1992

Theories of gender development :: selective attention to television and toy play.

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THEORIES OF GENDER DEVELOPMENT: SELECTIVE ATTENTION TO TELEVISION AND TOY PLAY

A Thesis Presented

by

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Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

September 1992

Department of Psychology

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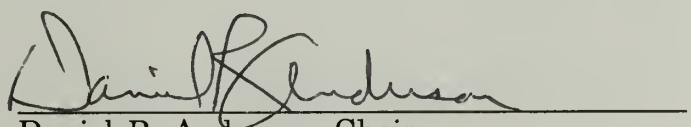
Approved as to style and content by:



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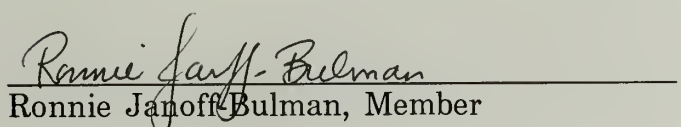

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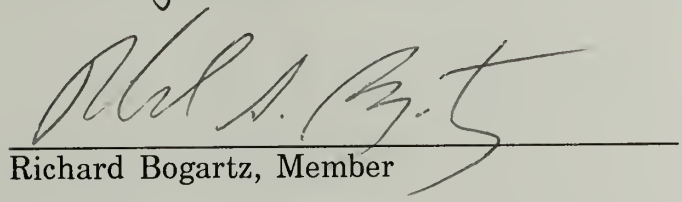

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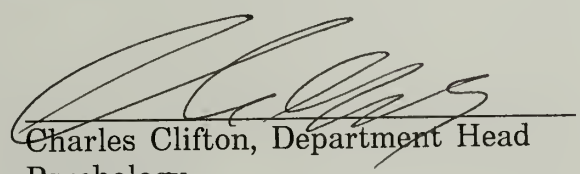

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ACKNOWLEDGMENTS

I would like to acknowledge Pat Collins for her countless hours of guidance and support. Without her I would never have gotten to this point. My mother, Dorothy, and father, Robert Luecke, for believing I could make it. A special thanks to my mom for the hardships she has endured and the love for living that she has inspired in me. Without her, I would never have finished this project in hopes of moving on to grander things in life. I am indebted to Clara for listening to me when no one else would. Melissa Devlin deserves my gratitude for helping to collect the data. I am forever grateful to Jonas for pushing me that last mile. I would also like to thank Steve and Alison for giving me my sanity through the last three years. Without them I would have lost sight of what was truly important in life. Finally, I would like to show my appreciation to Dan Anderson, Ronnie Janoff-Bulman, and Dick Bogartz for waiting so patiently.

ABSTRACT

THEORIES OF GENDER DEVELOPMENT:
SELECTIVE ATTENTION TO TELEVISION AND TOY PLAY

SEPTEMBER 1992

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The cognitive-developmental theory of gender development was tested in two studies. Social-learning, gender schema, and TV theories were also explored in relation to the results. Subjects were tested for level of gender attainment using a modified version of the Slaby and Frey (1975) gender constancy interview. Study One investigated selective attention of 12, 6 pregender constant and 6 gender constant, five year old males to television characters and content. The boys were videotaped for ten days in their homes. The hypothesis that gender constant boys will look more at male television characters relative to pregender constant boys was partially confirmed. Study Two examined a total of 45 minutes of sex-typed toy play and first-toy choice for 153 five year old males and females. Gender constant boys were not more stereotyped than pregender constant boys in their toy play or choice. Gender constant girls exhibited mixed results. Gender constant girls were more sex-typed for first-toy choice and less sex-typed in toy play

constant girls. There was no difference between the pregender and the gender constant girls in stereotyped toy play for the 5 minute warm-up session.

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CHAPTER 1

INTRODUCTION

Cognitive-developmental Theory

Gender concept develops as an understanding of what is appropriate male and female behavior as defined by culture. The aim of the current study is to examine the relationship of gender concept to two common activities of five year olds: toy play and television viewing. This project tests predictions based on Kohlberg's (1966) outline of cognitive-developmental theory concerning the gender concept.

The cognitive-developmental theory maintains that the child actively selects what to incorporate in an internal sex-role schema. Kohlberg (1966) states "that basic sexual attitudes are not patterned directly by either biological instincts or arbitrary cultural norms, but by the child's cognitive organization of his social world along sex-role dimensions" (p. 82). A child's sex-role concept develops according to Kohlberg (1966) through a series of cognitive changes. At around two to three years of age, the child acquires a gender identity, i.e., cognitive self-categorization as the appropriate sex which organizes the child's sex-role attitudes. A girl will seek out information and opportunities to do "girl" things in order to

reinforce her gender identity. Subsequently, the child realizes that gender identity is stable and learns to label him/herself correctly and to label others as male or female based on physical characteristics. Gender stability is reached by three to four years of age. What distinguishes gender stability is the ability to not only label the self correctly as a boy or a girl as in the attainment of gender identity but to also label another as the appropriate sex. Around the age of five or six, the child's cognitive organization changes again to incorporate the constancy of gender identity, i.e., once a girl always a girl.

According to the cognitive-developmental theory, the development of a constant gender identity is believed to be related to the development of conservation of physical quantities in the face of apparent changes as described by Piaget. In support of the cognitive-developmental theory, Marcus and Overton (1978) found a relationship between cognitive level and gender constancy with first and second graders. De Vries (1969) examined the relationship between identity constancy and conservation. She observed children three to six years of age in an animal identity change study and found generic identity constancy to precede conservation of quantitative attributes.

Kohlberg (1966) further proposes that the development of sex-role concepts leads to the development of new values and attitudes. By the age of five, Kohlberg (1966) states, "Young children's sex-typed value statements predict the social reinforcers they seek or the learnings they engage in" (p. 113).

