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ABSTRACT

Three experiments using the same materials and methodology investigated the development of sex role stereotype schemata through the analysis of children's inferences of gender of protagonists in stories and through their preference for the protagonists. Thirteen sex role stereotypes whose validity was confirmed by five expert jurors were embedded in eight 200-word, first person narrative story segments on a fourth grade readability level. In each experiment, randomly selected fourth, fifth, and sixth grade students read along with investigators and then indicated the sex of the first person protagonist. Next they ranked the stories in order of preference from one to eight. The first experiment, conducted with 176 subjects, tested the students twice over a 5-week period to determine the reliability of their responses. The coefficient of stability was moderate. The second experiment tested the hypothesis that students are better able to determine the gender of a character as they age from fourth to sixth grade. However, results with 736 subjects revealed no significant difference for sex, state, or grade. In the last experiment, designed to determine the relationship of sex to preference, 866 subjects recognized sex stereotyped behavior, but their preferences showed high variability. It seems children are more concerned with a character's qualities than with his or her gender. (JL)

Elementary Readers' Inference of Sex of Story Characters As an Indication of Developmental Sex Role Schemata

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Running Head: Children's Inference of Sex of Story Characters

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Three major psychological theories purport to explain the formulation and nature of sex differentiation and sex role stereotyping: (a) imitation/selective modeling, (b) behavior modification through positive/negative reinforcement for same-sex behavior, (c) self-socialization. This theory has been developed in several studies by Kohlberg (1966) and Kohlberg and Zigler (1967), who stress that sex-typed behavior stems from rules that children have induced, both from what they have observed and from what they have been told. Even though these rules appear to be distortions of reality -- over-simplified, exaggerated, and stereotyped, the theory suggests children develop an understanding of their sexual identity through the rules and then act according to their concept of sex-appropriate behavior (Maccoby & Jacklin, 1974).

Self-socialization appears to result in the development of sex role stereotypic schemata which are knowledge structures imposed on selected external stimuli which influence subsequent perception and comprehensions (Kant, 1787; Bartlett, 1932). In regard to sex roles, these schemata which bind events together include concepts of the subject's physical world, and general

categories of relations (causality, logical identity, and inclusion). The child's sex role concepts are the result of the child's active "structuring of his/her own experiences: they are not passive products of social training" (Kohlberg, 1966, p. 85).

Anderson, Reynolds, Schallert, and Goetz (1977) and Anderson, Spiro and Anderson (1978) studied perceptual schemata in relation to subjects' inferences and subsequent comprehension of ambiguous passages. They noted that readers' understandings were based on prior knowledge and beliefs; i.e., that readers impose prior experiences on ambiguous passages in order to facilitate comprehension. Anderson defines schemata as "scaffolding" for information processing and comprehension. His research suggests that schemata contain slots into which some of the specific information described in a message will fit. The information which fits the slot is considered significant, whereas information which does not is seen as unimportant, irrelevant, or incongrous. Previous research (Anderson et al, 1977) revealed schemata can cause a person to interpret a message in a certain way without even considering alternative interpretations. Wyer (1974) summarized social psychological evidence supporting the premise that merely superimposing a new set of propositions will not necessarily change high-level schemata, including sex role stereotypes.

In reference to the development of sex role stereotypic schemata, Maccoby and Jacklin (1974) found that children as young as three have begun to develop a rudimentary understanding of their own sexual identity, even though their ability to group others according to sex is imperfect and their notion about the permanence of their own sexual identity is incomplete. Kohlberg (1966) suggests that children's sex role concepts are limited in the same way as the rest of their concepts are, but the level of cognitive skills they have

developed. Therefore, children undergo reasonably orderly age-related changes in the subtlety of their thoughts about sex-typing. Consequently, their actions in adopting sex-typed behaviors and their reactions to stereotyped behavior should change in ways which parallel conceptual growth.

