 101 children, aged 2- to 6-years. The proposed sequence of gender constancy was supported, as were the referent and variability hypotheses. It is suggested that incomplete gender constancy attainment may contribute to sex-typing in children.

Developmental Sequences of Gender Constancy Judgements in Preschoolers: Self versus Pictured Others

Psychoanalytic, social learning, and cognitive-developmental theorists have all tried to explain sex-role development (i.e., how boys learn to behave in a masculine manner, and how girls learn to behave in a feminine manner). For the purposes of the present study the term sex-role development refers to the "process by which the individual develops the attributes (behavior, personality characteristics, emotional responses, attitudes and beliefs) defined as appropriate for his sex in his own culture" (Mussen, 1971, p.708). The manner in which this process occurs remains unsettled despite a large body of research on the topic. Much recent research has come from a cognitive developmental framework and it is within this theoretical approach that the present research falls.

Cognitive developmental theory (Kohlberg, 1966) proposes that sex-typing is a function of internal cognitive processes. Kohlberg believes that as the child's cognitive capabilities increase he or she is able to learn increasingly complex and abstract aspects of her or his sex-role. The sequence of this process is as follows: first, children develop the ability to label themselves correctly by sex, second the ability to categorize others correctly by sex, and third an understanding that one's gender remains constant over time and varying circumstances. The abstract self-concept of maleness or femaleness that the child

develops is assumed to act as a major organizer and determinant of her or his choice of female or male attributes. Kohlberg proposed that this final stage occurred between the ages of five and seven, and that children who had attained this stable categorical identity as male or female would then develop sex-typed preferences. According to Kohlberg, it is this cognitive activity, and not reinforcement experiences which cause children to imitate same-sex models.

Most research relevant to Kohlberg's first two stages indicates that children achieve these skills in the above order. Self categorization seems to occur sometime between two and three years, while other categorization does not develop until about age four. Gesell (1940) reported that two-thirds to three-quarters of his three-year-old sample could identify self gender correctly. In contrast, only one-half of Rabban's (1950) three-year-old children could correctly identify the gender of 6 dolls, while almost all of his four-year-old children could perform this task correctly. A study by Thompson (1976) found results which are inconsistent with this sequence, however. Thompson studied six groups, males and females aged two, two and one-half, and three years old. He found that only one of these groups, the male two and one-half year olds, showed any difference in the sequence of development of self versus other categorizations. This group showed the reverse of the self prior to other sequence discussed above; the other categorizations were more advanced than self categorizations. Thus there is some question raised by Thompson's findings as to whether children learn about themselves

prior to, or at the same time as they learn about others. The research of Gesell (1940) and Rabban (1950) was based on inter-subject comparisons. Only Thompson asked the children about their judgments of both their own and other's gender to obtain intra-subject comparisons. More intra-subject research is necessary before we can conclude firmly that children learn about themselves prior to learning about others.

The third stage proposed by Kohlberg, that of development of the gender constancy concept, has been studied by DeVries (1969, 1971) and Slaby and Frey (1975). Constancy of gender identity is defined as the process by which children come to believe that all people can be categorized as male or female, that boys invariably become men and girls become women, and that one's gender will not change with changing circumstances and personal motivations (Slaby and Frey, 1975). There are slightly different ways of viewing this concept in the literature.

Using the Genevan dialectic approach, DeVries (1969, 1971) has shown that there is a developmental sequence of gender constancy. Studying children aged five to seven years, she applied a Guttman scaling technique to their responses on her nine-level gender constancy scale. At first, children blithely agreed that if the child in the picture played the games of the opposite sex, its sex would change. As the children began to develop a concept of gender constancy, they began to resist the suggestion that gender could change. They developed through the other steps in her scale until finally they achieved a firm conviction that the child could not change his/her gender regardless of suggested

transformations. Further, the brighter and more cognitively advanced children progressed through this sequence faster than did children of average intellect. Retarded children progressed even slower than did the average children.

Slaby and Frey (1975) use the concept of gender constancy to refer to the entire developmental sequence proposed by Kohlberg. Instead of the stages of self identity, other identity, and gender constancy which were proposed by Kohlberg, Slaby and Frey incorporate the first two stages into one aspect of gender constancy which they call gender identity. Slaby and Frey add an aspect of gender constancy into the sequence called gender stability, referring to constancy over time. The third aspect of gender constancy identified by Slaby and Frey is called gender consistency, and is composed of what Kohlberg called his gender constancy stage. Therefore, Kohlberg's final stage of gender constancy is thought by Slaby and Frey to be composed of gender identity (categorization by gender), gender stability (invariance over time), and gender consistency (invariance across situations and desires). Regardless of whether identity and stability are most parsimoniously thought of as part of, or separate from, gender constancy, children do seem to acquire these three aspects of gender constancy in a sequential manner. Slaby and Frey studied children ranging in age from 26 to 68 months and, as mentioned, were able to identify three aspects of the gender constancy concept: identity, stability, and consistency. Through the use of the Guttman scalogram technique, these researchers were able to identify four developmental levels of

gender constancy. The first level indicated that the child had passed none of the aspects, the second level, that one aspect had been passed, the third level, that two aspects had been passed and the fourth level, that all three aspects had been passed. Thus, Kohlberg's developmental sequence has some empirical support.