Relevant Research

In support of the cognitive-developmental theory of sex-role acquisition, are studies by Slaby and Frey (1975), Ruble, Balaban, and Cooper (1981), Stangor and Ruble, (1989), and Frey and Ruble (1992) which have examined children's level of gender constancy in relation to televised models. These experiments form the primary basis for the present research. Slaby and Frey (1975) administered fourteen questions and counterquestions, designed to measure level of gender constancy, to fifty-five children ranging in age from 26 to 68 months with a mean age of 50 months. This measure will be discussed in detail here in the methods section of Study 1 in this paper. The questions were designed to represent different aspects of the gender concept: gender identity, gender stability, and gender constancy (Kohlberg, 1966). The subjects were assigned to one of five stages of gender constancy based on the responses made to the questions. Stage one children could not correctly identify males and

females consistently. Stage two children could identify gender but could not understand the invariance of gender over time. Stage three children could understand the invariance of gender over time but not over various situations, while stage four children had a complete understanding of gender constancy. The fifth, non-stage children failed to answer the questions consistently manner and were omitted from the analyses. The subjects classified in the first two stages constituted the low gender constancy group and the subjects in the third and fourth stages constituted the high gender constancy group.

In addition to responding to the questions, the child also viewed a five and one-half minute silent film depicting a male and a female simultaneously performing the same activity on a split screen with the male on one side and the female on the other. Direction of gaze was used to assess selective attention. The subjects were situated in front of the movie screen to prevent fixation on both models simultaneously. Test-retest reliability of video-taped eye movements of four pilot subjects was high with $r = 0.91$. Analyses of the subjects' total duration of attention to both models and the percentage of selective attention to the male rather than the female model revealed high gender constancy boys spent significantly more

time attending to the male model than to the female model. Although attention to the female model increased with level of gender constancy for the girls, the difference was not significant. Overall, high gender constancy subjects spent more time attending to the film. It is important to note that a positive and significant correlation was found between age and stage of gender constancy, but age was not correlated with selective attention to the same-sex model. To summarize, high gender constancy boys spent significantly more time selectively attending to male models than did low gender constancy boys or high gender constancy girls. Girls' selective attention for female models increased with level of gender constancy though not significantly.

A shortcoming of the attention measure was the brevity of the film. Had the film been longer with a wider assortment of male and female models, a more powerful assessment of selective attention to same-sex models could have been obtained. In Study 1 of the present research, on the other hand, each subject was observed for an extensive period of television viewing within the home environment.

Ruble, Balaban, and Cooper (1981) assessed gender constancy before presenting sex-typed toy commercials with subsequent

measurements of the subjects' toy play and preference. The procedure included two one minute toy commercials in which one commercial depicted two boys playing with the sex-neutral toy whereas the other showed two girls with the toy. The commercials were dubbed with a male or female voice corresponding to the sex of the models. A control condition was also included in which no commercials were used. After the child viewed the commercial, he/she was free to play with toys in the room; one of which was the toy depicted in the commercial. The subject was then asked a question to assess whether he/she thought the televised toy was more appropriate for a boy or a girl. A series of questions were also asked to test recall. The subjects consisted of 50 males and 50 females ranging in age from 44 months to 77 months with an average age of 60 months. The children were divided into high and low gender constancy groups by a median split across commercial conditions.

Ruble et al. (1981) hypothesized that the high gender stage children would play with the toy less when they saw opposite sex models in the commercial. This hypothesis was confirmed. The high gender stage subjects were also more likely to report that the opposite sex would like the toy if an opposite sex commercial was

viewed. One inconsistent finding was that there were no significant effects on the verbal measure of liking the toy. To determine if age was the determining factor in the results, a covariance analysis with age was run. There were no significant effects of the covariate with toy play or the verbal reports of the appropriateness of the toy. However, the covariate was significant when the analysis was performed on the sex-typing measure. Age was a predictor of sex-typed labeling, while it was not a good predictor of behavior. Children have had experience with sex-type labels. Thus they have most likely been reinforced for such behavior consistent with sex-type labels but self-regulation of a behavior such as attention or toy play preference may depend more on cognitive development.

A measure of attention would have aided in the understanding of the results found in the Ruble et al. (1981) study. Although high gender stage children played with the toy less when they saw the opposite sex model commercial as compared to low gender stage and control children, attention to the model could have been negatively correlated with amount of play as suggested by Ruble et al. (1981).

Stangor and Ruble (1989) administered the Slaby and Frey (1975) gender constancy interview to 20 preschoolers, 20 kindergarten and first grade children, and 20 third and fourth

graders with 10 males and 10 females in each age group. The children viewed a cartoon with two commercials to give realism to the television measure. The commercials showed either two boys playing with a female-stereotyped toy or two girls playing with a male-stereotyped toy. Children were asked to recall the sex of the children who were playing with the toy. The prediction that gender constant children were more likely to distort the commercials than the pregender constant children was confirmed. The gender constant children, therefore, were more likely than the pregender constant children to recall girls playing with a female-stereotyped toy than the correct response of boys. As age of the subjects increased, it was less likely that the commercials would be distorted to be gender consistent.

Frey and Ruble (1992) examined 95 children, 48 girls and 47 boys, between the ages of 5 and 10. The subject watched boys and girls being interviewed on television about toy preference. There was a conflict and a conflict-free condition. In the conflict condition, the subject saw a same-sex model choose a less attractive toy when given the choice between two toys. The conflict-free condition displayed two toys which were equally attractive. After the child watched the televised toy endorsements, they were

observed for 5 minutes in a free-play situation where the two televised toys were present along with 3 sex-neutral toys. The experimenter then asked the child if boys, girls, or both would like getting each toy for a birthday present to measure perceptions of sex differences in preference. The child was administered a modified version of the Slaby and Frey (1975) gender constancy interview.