Examining current measures of the degree of learning or internalization of cultural sex-role standards, Kohlberg notes that while age development on such measures should be in the direction of increased masculinity/femininity or increased conformity to cultural prescriptions, present measures of internalization have shown no such conformity. Kohlberg suggests that the validity of the instruments is at fault.

Lovelace (1977) postulated that, if children possess stereotypic schemata for male/female sex roles, then, as in Anderson et al's (1977) experiments, these schemata might be imposed on ambiguous passages by readers in order to identify sex of first-person protagonists in stereotyped sex roles. If, as Kohlberg suggests, acquisition of appropriate sex role behavior is related to conceptual development, then subjects might be expected to respond more positively to embedded sex roles in stories as subjects' age increased. Lovelace measured the strength and degree of development of sex role stereotypes in elementary students via readers' responses to embedded sex role stereotypes presented in eight artifically-formulated story segments. All eight stories were written in first-person narrative. A jury agreed that specific sex role stereotypes appeared in particular story segments. Analysis of squared semi-partial correlation coefficients from a multiple regression analysis revealed age and reading level to be statistically significant predictors of the students' degree of stereotyping.

In addition, Lovelace also experimented with role reversal in story protagonists, i.e., a story character with feminine stereotypes was assigned

male gender. Children in the study were reluctant to change their minds about the character's sexual identity once the identity had been determined, supporting Wyer's (1974) contention that merely superimposing a new set of propositions will not change children's perceptions of people in their world.

The purpose of the study was to explore the nature of the development of sex role stereotypic schemata through the analysis of elementary readers influences of gender and preference for story protagonists displaying sex role stereotypic behavior. Specifically, the investigators were concerned with addressing three questions: 1) the methodology and instrument used to ascertain children's inferential behavior in relation to sex role stereotyping, 2) do children respond more positively to sex role stereotypic behavior embedded in story segments the greater their age, and 3) does the gender of children determine their preference for embedded sex role stereotypic behavior. Although each question required its own experiment, all three used the same materials, methodology, and procedure.

Materials and Methodology

Since all 13 sex role stereotypes under investigation could not be adequately demonstrated in one single story segment (see Table 1), eight 200-word story segments on fourth-grade readability level (Fry, 1968) were written in first-person narrative, each segment containing several embedded sex role stereotypes. The sex role stereotypes appearing in the story segments were those most frequently mentioned by authors when referring to stereotyped/nonstereotyped sex roles in educational materials deigned sexist.

Sex role stereotypes employed included: abstract-thinking, achievement-oriented, active aggressive, non-conformist, quantitatively-oriented, altruistic, avoidance, emotional, nuturant, passive, verbally-oriented, conformist.

Operational definitions of sex role characteristics were based in part on definitions offered by English and English (1958), and in part on usage of terms by various investigators, including Maccoby and Jacklin (1974).

Five jurors (faculty members at a university in the southwest showing expertise in sexism, children's literature, and/or developmental psychology) examined the story segments to insure that embedded sex role stereotypes appeared in the designated story segments. Jurors also labeled the 13 sex roles according to gender in order to ascertain that the sex roles were stereotypic of one particular gender. The jury agrees (100 per cent) that each of the 13 sex roles were indicative of one particular sex; they also agreed that sex role stereotypes were embedded in particular story segments. (Juror agreement of 80 per cent was considered sufficient evidence of the presence of particular sex roles in individual story segments.)

In order to examine children's preferences for sex role stereotypes across story content and format, each stereotype appeared in two story segments. For example, jurors agreed that three sex role stereotypes appeared both in Story Segment 2 and in Story Segment 8: aggressive, non-conformist, quantitatively-oriented. These stereotypes were deemed masculine characteristics by the jurors.

Story Segment 2

> I inched my way home, trying not to think of the report card folded inside my book, with the same marks as last time--A in science, F in everything else.
>
> I was glad to see Mom's car was gone--seeing my sister in the kitchen was almost as bad. "Where's your report card?" she asked in a sassy voice. And you'd better do your homework!"
>
> I screamed, "Who are you to tell me to do my homework? I hate you!" And I slammed out the back door, and headed for the shed and my bike.