Recently Emmerich and his colleagues have published evidence for a transitional phase in the development of gender constancy (Emmerich, Goldman, Kirsh and Sharabany, Note 1, 1977), which occurs during the preoperational stage but prior to the attainment of true gender constancy in the concrete-operational period. Children in this transitional phase of gender constancy development indicated gender constancy, but when questioned as to why the child's sex stayed the same, gave inadequate explanations. Emmerich et al have classified all of the explanations into three categories: operational constancy, stimulus description, and other. The transitional children either attended to stimulus characteristics which stayed the same, e.g., "because the shoes are still the same," wanted the child to stay the same, e.g., "girls are better," or provided no justification at all. Since these children are providing constancy responses for the wrong reasons, Emmerich et al call this phase "pseudo-constancy." The children can make constancy judgments, not because they understand that boys are and will always be boys and that girls are and will always be girls, but rather because they see some aspect of the stimulus child that stays the same or because they wish the child's sex to stay the same. In contrast, children who have

achieved "true" gender constancy give reasons from the operational constancy category, e.g., "because he's still a boy," or, "because he can't change."

Clearly there are different ways of dividing the same phenomena into stages of development. Kohlberg (1966) proposed the stages of self-identity, other-identity, and gender constancy. Slaby and Frey (1975) discuss the aspects of identity, stability, and consistency as parts of gender constancy, and Emmerich et al (Note 1, 1977) separate the phenomena into the pre-operational, pseudo-constancy, and concrete operational or true-constancy stages. DeVries (1969, 1971) developed a nine level scale which is based on an overall judgment of a child's responses and explanations to transformation questions. Of all the above sequences, Slaby and Frey's seemed the clearest and most comprehensive, and did not require as many judgments as did DeVries' sequence. Thus the first hypothesis of the present research was that the developmental pattern of Slaby and Frey (1975) would be replicated.

In gender constancy research, several variations of a scale initially developed by Kohlberg (Kohlberg, 1966; Kohlberg & Ziqler, 1967) have been used. The basic format of items in these scales is to ask the child to judge whether or not gender remains constant if the stimulus child is transformed in some way (clothes, activities, desires). DeVries (1969, 1971) and Emmerich et al (Note 1, 1977) used a scale requiring their children to make judgments about a pictured child, while Slaby and Frey (1975) used a scale which required their children to

make judgments about themselves. It is not clear whether or not these different stimuli affect the ages at which children develop gender constancy skills, but the writings of Kohlberg (1966) and Emmerich et al. (Note 1, 1977) indicate that it might be reasonable to expect that children can maintain their own gender constancy while still believing that another child could change his or her sex. Kohlberg (1966) proposed that self-categorization as male or female occured prior to other-categorization. Secondly, Emmerich et al (Note 1, 1977) suggested that children in the pre-operational and pseudo-constancy stages are more influenced by concrete stimuli than by abstract concepts. An implication of this idea is that these children would be more likely to indicate constancy for themselves than for others because their own bodies are more immediately available for reference. Research also gives some indication that this might be the case. Slaby and Frey's (1975) children, who were asked if they themselves could change their sex, achieved gender constancy at an earlier age (mean = 55 months, range = 41-67 months) than DeVries' (1969, 1971) children, who were asked about a pictured child. Only 6 per cent of DeVries' five-year-old children and 35 per cent of her six-year-old children had achieved gender constancy. Therefore, in order to investigate this factor of varying referents, children in the present study were asked questions about both themselves and pictured children. It was hypothesized that children would develop gender constancy skills with reference to themselves earlier (younger) than they would with reference to pictured children. For example, a child

would be expected to recognize the stability of his own gender before recognizing it in others.

Emmerich et al (Note 1, 1977) have shown evidence for a stage of "pseudo-constancy" which occurs during the preoperational period and transitional to the attainment of true concrete-operational constancy. Children in the pseudo-constancy stage are making correct constancy jugements without a clear understanding of the underlying principle. It seems reasonable to expect that children who are in this pseudo-constancy phase would be more aware of constancies within themselves than within others. They might be able to conserve consistently when asked about themselves because they have many stimuli present which remain constant (i.e., their body), but the constancies of a pictured child would not be as readily available for reference. As a result of the lack of this clear understanding, the pseudo-constant child would be more affected by self-other stimulus differences than the true-constant child. Presumably, other judgments would be less stable and consistent than self judgments in the pseudo-constant children, and this instability would be found in the concordance between self and other targets. The stable understanding of the true-constant child would lead to greater concordance than the incomplete understanding of the pseudo-constant child. This led to the third hypothesis, that pseudo-constant children would show less concordance between self and other judgments than true-constant children.

To summarize, the three hypotheses investigated in the present study were: 1) Children will develop aspects of gender constancy

in the sequence of gender identity, then gender stability and finally gender consistency; 2) Children will develop constancy with reference to themselves before developing constancy with reference to others; and 3) Children in the pseudo-constancy phase of development will show less concordance between self and other constancy judgments than will children who have achieved true gender constancy. The present study also implemented Emmerich, Goldman, Kirsh and Sharabany's (Note 1, 1977) suggestions that gender constancy research be extended to children of younger ages and different socioeconomic classes than those already studied.