The results indicated that boys played with the same-sex preferred toy longer than girls. No difference was observed for the no-conflict condition. Gender constant boys preferred playing with same-sex toys in the conflict condition, but the gender and pregender constant girls did not differ in preferred toy play. When asked if each toy was liked by boys, girls, or both, the preconstant boys were more likely than the gender constant boys or the preconstant or constant girls to base their preference on the sex of the televised model rather than the sex associated with the toy. Therefore, gender constant boys adhered to sex-role knowledge rather than being influenced by conflicting information.

Slaby and Frey (1975), Ruble et al. (1981), Stangor and Ruble (1989), and Frey and Ruble (1992) all found results consistent with the cognitive-developmental theory of sex role acquisition. Of

central importance, was the differences observed between subjects who had attained gender constancy and those who had not.

Social-learning and Gender Schema Theories

Although the focus of this project is on testing the cognitive-developmental theory of sex-role development as outlined by Kohlberg (1966), social-learning and gender schema theories would predict a same-sex attention bias but make no distinction on the basis of gender constancy. Social-learning theory is an environmental approach to the acquisition of the gender concept in which the developing child internalizes environmental influences and experiences. Unlike the cognitive-developmental theory, social-learning theory views the child as being a passive receiver of external reinforcement. Learning can be accomplished through direct experience of the consequences that actions produce. The positive and negative effects of experience have three main functions. One function is to inform. Bandura (1977) states, "By observing the direct outcomes of their actions, they (children) develop hypotheses about which responses are most appropriate in which setting. This acquired information then serves as a guide for future action" (p. 17). Second, response consequences function to motivate people. If a girl has received positive reinforcement in the

past for imitating a female character on TV, then she will be motivated to attend to female TV characters in anticipation of receiving future reinforcement. Third, responses can be strengthened automatically by response consequences (Bandura, 1977).

Mischel (1966) states: "In social-learning theory, sex-typed behaviors may be defined as behaviors that typically elicit different rewards for one sex than for the other" (p. 56). The child acquires sex-typed behaviors from observational learning of live and symbolic models. The first step in the acquisition process involves discrimination of sex-typed behavior patterns. Generalization is the second step in which the behaviors are experienced in new situations. Finally, the sex-typed behaviors are performed by the child.

The gender schema theory incorporates aspects of both the social-learning theory and the cognitive developmental theory. Social learning theory contributes the idea of social reinforcers as being important in the formation of the gender schema; while cognitive developmental theory contributes the idea of a predisposition to organize information on the basis of gender. Martin and Halverson (1981) and Bem (1981, 1984) both propose

gender schema theories. Bem, however, focuses on how the gender schema relates to androgyny and therefore will not be discussed in detail. Suffice it that both theories are similar.

Martin and Halverson (1981) propose a model "in which stereotypes are assumed to function as schemas that serve to organize and structure information" (p. 1119). In this respect, "schemas are naive theories that guide information processing by structuring experiences, regulating behavior, and providing bases for making inferences and interpretations" (Martin & Halverson, 1981, p. 1120).

The development of gender schemas as Martin and Halverson (1981) propose involves several factors. First, there is the assumption of the perceiver having a predisposition to categorize in order to simplify events going on in the environment. In addition, gender must be salient for the perceiver. Second, gender discriminations are based on physical appearance such as hair style, clothes, and body build. There are also social cues for discriminations. Observation of models and the labels others apply to objects and/or persons aid in the development of gender schemas. Fourth, the child recognizes that he/she is a member of one gender group and not the other.

The gender schemas are further broken down into two types. There is the "in-group-out-group" schema in which general information is categorized as being either for males or for females. "In-group" is the gender category the child belongs to, and "out-group" is the gender category in which the child does not belong. The second type is the "own-sex" schema. Information is categorized as being for the child's own sex (Martin & Halverson, 1981). Bem (1984) believes the child assimilates his/her own-sex schema to the in-group schema. Martin and Halverson (1981) propose that as in-group-out-group information is acquired, the own-sex schema "is elaborated by increasing the number and complexity of plans of action (e.g., the number of things boys can do)" (p. 1129).

Bem (1984) points out that society's emphasis on the distinction between the sexes has made the developing child ready to organize information on the basis of gender. Therefore, it should come as no surprise that children with well developed gender schemas will play with sex-appropriate toys more than sex-inappropriate toys. As Martin and Halverson (1981) state, "children's behavior is guided toward sex-appropriate activities and objects by labels that define the overall schema of in-group and out-

group" (p. 1122). Schemas will also guide what information is salient to the child. Boys will attend to, encode, and recall information that is consistent with male stereotypes. Girls will find information consistent with female stereotypes salient (Martin and Halverson, 1981).

Television is a source of gender information for the child. If a girl attends to female information as guided by her gender schema, the schema in turn will be reinforced and thus maintained. Television, in this way, "both activates existing schemata and influences the acquisition of new schemata" (Calvert & Huston, 1987, p. 79).

Current Research

This project was in two parts: One was a pilot study of selective attention to same-sex characters on television and gender constancy in a home television viewing situation. The second part was a study of the relationship between level of gender constancy and sex-typed toy play. Level of gender constancy was assessed using a revised version of the Slaby and Frey (1975) interview (Miller, Roedell, Slaby, & Robinson, 1978). Children were grouped into those who have attained gender constancy (high gender constancy) and those who have not attained gender constancy (low

gender constancy). The implications of the social-learning, cognitive-developmental, and gender schema theories were explored in relation to the results.

Study One

In the first and smaller pilot study, five year old boys were examined in the home television viewing environment. The children's television viewing in their homes was videotaped for ten days. Using these tapes, visual attention to the television and what was on the television was coded.