> I was the only kid on my street that had a trailbike--I could take it apart and put it together in less than two hours. The bike left me free to explore the woods near my home--something I would rather do than play games with the other kids. I kept a records of the kinds of trees and animals I found in my notebook. No wonder I was good in science.
>
> But Mom was sure going to be mad about the rest of my report card. Well, I'd tell her where she could go--nobody was going to order me around!

Operational definitions of these three stereotypes included:

1) aggressive: the person overcomes opposition forcefully, either physically or verbally; opposes forcefully or punishes another; is competitive, authoritative, and domineering.

2) non-conformist: the person is autonomous; tends to avoid or quit activities prescribed by domineering authorities; resists coercion and restrictions; is independent and defies convention; tends to be self-reliant, self-sufficient, and self-confident.

3) quantitatively-oriented: the person enjoys subjects such as mathematics, chemistry, and physics, and employs logical deduction in order to solve problems.

General Procedure

The eight story segments were administered to participating students in the following manner in each of three experiments: children were told the investigator needed their help in determining types of stories children liked to read. Investigators read the stories aloud to the children as the children followed along on their copies of the stories. Students indicated the sex of each first-person protagonist, then rank-ordered the stories in order of preference, from 1 to 8.

Students' inferences of sex of first-person protagonists were scored +1 if the student reponded positively to the sex role stereotype implanted in the story segment, and 0 if the student reponded in a nonstereotyped manner to a stereotyped first-person protagonist. Range of stereotype scores was +8 (subject inferred all eight protagonists' gender according to implanted sex role stereotypes) to 0 (subject inferred all eight protagonists' gender in a non-stereotyped manner).

Pilot Study

A pilot study was conducted with 16 fourth-grade children similar to those participating in the following experiments. Subjects were asked to read each story silently, indicate the sex of the first-person protagonists, and rank the stories in order of preference. In order to determine if they were focusing on stereotypes implanted in the stories, the subjects were asked to write their reason for selecting the sex of each protagonist. Results showed the children were able to perform the tasks required. Their written comments indicated that at least 75 per cent of the students were focusing on sex role stereotypes which jurors indicated appeared in particular story segments.

Experiment 1

The purpose of this experiment was to determine the reliability of students' inferences of the sex of the protagonist in the eight story segments through a test-retest experiment, with a five-week time lapse. If student responses were affected by random guessing, daily fluctuations in individual students' emotional stability, physical health, or other chance factors, then investigators would expect statistically significant differences in

students' responses to individual story segments. If students were indeed reacting with correct inferences of protagonists' sex, then no statistically significant differences should be noted and a significant coefficient of stability would be obtained. Therefore, the null hypotheses were that: 1) there was no statistically significant differences between the mean scores on the test and in the retest; and 2) there was no significant relationship between test and re-test scores.

Subjects. Subjects included 176 randomly selected fourth, fifth, and sixth grade elementary students enrolled in a randomly-selected suburban school in a southeastern state. Students followed as investigators read the story segments aloud, then the students indicated the sex of each protagonist. Five weeks later, the procedure was repeated. While investigators realized that high correlations between test-retest scores were more likely if test-retest was conducted in a relatively short time span, the interval of five weeks was chosen in order to eliminate the effects of short term memory and incidental learning.

Results. Pearson product moment correlation coefficients were computed between test-retest scores for the 176 subjects. The coefficient of stability was 0.47 ($p < .001$), thereby rejecting the null and supporting the alternative that the student inferences as measured by the methodology and instruments were reliable.

Student's t-test for paired samples (correlated t-tests) were computed for each of the story segments. All t-values were statistically non-significant ($p > .01$) with the exception of student responses to Story Segment 2 ($p < .01$), where the mean of positive responses to embedded stereotypes rose from 0.73 to 0.84, with standard deviation decreasing from 0.44 to 0.37 over

the five-week period (see Table 5). The mean number of story segments to which subjects responded positively to embedded stereotypes rose from 5.20 to 5.48 (standard error of measurement = 0.09).