Method

Instrument

The questionaire used (see Appendix) was a combination of Slaby and Frey's (1975) and Emmerich et al's (Note 1, 1977) items with Emmerich et al's stimuli. As stated earlier, Slaby and Frey's developmental sequence seems the clearest and most comprehensive, so that most of their items, which were asked in reference to the child him- or herself, were included in the present measure. Emmerich et al (Note 1, 1977) presented their items in reference to a pictured male and female. These stimuli were used in the present study. Thus, the measure was divided into three subscales which varied only in their referent. The same items were asked about the child him- or herself, a pictured male child, and a pictured female child.

Slaby and Frey's (1975) questionnaire included items measuring three aspects of gender constancy, namely, gender identity (9 items), gender stability (2 items), and gender consistency (3 items). The present scale excludes some, but not all, of Slaby and Frey's identity questions as these researchers found that virtually none of their children missed these questions, and includes only one question of this type on each subscale: "Are you a boy or a girl?", and "Is this a boy or a girl?" (on both the male-other and female-other subscales). Slaby and Frey's two stability items, "When you were a little baby, were you a little boy or a little girl?," and, "When you grow up will you be a mommy or a daddy?," were included. Each of these identity and stability items is accompanied by a counter-question which requires the child to respond negatively in order to indicate constancy. This counter-question asks the child if he or she would be the opposite of whatever their response to the previous item had been. For example, if a child responded to the identity question with "boy," he or she would then be asked, "Are you a girl?". Thus, children cannot achieve high constancy scores on these items by merely responding positively. Finally, in the consistency area, Slaby and Frey's items were used by Emmerich et al (Note 1, 1977) along with two other items. Emmerich et al's questionnaire begins with Slaby and Frey's (1975) last question about motive ("If you wanted to be a [opposite sex], could you be?"), and has four other questions. These consist of Slaby and Frey's two consistency items, and two others of the same type. These items ask the child to conserve gender in spite of the

suggested transformations of activities (e.g., playing with an other-sex toy), hair, clothes, hair and clothes together, and motive ("If you wanted to be a [opposite sex] could you be?"). Thus the present scale includes both Slaby and Frey's (1975) and Emmerich et al's (Note 1, 1977) scales except for some of Slaby and Frey's identity items.

For the male-other and female-other subscales, the same drawings as those used by Emmerich et al (Note 1, 1977) were used in this study, except that they were coloured brightly instead of being left black and white. The transformations were demonstrated for the child by actually altering the appearance of the stimulus picture. In order to give the children a comparable amount of concreteness for the self transformations, drawings of opposite sex clothing or activities were shown to them.

Subjects

Subjects were 101 children, ranging in age from 31 months to 73 months, attending day care centres in Winnipeg, Manitoba. There were 56 males and 45 females in the sample. Nine children were in their second year, 28 were in their third year, 33 were in their fourth year, 30 were in their fifth year and 1 was in his sixth year. Based on the locations of the day-care centres in the city most children were judged to be from middle-class families.

Procedure

The three subscales were presented in counterbalanced order to control for the possible effects of learning or fatigue, giving six orders. Children were stratified by age, and then, separately for males and females, randomly assigned to order of subscale presentation and sex of experimenter.

Experimenters were two male and two female undergraduate psychology majors at the University of Manitoba who were blind to the experimental hypotheses. Each experimenter tested approximately equal numbers of male and female children.

On the testing day children were escorted to a quiet area or room in the day-care centre in order to "look at some pictures." Testing usually lasted from five to ten minutes, and if a child showed signs of fatigue before the questionnaire was completed, a short break was allowed before continuing. When necessary, testing was completed at another time or day.

All testing except for eight sessions (due to tape failure) were tape recorded. In addition, the child's constancy judgments were recorded manually by the examiner. The child's reason for a constancy judgment was recorded on the tape only.

Results

In order to check the accuracy of the experimenters' recordings of the children's judgments, the author listened to tapes of all but the eight above-mentioned test sessions. Errors in scoring were corrected using the tapes as criterion. Ambiguous responses were treated as missing data. Of the 101 children

tested, 89 had complete data on the self subscale, 92 had complete data on the male-other subscale, 87 had complete data on the female-other subscale, and 76 had complete data on all three subscales. The following results, unless otherwise specified, refer to data from these 76 children (44 males and 32 females).

The first three items on each subscale (e.g., from the self subscale: "Are you a boy or a girl?," "When you were a little baby, were you a little boy or a little girl?," and "When you grow up, will you be a mommy or a daddy?") were scored as passes only if the child answered both that question and the counter-question correctly. For example, a girl would have to answer the question, "Are you a boy or a girl?" with "A girl" and the counter-question, "Are you a boy?," with "No" in order to pass the identity item in the self subscale. For each subscale the first item comprised the identity aspect of gender constancy, items 2 and 3, the stability aspect of gender constancy, items 4 to 7, the consistency aspect of gender constancy, and item 8, the motive aspect of gender constancy. The first three of these were aspects of gender constancy identified by Slaby and Frey (1975). The last aspect, motive, was included in their scale with consistency but is considered separately here, as Emmerich et al (Note 1, 1977) found that this item was not closely related to the other consistency items. Inter-item correlations of the present scale supported this observation (see Table 1). The motive items were moderately correlated with the identity and stability items (mean Pearson r = .44, range = .31 to .63), but correlated almost not at all with the consistency items (mean r =

.09, range = -.06 to .17).