Children do not simply stare at the TV: Rather, about one third of the time the child spends with television, is actually spent in concurrent activities such as eating or playing (Anderson, Lorch, Field, Collins, & Nathan, 1986). Between one and two hundred times over the course of one hour, the child will look at and away from the TV (Anderson & Field, 1983). The central question of Study 1 was the degree to which this variability in visual attention was related to sex of the television character and to the level of gender constancy attained by the viewer.

The importance of Study 1 is well put by Huston (1983) in which she states:

The evidence for selective attention to sex-typed models is shaky, and more investigation is needed. In particular, available

studies deal with only one aspect of attention - children's responses to stimuli that are presented to them. In the real world, selective attention involves choosing the stimuli to which one exposes oneself, as well as attending differentially once the stimuli are present (p. 424).

Television is one source from which the child may receive information about sex roles. If this holds true, then a test of the cognitive-developmental theory of sex-role acquisition could be undertaken using the medium of television. Specifically, cognitive-developmental theory postulates that primarily after the child has achieved gender constancy, he/she would selectively seek out information from the TV to reinforce the already existing sex-role concept. The child attends to the TV for examples of sex-typed behaviors to help form or reinforce his or her sex-role concept. Therefore, level of gender constancy should affect the child's viewing behavior such that high gender constant children will have a higher percent attention to same-sex TV characters than low gender constant children. Although the primary focus was on the cognitive-developmental theory, the social-learning and gender schema theories can be examined but not separated. Bandura (1977) believes that television is one source from which modeling is so "intrinsically rewarding" that it holds "the attention of people of all ages for extended periods" (p. 24). It is predicted, according to

the social-learning and gender schema theories, that an attentional bias towards same-sex models with no differentiation between high and low gender constant children will be observed.

CHAPTER 2

STUDY ONE

Study One examined visual attention to television characters. Level of gender constancy was predicted to affect the child's viewing behavior. Cognitive-developmental theory proposes an organizational change so that the child will select and attend to same-sex models to establish and reinforce the gender concept. Boys who have achieved gender constancy should pay more attention to male television characters, relative to female characters, than boys who are not gender constant.

Theories of Visual Attention to Television

"Reactive" Theory. Of further relevance to Study One, are the theories of visual attention to television. The "reactive" theory (Singer, 1980), as Anderson and Lorch (1983) have termed it, proposes that the child's attention to television is largely reflexive in nature. The child merely engages in a series of orienting reactions to formal features of TV such as movement, animation, and scene changes. Therefore, it is predicted that there should be an attentional bias toward male characters because males are associated with formal features which orient the child to the TV.

"Active" Theories. There are two "active" theories of visual attention to television. Anderson and Lorch (1983) propose one theory in which attention to TV is driven to serve comprehension and nonviewing activities such as eating and toy play. When not actually looking at the screen, children monitor the television audio for cues to comprehensible or entertaining content. Insofar as men are associated with adult content, which a five year old would presumably be less able to comprehend, attention to adult men will be suppressed. Attention to women should be higher than to men because they are more likely to be associated with children and with domestic, relatively comprehensible content. Children and nonhuman characters (cartoon characters, puppets), however, should maintain the highest levels of attention because they are associated with comprehensible or child-oriented content. This theory predicts that gender constancy is unrelated to attention to character.

The second active theory of TV viewing, as proposed by Huston and Wright (1983), makes the same predictions as Anderson and Lorch (1983) with the addition of allowing personal identity to play a role in guiding attention. Therefore, attention might be maintained by a character's gender. There should still be suppressed attention to adult men, but less so by boy viewers.

Attention might also be elicited by particular formal features which are associated with gender. Animation is associated with male characters, so boys should attend to animation more than girls.

Research on Children's Attention to Television

It is important at this point to discuss the relevant research on children's attention to television. Anderson and Levin (1976) and Levin and Anderson (1976) studied visual attention to Sesame Street in children ranging in age from 12 months to 42 months. When attributes of the TV program were analyzed, a progressively larger negative effect with age was found for attention to adult men. That is, children paid progressively less attention to men than to the rest of the program which contained no men. A progressively positive effect was found for adult female voices. Girls paid less attention than boys when a white male was present on the television screen. Causal inferences can not be drawn, however, due to the possibility of correlated factors such as adult males and action. It must be kept in mind that Anderson and Levin (1976) used children who would presumably be pregender constant. Alwitt, Anderson, Lorch, and Levin (1980) used children three, four, and five years of age in a study of visual attention to attributes of television. This study tried to correct problems

associated with Anderson and Levin (1976). Numerous TV programs shown over three one-hour sessions were used instead of one. Correlations of attributes were tested. Finally, a record was kept of the child's viewing behavior indicating whether the child was looking at the TV at the time of onset of an attribute. As with Anderson and Levin (1976), attention to the TV increased with age. Attributes positively related to attention included women and children of both sexes. Attributes negatively related to attention included adult males and adult male voices. Two significant sex of subject by attribute interactions were found. The attribute "black boy" interacted with sex with the largest effect for girls. The combined attribute "women and children" interacted with sex and age such that the effect became more positive with age for girls and less positive with age for boys. Further analyses revealed that the attributes accounted for more of the variability of attention with the younger two age groups than with the five year olds. The authors hypothesize that an attribute may provide information to the child about whether the content is comprehensible or not. If male voices are predictive of incomprehensible content for the young viewer, then male voices should inhibit or terminate attention. The gender constant boy may still find the male voice indicative of

incomprehensible content; however, it could be possible that the male voice could elicit and maintain attention for the boy who is trying to reinforce and organize his gender concept.