Discussion. While the coefficient of stability for the total stereotype scores of the 176 subjects was moderate ($r=.47$, $p<.001$) accounting for 22.1 percent of the variance, average possible responses to the embedded stereotypes increased over the five-week period between test and retest. Student responses reflected a statistically significant change in only one story segment; the difference again reflected an increasingly positive response to the stereotypes. The five-week period between test and retest helps eliminate the possibility that students simply remembered previous responses. Retention of previous responses would have tended to make the correlation coefficient artifically high. In fact, the coefficient of stability may be depressed because of the lengthy time lapse between the two administrations of the measure. In general, the longer the time between the two administrations, the lower the correlation (Downie & Heath, 1965).

Since the instruments eliciting student inferences were shown reliable through coefficient of stability and correlated t-tests, it was concluded that the experiments concerning the development of sex role stereotypic schemata could be conducted. From the analysis of the reliability data and the experiments performed by Lovelace (1977) and Anderson et al (1977) the investigators predicted that children's influences of sex-role stereotypes embedded in story segments would show an increased conformity to cultural prescriptions as children aged.

Experiment 2

Experiment 2 was conducted to test the hypothesis that as children age within the fourth through sixth grade levels they are better able to infer

the gender of a character by reacting to implanted sex role stereotypes.

Subjects. Subjects (N=736) were drawn from randomly-selected schools in a rural (N=199), suburban (N-240), and urban (N=334) setting in two Southeastern and one Southwestern state. Students were enrolled in fourth, fifth, and sixth grade.

Results. The design employed in this study was a nested 3x3x2 ANOVA with subjects within sex, sex within three grade levels, and the three grade levels within three states. Results revealed no significant differences between the sexes in response to the embedded sex role stereotypes in the story segments ($F=3.09$, df 1, 9, $p= .20$). Also, no significant differences were found for state or grade. Environmental (rural, urban, suburban), and locale (Georgia, Louisiana, Arizona) apparently do not affect acquisition of sex role stereotype schemata.

Discussion. A question of sex role stereotypic schemata appears not to increase as age, grade level, and/or cognitive ability of the child increases as suggested by Kohlberg (1966) and predicted by Lovelace (1977). Children are not better able to infer the sex of the protagonist by reacting to the implanted sex role stereotype. These findings appear to support the results of Connor, Serbin, and Ender (in press) who investigated the aggressive, assertive, and passive behavior of 105 elementary school children in grades 4, 5, and 8. They found that boys responded more positively than girls to aggressive and assertive behavior and expected others to respond similarly. Girls acclaimed passivity significantly more than boys. However, girls showed greater extremes in their judgements of aggressive behavior than did boys. Grady, Brannon, and Peck (1979) commenting on the Connor et al study suggested that sex role stereotyping of aggressive and passive behavior appeared well initalized by age ten but that variabilty in female responses was high.

In addition, these data support Bartlett's (1932) and Anderson et al's (1977) contention that a relational schemata that is selective and internally organzed influences the comprehension and retention of material. Asher (1978) has shown that irregardless of race, fifth grade boys consistently respond positively to male sex stereotyping and moderately negatively to female sex stereotyping while fifth grade girls respond moderately to female sex stereotyping and slightly negatively to male sex stereotyping. Thus, it appears that children extract from an ambiguous passage that which closely matches what they perceive as socially acceptable.

Even though it appears that children can recognize sex roles embedded in ambiguous passages, the question of their preference of story segment remains. From these data and studies by Markell and Asher (1974), and Asher (1978) it appears that interest and performance follow sex role stereotyping identification, i.e. boys prefer masculine oriented reading material and girls prefer feminine material. However, experience with children, teacher's comments, and observations of children's behavior in libraries drew the authors to question the inherent logic of the studies.