Guttman scale analyses (Green, 1956) were performed on each subscale separately, and on the three subscales combined. Summary statistics from these analyses are presented in Tables 2 to 5. Goodenough (1944) has suggested that the coefficient of reproducibility should be higher than .9 to indicate a valid scale. As well, the coefficient of scalability should be higher than .6 to indicate that the test items form a unidimensional and cumulative scale. These criteria were met for each subscale and for the combination of the three as well.

Wohlwill (1973) has recommended that a clearer indication of the scalability of developmental items is the proportion of children who fit into one of the theoretically acceptable scale types. In this case the scale types are as follows: the proportion of children who fail all four aspects of gender constancy (-, -, -, -), pass only the identity item (+,-,-,-), pass only the identity and stability items (+,+,-,-), pass the identity, stability, and motive items (+,+,+,-), or pass all four items (+,+,+,+). Of the 76 children with complete data, 73, or 96% fit one of the above scale types on the self subscale. Sixty-nine, or 91% fit one of the scale types on the male-other subscale, and 70, or 92% fit one of the female-other scale types. Sixty-five of these children, or 86% fit one of the scale types for all three subscales. Thus, a total scale score, the sum of items passed, reflects the cumulative pattern of responses to items for most children. Scale scores were calculated by summing the passes for each subject, scores ranging from 0 to 4 for the

self, other-male and other-female subscales, and from 0 to 12 for the combined scale. A score of 0 indicated that the child had passed none of the items on that scale. A child with a score of 1 had passed only one item, a child with a score of 4 had passed four items and so on.

As expected, the correlation of these scale scores with age was quite high. Self scale score correlated at the 0.37 level with age, male-other at the 0.41 level, and the female-other scale at the 0.44 level. The combined scale score correlated at the 0.45 level with age. All were significant beyond the $p<0.001$ level, one-tailed.

A 2 (sex of child) by 2 (sex of experimenter) by 6 (order of subscale presentation) analysis of variance was performed with the child's score on the three scales combined (combined scale score) as the dependent measure, and results are presented in Table 6. Only sex of experimenter accounted for a significant proportion of the variance, $F(1,52)=7.93$, $p<.01$. Children who had female experimenters scored significantly higher (mean=9.09) than did children who had male experimenters (mean=7.28). This result is consistent with other research on experimenter sex effects (e.g., Rumenick, Capasso, & Hendrick, 1977). Since the combined scale is composed of the self, male-other, and female-other subscales, separate analyses of variance were performed for each of these subscales. These analyses revealed that sex of experimenter had a significant effect only on the scores of the male-other and female-other subscales, $F(1,52)=11.92$, $p<0.001$ and $F(1,52)=7.92$, $p<0.01$, respectively, and not on the self subscale,

$F(1,52)=2.15$, $p>0.5$, as shown in Table 7. This sex of experimenter effect did not interact with either sex of child or order of scale presentation.

The fact that neither order nor sex of child effects were significant is interesting. Order of scale presentation was counterbalanced to control for the possibility that children's scores might increase (due to learning effects) or decrease (due to fatigue effects) across the testing session. The absence of order effects indicates that any within-child subscale differences are not due to presentation order. The absence of sex of child differences suggests that the sexes do not differ in acquisition of the constancy concept.

The hypothesis that children would develop gender constancy with reference to themselves prior to developing constancy with reference to others was evaluated in two ways. Guttman scale analysis of the combined three subscales indicated that in each case more children passed a given aspect of constancy in the self subscale than passed the equivalent item on either the male-other or female-other subscale. For example, self identity scaled out (92% passing) before male or female identity (89% and 87% passing, respectively), and self consistency (12% passing) before male or female consistency (7% and 3% passing, respectively).

A more sensitive method of evaluation was an item analysis for asynchrony used by Achenbach and Weisz (1975). The frequency of children passing the self item and failing the comparable male-other or female-other item is compared to the frequency of children who were in the converse situation, passing the male-

other or female-other item and failing the self item. This comparison was tested for significance by a method discussed by McNemar (1969, p. 55). Of eight comparisons (the four items in the self subscale contrasted with the same items in each of the male-other and female-other subscales), all were in the predicted direction of passing the self item and failing the other item. Five of these eight comparisons were significant as shown in Table 8.

To investigate the possibility that children generalize from self to others along a dimension of similarity, the correlation between self and same-sex other ($r=.79$) was contrasted with the correlation between self and opposite-sex other ($r=.66$). The relationship between self and same-sex other was significantly stronger, $t(73)=2.8$, $p<.01$ (McNemar, 1969, p.158), than between self and opposite-sex other, a result supportive of a similarity generalization possibility.