Alvarez, Huston, Wright, and Kerkman (1988) looked at gender differences in visual attention to television using children ranging in age from three to eleven years of age. There was no evidence that gender differences were due to sex-typed content and/or form. Nor was there any support for the hypothesis that gender differences were due to sex of the character. These findings initially appear to contradict Slaby and Frey (1975). However, Alvarez et al. (1988) admitted having low statistical power in the studies with which their conclusions were drawn. Also, the subjects ages were such that gender constancy had probably been reached. Therefore, no comparisons can be made between children who are pregender constant with those who have achieved gender constancy. Alvarez et al. (1988) did find boys to be more visually attentive than girls.

Sprafkin and Liebert (1978) performed an experiment to determine what attributes of television programs children will select and attend to. First and second graders were placed in a natural viewing environment with toys. Programs could be selected by the subjects with a channel changer. The programs were varied by

having a male focus character or a female focus character; there was either an activity performed by the focus character that was sex-typed or nonsex-typed. The results indicated the boys selected and attended to the male focused programs and the male dominated scenes. Girls selected and attended to female focused programs and female dominated scenes. Sex-typed programs were attended to more closely than nonsex-typed programs. If the characters' actions were sex-typed, the children were more likely to select and attend to their own sex character than if the actions were nonsex-typed. The subjects were of the age where gender constancy would have been reached. Therefore, Sprafkin and Liebert's (1978) findings are consistent with Slaby and Frey (1975).

Bryan and Luria (1978) tested the selective attention hypothesis using EEG alpha blocking as the index for visual attention. Children, ages five through six and nine through ten, viewed slides of a male and a female performing sex-appropriate, sex-inappropriate, and sex-neutral tasks. No evidence was found in support of selective attention to the same-sex model. Although these findings are not consistent with Sprafkin and Liebert (1978) or with Slaby and Frey (1975), the use of alpha blocking to measure selective attention is unique. It is possible that Bryan and

Luria (1978) did not measure the same form of attention as with the less obtrusive method of observation. The inconsistent results may also have been due to the use of slides rather than a continuous movement stimulus such as television.

Gender Development and Television Theories Predictions

The cognitive-developmental theory implies that in Study One, the gender constant children will show greater attention to same sex television characters than will the pregender constant children. Alternative theories predict several other possible patterns. The Anderson and Lorch (1983) theory predicts suppressed attention to men relative to women, and enhanced attention to child and nonhuman characters regardless of sex. The Singer (1980) theory predicts enhanced attention to characters to the degree to which the characters are associated with action and movement. By this criterion, women should receive the least attention.

Social-learning theory and gender schema theory predicts enhanced attention by boys to male characters relative to female characters regardless of level of gender constancy. The Huston and Wright (1983) theory tends to make the same predictions as Anderson and Lorch (1983), but the predictions about attention relative to character sex are clearest for child and nonhuman

characters, rather than adult characters. The prediction for adults was indeterminate because the association of men with adult content may counteract the boys' interest in males, per se. Huston and Wright (1983) would clearly predict enhanced attention to male child and nonhuman characters.

The data taken for this study were from a larger ongoing investigation of home television viewing by five year olds and their families. Data were collected during 1980 and 1981 in the Springfield, MA area. The measures taken during the study include those to be used for this project (a measure of gender constancy and coding of videotapes) with the addition of toy play with gender stereotyped toys (to be used on the second proposed study). Anderson, Field, Collins, Lorch, and Nathan (1985) and Nathan, Anderson, Field, and Collins (1985) provide a detailed description of the data collection and reduction procedures.

CHAPTER 3

STUDY ONE METHOD

Subjects

The subjects for Study 1 were selected from the 61 camera placement families with a male child within three months of his fifth birthday. Twelve boys, six who had not reached gender constancy and six who had reached gender constancy were used. Only boys were chosen because past research (Slaby and Frey, 1975) found gender constant boys' selective attention to same-sex models reached significance whereas gender constant girls' did not.

The children were from predominantly white, middle-class families. Seventy-seven percent of the families were from the two highest income and status levels according to the Hollingshead Four Factor Index of Social Status (1975). Only three percent of the sample was black. Ninety-eight percent of the fathers were employed full-time. Thirty-seven percent of the mothers worked with only eight percent, of those that were, being employed full-time. Overall, traditional nuclear families participated in the study.

Home Viewing Apparatus and Materials

Briefly, the camera placement equipment consisted of a video cassette deck, control circuitry, a time/date generator, a screen

splitter, and battery backup. One camera with a zoom lens recorded the programs on TV while a second camera equipped with a wide-angle lens recorded the viewing room. The equipment was designed such that the video deck recorded only when the TV was on. For a more detailed account of the apparatus and equipment refer to Anderson et al. (1985). The videotapes consist of recordings of the families activities in the viewing room while the TV was on and an insert of the television screen.

Slaby and Frey (1975) Gender Constancy Interview

The gender constancy interview used was a revised version by Miller, Roedell, Slaby, and Robinson (1978) of the 1975 Slaby and Frey interview which measures sex role development. There was a total of thirteen questions and counterquestions plus a probe question which were designed to assess gender identity, gender stability, and gender constancy as defined by Kohlberg (1966). A girl, boy, woman, and a man doll with interchangeable clothes and an apple were used as props during the administration of the questions. The test was as follows:

Props

1. Are you a girl or a boy? Are you a (opposite of first answer)?
   *Are you a (same as first answer)?

Girl

2. Is this a girl or a boy? Is this a (opposite)?
   *Is this a (same)?

Boy	3. Is this a girl or a boy? Is this a (opposite)? *Is this a (same)?
Woman	4. Is this a woman or a man? Is this a (opposite)? *Is this a (same)?
Man	5. Is this a woman or a man? Is this a (opposite)? *Is this a (same)?
	6. When you were a baby, were you a girl or a boy? Were you a (opposite)? *Were you a (same)?
	7. When you grow up, will you be a woman or a man? Will you be a (opposite)? *Will you be a (same)?
Man, Boy, Girls	8. This grownup is a man. When this grownup was little, was this grownup a girl like this child, or a boy like this child? Was this grownup a (opposite)? *Was this grownup a (same)?
Girl, Woman, Man	9. This child is a girl. When this child grows up, will this child be a woman like this grownup, or a man like this grownup? Will this child be a (opposite)? *Will this child be a (same)?
X-Sex Clothes, Girl	10. If you wore clothes like these, would you then be a girl or a boy? Would you then be a (opposite)? *Would you then be a (same)?
Boy, Female, Clothes	11. If this child wore clothes like these, would this child be a girl or a boy? Would this child then be a (opposite)? *Would this child then be a (same)?
	12. If you played games that (X-sex) boys/girls usually play, would you then be a girl or a boy? Would you then be a (opposite)? *Would you then be a (same)?
Woman	13. If this grownup did the work that men usually do, would this grownup then be a woman or a man? Would this grownup then be a (opposite)? *Would this grownup then be a (same)?
Probe question (only if responses have been non-constant)	
Boy, Female, Clothes Apple,	If this child wore these clothes, and then ate an apple, would the apple go into stomach of a girl or a the stomach of a boy? Would it go into the stomach of a opposite)? *Would it go into the stomach of a (same)?

There were four forms (A, B, C, D) of the test with the differences between them having been the alternation of the order of boy, girl, woman, man within the questions. The test forms were randomly assigned to subjects.

A positive score was given if the child answered both the question and the counterquestion consistent with the child's gender. Based on Slaby and Frey (1975), there are five stages of gender constancy into which the child could be classified based on the test score. Stage one constitutes not having been able to correctly answer questions one through five, while if one through five all received a positive score then stage two or gender identity was reached. Stage three or gender stability was achieved if questions one through nine were all correct. For stage four or complete gender constancy, all thirteen questions must have been correct. The fifth or non-stage occurred if the child reached the stages nonsequentially. For purposes of this study, subjects will be divided into low- and high-gender constancy groups. The criterion used will follow that of Ruble et al. (1981). Questions ten through thirteen can further be broken down into those pertaining to clothes and those pertaining to games. Children in stages one, two, and three will be placed in the low-gender constancy group. Children in stage

four and children who answered the games questions correctly but not the clothing questions and those who answered the clothing but not the games questions correctly will be included in the high-gender constancy group.

Coding

Before the videotapes could be used for the present study, the tapes had to be rated on one occasion or pass. First pass rating was designed to record the exact time at which a person entered and exited the viewing room. On the first pass, the rater observes the viewing room on a high-resolution black-and-white monitor. Inserts of the television screen appear in the lower right quarter corner of the monitor for six seconds during twenty-four seconds of family viewing time.

The time when a person entered or exited the viewing room or when the TV is turned on or off is recorded in SMPTE (Society of Motion Picture and Television Engineers) time code which can be converted to hour, minute, second, and frame. In addition to the longitudinal time code (SMPTE), the videotapes contain a vertical interval time code (VITC). When the tape is running at normal or faster speeds, SPMTE time code is computer readable, while VITC is computer readable at slower than normal speeds and in still

frame mode. The coding was accomplished by means of a Panasonic AG7500A Super VHS editing videocassette desk interfaced to a Datum ITP SMPTE time-code reader-generator and under control of a microcomputer.

For present purposes, a computer program called HVMatch was used which advanced the tape at a high rate of speed to the times when the specified focus child was present in the viewing room therefore ignoring the times when the child was not present as determined from first pass. When a time that the child was present in the viewing room was encountered, then control over the videodeck was transferred to the rater. At this point, the rater advanced the tape at various rates of speed via a specially constructed control panel.

Twenty-one measures divided into six categories were included in the rating. Two categories, character behavior and form, were not included in the data analysis but are a part of a larger proposed study. The twenty-one measures are as follows:

Character Type:

1. Human
2. Nonhuman - this category includes animals, puppets, robots, animated characters

3. No character - this category includes text, scenery, blank TV Screen

4. Indeterminate character - experimenter is unable to determine the character type

Sex of Character:

1. Male

2. Female

3. Indeterminate sex - experimenter is unable to determine the sex of the character or there is no character

Age of Character:

1. Adult - those characters who are clearly older than seventeen or are involved in roles such as parenting

2. Adolescent - those characters who appear to be in their teenage years

3. Child - those characters who appear to be under the age of thirteen

4. Indeterminate age - experimenter is unable to determine the age of the character or there is no character

Character Behavior:

1. Action

2. Movement

3. Violence

4. No character behavior

5. Indeterminate character behavior

Form:

1. Animation

2. Film/Video

Attention:

1. Child not Looking - defined as the child's eyes not being oriented toward the television.

2. Child looking - defined as the child's eyes being oriented toward the television

3. Indeterminate attention - experimenter is unable to determine the child's looking behavior such as the child being behind a piece of furniture.

The videotape did not contain audio, therefore the rater had to base the decision on visual information only. All TV programming, including commercials, was rated.

Rating of the videotapes involved using a rating computer program called HVRate3A or B. HVRate3A was used when it was the first time data was collected for a videotape. HVRate3B was used when continuing rating on a tape which had previously been

rated but not completed. The computer program HVMatch was also involved in the rating process. As noted above, HVMatch marked the times of entrances into and exits out of the TV viewing room by the 5 year old male. Through the use of HVRate3A/B and HVMatch the videotape advanced at a high rate of speed or "zoom" mode to the entrance time of the child at which time the videodeck was placed in the pause mode automatically by the instructions of the computer to the videodeck. Rating began at this point.