Experiment 3

This experiment was developed and conducted to ascertain the preference of the sexes for the story segments which had sex role stereotypes embedded within them. Since each of the 13 streotypes under investigation appeared in two story segments (see Table 1), student preferences for protagonists' sex role behavior could be compared to students' preferences for content and form in the paired story segments. The students rank-ordered the eight story segments by preference, with the story segment enjoyed most ranked 1, and the segment enjoyed least ranked 8.

Subjects. A total of 866 subjects participated. These included 339 elementary students enrolled in a suburban school in a Southeastern state, and 527 students enrolled in an urban school in a Southwestern state. Subjects were enrolled in fourth, fifth, and sixth grade classrooms.

Analyses. In order to use group means in an analysis of variance, Chocran's C (Kirk, 1968) was employed to test for homogeniety of variance of the 12 subgroups (divided by state, grade, and sex). Since no statistically significant differences were observed ($p > .01$) eight 2x3x2 ANOVA's were computed in order to investigate student's preferences for each of the eight story segments. Gender was nested within grade level which was nested within state.

Statistically significant difference ($p < .01$) were noted for sex (grade (state)) in children's preferences for Story Segments 1, 3, 5, 6 (see Table 6). No statistically significant differences were noted for state, or for grade level nested within state. Realistically, the largest mean difference in children's preferences was noted for Story Segment 3 ($\bar{x}$ males = 4.27; $\bar{x}$ females = 3.37).

Subsequent one way ANOVA's conducted across the eight stories' rankings by preference by each of the 12 subgroups (i.e., females enrolled in the fifth grade in Louisiana) revealed statistically significant differences among all 12 subgroups' mean ranking of the eight stories by preference. After-tests, including 95% confidence intervals and Duncan's multiple range test, revealed wide variation among mean preferences for the eight story segments. For example, examination of the preferences of fourth-grade females in the Southeastern state revealed no less than 13 signficantly different pairs of mean preferences for the eight stories.

Kendall's coefficient of concordance was computed on student's rankings of stories, when students were divided by state, grade level, and sex into 12 subgroups, in order to examine agreement among students as to rank-ordering of stories by preference. Coefficients of concordance were low, ranging from $W = .20$ ($p < .01$) for sixth grade Southwestern females, to $W = .03$ for sixth grade Southeastern males (see Table 7). Thus, the groups agreed to a small but significant extent.

Comparison of student's preferences for story segments in which stereotypes were paired, i.e. Story Segment 1 with Story Segment 7, revealed that, with the exception of Story Segments 2 and 8, preference for stories in which characters displayed the same sex role stereotypes varied by sex(grade(state)). This suggests that content and form may determine children's preference, not necessarily protagonists' stereotyped behavior.

Discussions. It appears from these data that children may recognize what behavior denotes sexual orientation but they may not prefer to read about it as a preference. If their recognition of reality and their preferences were similar, they would have preferred the structures pairs in tandem, one to another. The data indicate that their preferences showed high variability with more significantly different pairs of mean preferences than stories. Thus, what is incorporated into their respective fantasies and therefore revealed in preferences supports Kohlberg's contention and Connor, Serbin, and Ender's (in press) findings that the cognitive framework is formalized but the variation is great. Indeed, only one story pair, two and eight, was preferred consistently. Both paragraphs indicated aggressive, nonconformist, quantitatively-oriented behavior which indicated the embedded male sex-role stereotype. The protagonist's behavior is representative of behavior fourth, fifth, and sixth grade students experience daily with varying degrees of intensity. Thus, the schemata of the story segment appears to evoke a preference response which is based on environmental/societal/emotional

concerns rather than on sex stereotyping. When children were asked who the protagonist was, the majority answered male. When asked about his behavior, they felt it was "dumb". They had identified with and judged the protagonist. Owens & Bower (1977) obtained similar findings. Their subjects were inclined to justify the actions of characters they identified with and attributed blame to those with whom they did not identify. Similar results were found by Anderson and Pichert (1977), Abelson (1976), and Reder (1976) as reviewed by Reder (1978).