The third hypothesis, that pseudo-constant children would show more variability between their self and other scores than true constant children was evaluated in the following manner. In order to obtain the largest number of children possible for this analysis, children who had missing data were not excluded as they were for other analyses. Consequently, all 101 cases were examined, and those who had passed three of the four consistency items selected for further scrutiny. All reasons for these children's constancy responses to the consistency items were evaluated by two adults (blind to experimental hypotheses), as being either pseudo-constant or true-constant reasons according

to criteria presented by Emmerich et al (Note 1). Reliability of these rater's judgments, calculated as the proportion of agreements over the total number of judgments, was 83%. As discussed earlier, pseudo-constant reasons for constancy responses were either irrelevant (e.g., "cause", or, "because she wants to") or related to characteristics of the stimulus which remained the same (e.g., "cause he still has boy's shoes"), while true constant reasons gave some indication of the constancy concept (e.g., "cause she can't change", or "because he is already a boy"). Subjects were categorized as either pseudo-constant or true-constant on the basis of their highest rating. For example if a child had only one true-constant reason and three pseudo-constant reasons on the four consistency items of the scale, he or she would still be assigned to the true-constant group. This lenient criterion was used because the number of children who passed three of the four consistency items was small. Even smaller was the number who gave a true constant reason. Also, a child might give a reason indicating achievement of the constancy concept for one judgment, but refuse to give any reason for the next. Therefore, only one "constancy" reason was required to categorize a child into the "true-constant" group for the purposes of this analysis.

The variability of self and other scores was compared for true-constant versus pseudo-constant groups by examining matrices consisting of each subject's self by female-other and self by male-other responses. Thus, each child was represented on the matrix by two points, one for the self by male-other responses

and one for the self by female-other responses. These matrices are presented in Tables 9 and 10. The visual impression of less concordance in the matrix of the pseudo-constant children (Table 9) than in the matrix of the true-constant children (Table 10) is corroborated by summary statistics suggested by Wohlwill (1973, p.220). The mean (absolute) deviation from the modal category gives a numerical representation of the spread of scores. As can be seen, these deviation scores are much higher for the pseudo-constants (.33, .80, .67, .50, and .25) than for the true constants (.00, .00, .00, .17, and .45), indicating more variation in scores for the former.

Discussion

The hypothesis concerning Emmerich et al's (Note 1, 1977) transitional stage, that pseudo-constant children would show less concordance between their self and other judgments than true-constant children, received some support even though the sample size of pseudo- and true-constant children was small. The matrix of the pseudo-constant children is visibly less concordant than that of the true-constant children. As well, visual examination is corroborated by the summary statistics. However, this hypothesis will have to be tested on a larger sample before firm conclusions can be reached.

The sequence of gender constancy development described by Slaby and Frey (1975), whereby children learn these skills in the order of identity, stability, and then consistency, was replicated in this research except for one variation. Results of the

present and other studies indicate that the motive aspect of gender constancy (which Slaby and Frey include with consistency) is intermediate to stability and consistency. Slaby and Frey's own data indicate that 76 and 73 percent of children passed the two stability items, 47 and 45 percent passed the consistency items and 56 percent passed the motive item, placing it between the former two aspects. Further, Emmerich et al (Note 1) recommended that this item be considered separately from the consistency items because of its low correlation with them. Marcus and Overton (1978) followed this recommendation and reported that children's scores were higher for the motive item than for the consistency items. Furthermore, the motive item scaled out before the consistency items on their Guttman scalogram analysis, indicating that children were able to pass the motive item at younger ages than the consistency items. Finally, the inter-item correlations presented earlier in this paper support the placement of the motive item as intermediate to stability and consistency. Therefore, between 2 and 7 years of age, a sequence has been identified such that children are first able to categorize by sex, then realize that gender does not change over time. Next they learn that gender stays the same even if one wants it to change, and finally that gender remains constant even if activity, dress or hairstyle changes.

The aspects of gender constancy which were identified seem to fulfill Wohlwill's (1973) four criteria for developmental sequences. Levels of constancy attainment are sequentially ordered, as indicated both by the high reproducibility scores on

the Guttman scalogram analysis and the high percentage of children who fit scale types, and age related, as indicated by the correlations between age and scale score. These levels have also been shown to be situation independant in that different forms of the measure have been used on different populations (eg. Slaby & Frey, 1975, and Marcus & Overton, 1978) with the same outcome. Wohlwill's fourth criterion, unidimensionality, was only indirectly assessed. However, support does come from the Guttman scalogram analyses which have unidimensionality as one of their criteria.

This research also supported Kohlberg's (1966) notion that children acquire the ability to categorize themselves by sex earlier than the ability to categorize others. This self-before-other pattern did not occur for only the identity aspect, but for all aspects of gender constancy. More children passed items on the self subscale than passed the comparable items on the male-other or female-other subscales. Marcus and Overton (1978) also investigated this self-before-other hypothesis and found that children "demonstrated higher gender constancy when the task was presented in relation to the self" (p. 439).

The above result regarding the developmental sequence of aspects of gender constancy can be criticized on the grounds that stimulus transformations were greater for the later developed skills, and that therefore the sequence reflects task difficulty rather than cognitive development. There were no transformations for the identity, stability, and motive items, a fact which could make these items easier than the consistency items, where the

referent actually appears to change. This stimulus transformation criticism of the order of attainment of gender constancy skills can be partially countered with reference to Marcus and Overton's (1978) study which had a live and a pictured condition for both self and other children, thus keeping constant the amount of stimulus transformation actually demonstrated for the child. Motive was still achieved at younger ages than consistency.