Before explaining the actual rating procedure, a description of the computer monitor display is needed. A heading at the top of the monitor displayed the family number, placement letter, and the tape sequence number. In the upper right corner of the monitor, a start or entrance time and an end or exit time was displayed which corresponded to the current viewing time as was indicated by the HVMatch file. The current time code in minutes, seconds, and frames of the tape was displayed in the center of the monitor. The time code was continually updated as the tape was advanced or reversed. In addition, the current TV program or commercial was indicated in the center of the computer monitor. When the programming changed, the display reflected the change. The left side of the monitor showed a column of seven numbers and times

in minutes:seconds:frames that corresponded to the seven buttons on the button box. When a button was depressed the corresponding row on the monitor was highlighted and the time as displayed in the center of the computer monitor was noted. When the button was released, the time again was noted and the highlight disappeared. For example, if button #4 was depressed when the time code in the center of the monitor read 12:24:06, then the row looked like 4 12:24:06. If button #4 was released at 12:24:07, then the row looked like 4 12:24:07.

The actual rating was accomplished via the button box which sent electrical impulses to the computer which in turn updated the button times on the computer monitor. The seven buttons, unfortunately, were not enough to rate the twenty-three codeable character and attention designations. Therefore, each item rated had to have two buttons with which to code it. The rating designations were as follows:

	11	start (indicated a new insert worth of data)
	12	insert unratable (TV insert was blocked or distorted)
Character Behavior	22	action
	23	movement
	24	violence
	25	lack of action, movement, violence
	26	rater uncertain of character behavior

Character Age	32	adult
	33	adolescent
	34	child
	35	character age was indeterminate
Character Sex	42	male
	43	female
	44	character sex was indeterminate
Character Type	52	human
	53	nonhuman
	54	no character
	55	character typed was indeterminate
Form	62	film/video
	63	animation
Child's Attention	72	looking
	73	not looking
	74	uncertain of child's attention

The rating began after the videodeck "zoomed" to the start of a session or the entrance time of the child. Since the videodeck was in a pause mode when the correct time was located, the rater pushed the forward button on the button box to advance the tape. Ideally, the tape was moving at 1/20 speed while rating. When an insert appeared, the rater carefully watched what was present on the insert and the location and looking behavior of the child. At the last frame of the insert, a decision was made about the content of the TV, i.e. character behavior, sex, age, type, the form of the TV content, i.e. film/video, and the child's looking behavior, i.e. looking

or not looking at the TV or uncertain. The corresponding buttons to the decisions made were depressed in a descending order as presented above beginning with two #1 button presses indicating the start or a new insert worth of data. An example would be, an insert appeared in the lower right corner of the video monitor. The TV program was M*A*S*H as indicated in the center of the computer monitor. The last frame of the insert showed Hawkeye and a young Korean boy who was clearly under thirteen years of age in an embrace. The focus child's back was to the television. The rating proceeded as follows:

1. depress button #1 twice to indicate start
2. depress button #2 twice to indicate action
3. depress button #3 then #2 to indicate adult
4. depress button #3 then #4 to indicate child
5. depress button #4 then #2 to indicate male
6. depress button #5 then #2 to indicate human
7. depress button #6 then #2 to indicate film/video
8. depress button #7 then #3 to indicate not looking

If a mistake was made while rating, the rater corrected the mistake by using the delete key on the computer keyboard. When the delete key was struck, the data from the last button press was deleted. For example, if the rater pressed the buttons in the order presented above and then realized that the child was an adolescent, the delete key was struck ten times thus deleting from above steps 4, 5, 6, 7, and 8. At this point, the rater depressed button #3

twice to indicate adolescent and repeated steps 5, 6, 7, and 8. If the rater noticed a mistake in rating from a previous session, the delete key could not be used to correct this mistake due to the design of the rating program. Unfortunately, it was impossible to determine if the subject was attending to the adult male or the child male in the above example. This was one limitation to the coding. By nature of the large amounts of available data per subject, however, a fair estimate could be made as to what the subject attended.

A "beep" was sounded to indicate the end of a session or exit of the child from the viewing room. By pressing the space bar on the computer keyboard, the computer was notified to advance the tape in the "zoom" mode to the next entrance time of the child. As noted previously, the tape was put into the pause mode when the new entrance time was reached. The computer monitor display was updated according to the new information, i.e. start and end times changed according to the HVMatch file, TV program changed to what was currently on the TV, and the seven button times were reset to zero.

Pilot Data

Prior to this study, a high gender constant female and two high gender constant males were coded. The girl was present for 10.3 television viewing hours. Interobserver reliability was obtained using the phi coefficient. Phi's for character type were .95 for humans at the top of the range and .81 for no character at the bottom of the range. The values for sex of character were .82 for females and .89 for males. For age of character, the phi's were .91 for each category; adolescent, however, was not included in this initial coding. The phi for attention was .90.

The first five year old boy showed an attentional bias toward male characters. He looked at adult male characters 27.8% of the time they were present, women 18.2%, boys 50.0%, (this boy was exposed to no girl TV characters), male adolescents 100% (one instance; there were no female adolescent characters), nonhuman males 68.4%. This boy looked mostly at nonhuman (usually animated) characters and at child characters, and least at adults. His attention to animation was 54.2% whereas his attention to film/video was 28.2%. The IORs expressed as phi coefficients were high.

The second five year old boy did not show an attentional bias toward male characters. His attention to adult males was 9.9%, to

adult females 14.0%, to boys 20.0%, to girls 33.3%, to adolescent males 100% (only 3 instances; there were no adolescent females), to nonhuman males 100% (only one instance; there were no nonhuman females). The boy's attention to animation was 74.1% as compared to film/video, 19.2%. IORs were not computed for this boy.