Other empathetic reactions were made to individual story segments one, three, five and six, these being preferred over the others with story segment three being preferred most. Story segment three was concerned with a person who had found a cat who had been hit by a car. The person brought the cat to the veterinarian who told her/him to tell the owner. The person felt proud because s/he was a "good citizen -- I had helped an animal," but was also frightened of people and "...cried a lot." Story segments five and six contained similar behaviors, i.e., altruism, avoidance, emotions, conformance, nuturance, passivity, and verbal orientation. Three of the four story segments had embedded female sex role stereotypes. Children of both sexes appear to prefer the more traditionally feminine behavior which is more conforming, tender, and protected. These results also support the findings of Connor, Serbin, and Ender (in press) who found that children would state they would act like the female character when she acted passively.

The fourth story segment, number one, showed the qualities of ambition, action, achievement orientation, and abstract thinking which was used to develop a system that placed the thinker as best. It is interesting that children of both sexes responded favorably as this finding suggests girls preferring goal orientated behavior as well as boys. The findings and

subsequent implications do not support the theory by Lynn (1962) which suggests that girls acquire a learning style through personal relationships and imitation and boys learn by defining goals, structuring the environment, and abstracting principles. However, the results support Frasher (1979) who studied children's preference and comprehension responses to 1) stories in which the male and female characters were represented in traditional and non-traditional roles and 2) stories in which only opposite sex main characters were portrayed in similar roles. Frasher found for first preference, both girls and boys preferred the traditional same sex character and girls preferred the non-traditional opposite sex character. For second preference, no differences among responses were found. The children's reasons for choosing depended upon the qualities of strength, courage, kindness, good ideas and loyalty rather than any sex role bias. The interpretation of the data in this and the Frasher study provides impetus to questions concerning the variability of female responses toward stereotypic sex roles.

In a broader view, the experiments reported have suggested more general conclusions regarding the nature of elementary readers inference of sex of strong characters as an indication of developmental sex role schemata.

Firstly, it appears that children perform in a manner most acceptable to adults and will on command provide appropriate answers to questions concerning sex role stereotyping. One girl was overheard "I'll tell them who it is. Most girls don't act like that." Implied, of course, is that some do. Frasher (1979) found that only when boys were asked to make a choice based on gender did they respond with same sex answers.

Second, children appear to be more concerned with the qualities a character exhibits rather than its gender. Courage, kindness, loyalty, good thinking, concern for others, tenderness, seem to be a basis for children's

preferences. If analyzed, these can be seen as labels for choices made by the character in time of crises, i.e. the turning points in the plot. If the choices the character makes are similar to those the reader makes, the reader probably will identify with the character no matter the sex.

Lastly, the difference between what is accepted as a social fact by the children and how they perceive themselves in spite of the facts is perhaps the significance between the recognition of an embedded sex role stereotype and a preference for a story segment.

The battle between the sexes may go on in the stereotypes but the preference data may suggest a truce.

Table 1

Sex Roles Appearing in Eight Story Segments

	Embedded Sex Role Stereotypes	
MALE STORY SEGMENTS	STORY SEGMENT ONE	STORY SEGMENT SEVEN
	abstract thinker	abstract thinker
	achievement-oriented	achievement-oriented
	active	active
	STORY SEGMENT TWO	STORY SEGMENT EIGHT
	aggressive	aggressive
	non-conformist	non-comformist
	quantitatively-oriented	quantitatively-oriented
FEMALE STORY SEGMENTS	STORY SEGMENT THREE	STORY SEGMENT SIX
	altruistic	altruistic
	avoidance	avoidance
	emotional	emotional
		conformist
	STORY SEGMENT FOUR	STORY SEGMENT FIVE
	nuturant	nuturant
	passive	passive
	verbally-oriented	verbally-oriented

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