The task difficulty criticism can also be applied to the self-before-other result. The transformations were only imagined for the consistency items on the self subscale but were demonstrated visually for the male and female-other subscales, so that it may have been easier for the children to pass the self items. In response to this criticism, it can be argued that the two other subscales had equivalent amounts of stimulus transformations, but that they were not attained an equal time later than the self subscale. In fact, the self subscale was more strongly correlated with the same-sex other than with the opposite-sex other. If the sequence was primarily determined by the difficulty of the measure one would not expect this to be the case. Further, the fact that sex of experimenter only had an effect on the two other subscales, and not on the self subscale argues that children are more certain of the constancy of their own gender than they are of other's, and therefore are less likely to be influenced by irrelevant factors such as sex of experimenter when asked about themselves. Finally, as stated earlier, Marcus and Overton (1978) kept the amount of stimulus transformation con-

stant between self and other and still found that children had higher scores for themselves than for others.

The cross-sectional data reported here implies a stable developmental pattern. Children learn the various aspects of gender constancy in the sequence of identity, stability, motive and consistency. Further, these results support Kohlberg's idea that children first acquire these abilities with respect to themselves, and then generalize to others. As this sequence has been identified mainly in cross-sectional studies, longitudinal research is necessary to corroborate these results. Some research of a longitudinal nature has been done already (DeVries, 1971; Emmerich et al, 1977) and has generally been supportive, but has not covered all aspects of gender constancy. DeVries (1969, 1971) identified a different sequence based on her qualitative evaluation of the entire interview, while Emmerich et al (1977) were mainly interested in children's explanations and not in their judgments. Clearly, longitudinal data on the present sequence would be desirable.

In summary, the present results replicate and extend research on the Piagetion notion of the sequential development of cognitive ability to the area of sex-role development. Good evidence exists in this research for a developmental sequence in children's understanding of gender. There are two basic explanations for sequences such as this in the literature. Kohlberg (1966) and DeVries (1969, 1971) argue that this sequence is related to the development of underlying cognitive abilities, which may be structural in nature. The alternative explanation is that the

sequence reflects only the difficulty of the task, and not cognitive level (e.g., Brainerd, 1978). According to this task difficulty explanation, identity would be achieved before stability because knowledge that gender remains invariant over time presupposes the ability to classify oneself by gender. The controversy over these two explanations remains unresolved at the present time. Regardless of whether the sequence originates in the child, in the task, or in both, it seems likely that the development of gender constancy has an effect on children's sex-role development. Several studies have provided suggestive data on this point. Kohlberg and Zigler (1967) and Slaby and Frey (1975) were both able to relate children's level of gender constancy development to their orientations to same-sex models, though these relationships were stronger for males than females. While there does seem to be a connection between cognitive level and behavior, the specific nature of this relationship remains unclear. For example, why do sex differences exist in the activity and toy preferences of preschoolers when there is no sex difference in the acquisition of gender constancy? One intriguing possibility is that preschool children are sex-typed, at least in part, because of their inadequate understanding of gender constancy. For example, a child who believes, as most preschoolers do, that playing with opposite sex toys will change one's gender, is probably a little hesitant to engage in cross-sex activities. It seems quite possible, then, that incomplete gender constancy attainment contributes to sex-typing in early childhood.

Reference Note

1. Emmerich, W., Goldman, K., Kirsh, B., & Sharabany, R. Development of gender constancy in economically disadvantaged children. Unpublished manuscript, Educational Testing Service, Princeton, New Jersey, 1976.

References

Achenbach, T.M., & Weisz, J.R. A longitudinal study of developmental synchrony between conceptual identity, seriation, and transitivity of color, number, and length. Child Development, 1975, 46, 650-657.

Bentler, P. M. Evidence regarding stages in the development of conservation. Perceptual and Motor Skills, 1970, 31, 855-859.

Brainerd, C. J. The stage question in cognitive-developmental theory. The Behavioral and Brain Sciences, 1978, 1, in press.

DeVries, R. Constancy of generic identity in the years three to six. Monographs of the Society for Research in Child Development, 1969, 34, (3, Serial No. 127).

DeVries, R. Evaluation of cognitive development with Piaget-type tasks: Study of young bright, average, and retarded children. Urbana,Ill., 1971. (ERIC Document Reproduction Service No. ED 075 065)

DeVries, R. Relationships among Piagetian, I.Q., and achievement assessments. Child Development, 1974, 45, 746-756.

Emmerich, W., Goldman, K., Kirsh, B., & Sharabany, R. Evidence for a transitional phase in the development of gender constancy. Child Development, 1977, 48, 930-936.

Gesell, A. The first five years of life: A guide to the study of the preschool child. New York: Harpers, 1940.

Goodenough, W. H. A technique for scale analysis. Educational and Psychological Measurement, 1944, 179-190.

Green, B. F. Method of scalogram analysis using summary

statistics. Psychometrika, 1956, 21 (1), 79-88.

Grusec, J. F., & Brinker, D. B. Reinforcement for imitation as a social learning determinant with implications for sex-role development. Journal of Personality and Social Psychology, 1972, 21, 149-158.

Kohlberg, L. A. A cognitive-developmental analysis of children's sex-role concepts and attitudes. In E. E. Maccoby (Ed.) The development of sex differences. Stanford, California: Stanford University Press, 1966.

Kohlberg, L., & Ziqler, E. The impact of cognitive maturity on the development of sex-role attitudes in the years 4-8. Genetic Psychology Monographs, 1967, 75, 84-165.

Marcus, D.E., & Overton, W.F. The development of cognitive gender constancy and sex role preferences. Child Development, 1978, 49, 434-444.

McNemar, Q. Psychological statistics. Toronto: Wiley and Sons, Ltd., 1969.

Mussen, P. H. Early sex-role development. In D. A. Goslin (Ed.) Handbook of socialization theory and research. Rand, McNally & Company: Chicago, 1971.

Rabban, M. Sex-role identification in young children in two diverse social groups. Genetic Psychology Monographs, 1950, 42, 81-158.

Rumenick, D.K., Capasso, D.R., & Hendrick, C. Experimenter sex effects in behavioral research. Psychological Bulletin, 1977, 54, 852-877.

Slaby, R. G., & Frey, K. S. Development of gender constancy

and selective attention to same-sex models. Child Development, 1975, 46, 849-856.

Thompson, S. K. Gender labels and early sex-role development. Child Development, 1975, 46, 339-347.

Wohlwill, J. F. The study of behavioral development. New York: Academic Press, 1973.

Table 1

Item Correlation Matrix

(continued on next page)

	IDENTITY			STABILITY		
	SELF	MALE	FEMALE	SELF	MALE	FEMALE
SELF IDENTITY	1.00					
MALE IDENTITY	.54	1.00				
FEMALE IDENTITY	.61	.63	1.00			
SELF STABILITY	.47	.37	.39	1.00		
MALE STABILITY	.55	.43	.44	.61	1.00	
FEMALE STABILITY	.46	.44	.44	.63	.63	1.00
SELF MOTIVE	.46	.44	.35	.63	.56	.62
MALE MOTIVE	.35	.41	.39	.40	.45	.59
FEMALE MOTIVE	.31	.49	.47	.43	.43	.60
SELF CONSISTENCY	-.04	-.01	-.10	.18	.00	.05
MALE CONSISTENCY	-.32	-.08	-.21	.00	-.11	-.06
FEMALE CONSISTENCY	.05	.06	.06	.08	.09	.10

Note. N= 76.

Table 1 (continued)

	MOTIVE			CONSISTENCY		
	SELF	MALE	FEMALE	SELF	MALE	FEMALE
SELF IDENTITY						
MALE IDENTITY						
FEMALE IDENTITY						
SELF STABILITY						
MALE STABILITY						
FEMALE STABILITY						
SELF MOTIVE	1.00					
MALE MOTIVE	.71	1.00				
FEMALE MOTIVE	.79	.73	1.00			
SELF CONSISTENCY	.14	-.03	.17	1.00		
MALE CONSISTENCY	-.06	.00	-.04	.56	1.00	
FEMALE CONSISTENCY	.10	.14	.12	.45	.29	1.00

Note. N= 76.

Table 2

Self Subscale: Guttman Scalogram

Summary Statistics

Items Passed	n	%	mean age	range
0	5	7	38	34-43
1	8	10.5	46	32-55
2	11	14	53	33-73
3	44	58	57	35-71
4	8	10.5	50	34-69
TOTAL	76	100		

coefficient of reproducibility..... 0.98

minimum marginal reproducibility..... 0.83

percent improvement..... 0.15

coefficient of scalability..... 0.88

Table 3

Male-Other Subscale: Guttman Scalogram

Summary Statistics

Items Passed	n	%	mean age	range
0	5	7	40	32-46
1	10	13	46	34-68
2	19	25	55	35-73
3	39	51	56	33-71
4	3	4	56	47-66
TOTAL	76	100		

coefficient of reproducibility..... 0.95

minimum marginal reproducibility..... 0.80

percent improvement..... 0.15

coefficient of scalability..... 0.77

Table 4

Female-Other Subscale: Guttman Scalogram

Summary Statistics

Items Passed	n	%	mean age	range
0	8	10.5	41	34-49
1	10	13	54	32-73
2	13	17	47	33-68
3	43	56.5	56	35-71
4	2	3	68	66-69
TOTAL	76	100		

coefficient of reproducibility..... 0.95

minimum marginal reproducibility..... 0.81

percent improvement..... 0.15

coefficient of scalability..... 0.76

Table 5

Combined Scale: Guttman Scalogram

Summary Statistics

NUMBER OF ITEMS PASSED	N	%	MEAN AGE	AGE RANGE
0	3	4	40	34-43
1	1	1	46	46
2	3	4	37	32-49
3	4	5	44	37-52
4	3	4	47	42-55
5	5	7	58	48-73
6	6	8	57	40-71
7	5	7	44	33-57
8	7	9	54	38-67
9	34	45	57	35-71
10	1	1	38	38
11	3	4	57	47-69
12	1	1	66	66
TOTAL	76	100		

coefficient of reproducibility..... 0.93

minimum marginal reproducibility..... 0.81

percent improvement..... 0.12

coefficient of scalability..... 0.64

Table 6

Three-way Analysis of Variance

on Combined Scale Score

Source of variation	Sum of Squares	df	F
sex of child	20.539	1	2.658
sex of experimenter	61.268	1	7.929*
order	40.422	5	1.046
residual	401.793	52	

Note. Interactions are not presented in this table because none approached significance (largest $F < 1.38$). Degrees of freedom do not total 75 because of omitted nonsignificant interactions.

* $p < .01$

Table 7

Three-way Analysis of Variance on Individual Subscale Scores: Self, Male-Other, and Female-Other

Self subscale			
Source of variation	Sum of Squares	df	F
sex of child	1.666	1	1.507
sex of experimenter	2.374	1	2.147
order	3.591	5	0.649
residual	57.500	52	
Male other subscale			
sex of child	1.427	1	1.624
sex of experimenter	10.479	1	11.923**
order	6.444	5	1.466
residual	61.033	52	
Female other subscale			
sex of child	4.189	1	1.624
sex of experimenter	9.300	1	7.924*
order	4.561	5	0.777
residual	61.033	52	

Note. Interactions are not presented in this table because none approached significance (largest $F < 1.38$). Degrees of freedom do not total 75 because of omitted nonsignificant interactions.

* $p < .01$

** $p < .001$

Table 8

Item Analyses for Asynchrony

Comparison	z-Score
self identity with male identity.....	-1.55
self identity with female identity.....	-2.11**
self stability with male stability.....	-0.30
self stability with female stability.....	-2.11**
self motive with male motive.....	-2.32**
self motive with female motive.....	-1.15
self consistency with male consistency...	-1.90*
self consistency with female consistency.	-3.16***

* $p < 0.10$, two-tailed.
** $p < 0.05$, two-tailed.
*** $p < 0.01$, two-tailed.

Table 9

Matrix of Self versus Other (Male and Female) Comparisons

for Pseudo-Constant Children (n=16)

SELF SCALE TYPE	OTHER SCALE TYPE 0	1	2	3	4	ABSOLUTE DEVIATION AROUND MODE
0	*****		*			0.33
1	***	****	*	**		0.80
2	**	**	**			0.67
3		*	*	****		0.50
4		*	***			0.25

Note. Each child is represented with two points because the horizontal axis represents both the male-other and female-other subscales.

Table 10

Matrix of Self versus Other (Male and Female) Comparisons

for True-Constant Children (n=10)

SELF SCALE TYPE	OTHER SCALE TYPE 0	1	2	3	4	ABSOLUTE DEVIATION AROUND MODE
0	**					0.00
1						0.00
2						0.00
3			*	*****		0.17
4			*	******	****	0.45

Note. Each child is represented with two points because the horizontal axis represents both the male-other and female-other subscales. However, one child had missing data on the female-other subscale so that the number of points in this matrix equals 19 instead of 20.

APPENDIX

Questionnaire

Instructions: "Why?," is asked after each response to items 4 to 8 which indicates constancy. For example, if question 8 were asked and the child responded, "No, I couldn't be the opposite sex if I wanted to," then the interviewer would ask, "Why?".

Self-referent Subscale

Identity item. 1. Are you a boy or a girl? Are you a (opposite of first response)?

Stability items. 2. When you were a little baby, were you a little boy, or a little girl? Were you ever a (opposite)?

3. When you grow up, will you be a mommy or a daddy? Could you ever be a (opposite)?

Consistency items. 4. If you played with (opposite sex children) and did (opposite sex) things like this, what would you be? Would you be a girl or a boy?

5. If you wore (opposite sex) clothes like this, what would you be? Would you be a boy or a girl?

6. If you had your hair like a (opposite sex) like this, what would you be? would you be a girl or a boy?

7. If you had your hair like this and wore (opposite sex) clothes like this, what would you be? Would you be a boy or a girl?

Motive item. 8. If you really wanted to be a (opposite sex), could you be?

Male-Other Subscale

Identity item. 1. Is this a boy or a girl? (give picture boy's name, e.g. "Johnie")

Stability items. 2. When Johnie was a little baby, was he a little boy, or a little girl? Was he ever a (opposite)?

3. When Johnie grows up, will he be a mommy or a daddy? Could he ever be a (opposite)?

Consistency items. 4. If Johnie played with (opposite sex children) and did (opposite sex) things like this, what would he be? Would he be a girl or a boy?

5. If Johnie wore (opposite sex) clothes like this, what would he be? Would he be a boy or a girl?

6. If Johnie had his hair like a (opposite sex) like this, what would he be? would he be a girl or a boy?

7. If Johnie had his hair like this and wore (opposite sex) clothes like this, what would he be? Would he be a boy or a girl?

Motive item. 8. If Johnie really wanted to be a (opposite sex), could he be?

FEmale-Other Subscale

Identity item. 1. Is this a boy or a girl? (give picture a girl's name, e.g. "Janie").

Stability items. 2. When Janie was a little baby, was she a little boy, or a little girl? Was she ever a (opposite)?

3. When Janie grows up, will she be a mommy or a daddy? Could she ever be a (opposite)?

Consistency items. 4. If Janie played with (opposite sex children) and did (opposite sex) things like this, what would she be? Would she be a girl or a boy?

5. If Janie wore (opposite sex) clothes like this, what would she be? Would she be a boy or a girl?

6. If Janie had her hair like a (opposite sex) like this, what would she be? would she be a girl or a boy?

7. If Janie had her hair like this and wore (opposite sex) clothes like this, what would she be? Would she be a boy or a girl?

Motive item. 8. If Janie really wanted to be a (opposite sex), could she be?