CHAPTER 4

RESULTS STUDY ONE

Gender Constancy

Planned contrasts were performed for each character type in order to test the cognitive-developmental theory of gender development. All analyses were performed using proportions of either attention or exposure to the character types as the dependent variables.

Adult, Human Characters. It was predicted the difference in attention to male and female adult, human television characters would be greater for the high gender constancy group than the low gender constancy group. A one-tailed independent samples t-test on the difference in attention to male minus female adult, human characters grouped by level of gender constancy was carried out to test the planned contrast. The result indicated a significant interaction in the predicted direction, $t(10) = 2.752$, $p<.010$ (see Figure 4.1). Of the inserts the boys looked at, the overall mean percent for male, adult, human television characters was 55.4% and for female 54.2%. Broken down by level of gender constancy, the high gender constancy boys on the average looked at 55.6% of the adult, human, males and 47.3% of the females on television. The

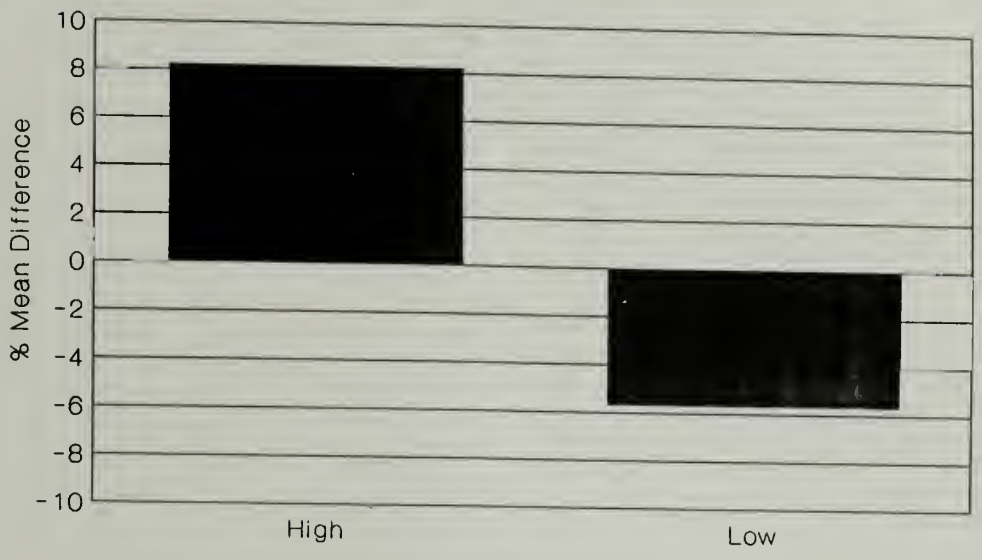

Figure 4.1 Means in % for the difference scores for attention to male - female, adult, human television characters. Displayed on the X axis for high and low gender constancy.

low gender constancy boys looked at 55.3% of the males and 61.0% of the females on the average (see Figure 4.2).

As with attention to adult, human television characters, it was predicted the difference in exposure to male and female characters would be greater for the high gender constancy group than the low gender constancy group. This hypothesis was confirmed using a one-tailed independent samples t-test on the difference in exposure to male minus female adult human characters for both the high and low gender constancy groups, $t(10) = 2.964$, $p<.007$ (see Figure 4.3). The average percentage of inserts the child was exposed to adult, human, male characters was 31.3%, whereas only 15.4% of the time the child was exposed to female, adult, human characters. Therefore, 46.7% was the overall mean percent of inserts the child was exposed to adult, human characters. Broken down by level of gender constancy the mean percent of inserts the high gender constancy child was exposed to adult, human, males was 36.3% and to females 15.1%. The low gender constancy boy on the average was exposed to 26.4% male and 15.8% female, adult, human television characters (see Figure 4.4).

Child, Human Characters. A difference in attention and exposure to child, human television characters was also predicted to

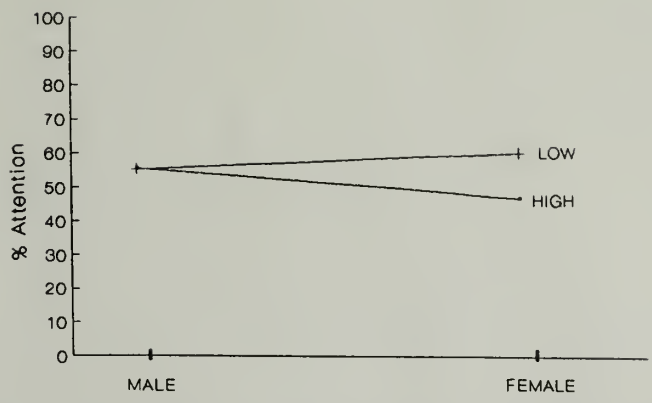

Figure 4.2 Means in % for attention to male and female, adult, human television characters. Displayed on the X axis for high and low gender constancy.

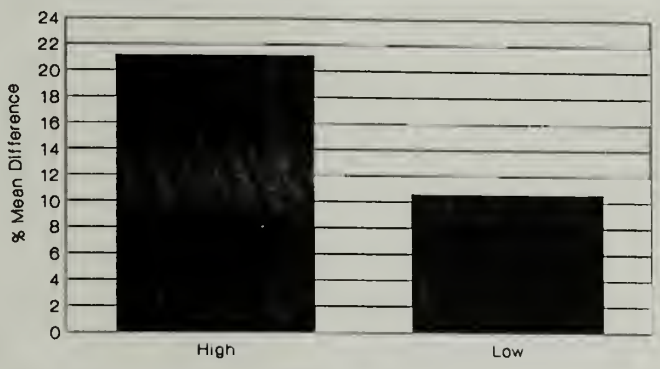

Figure 4.3 Means in % for the difference scores for exposure to male - female, adult, human television characters. Displayed on the X axis for high and low gender constancy.

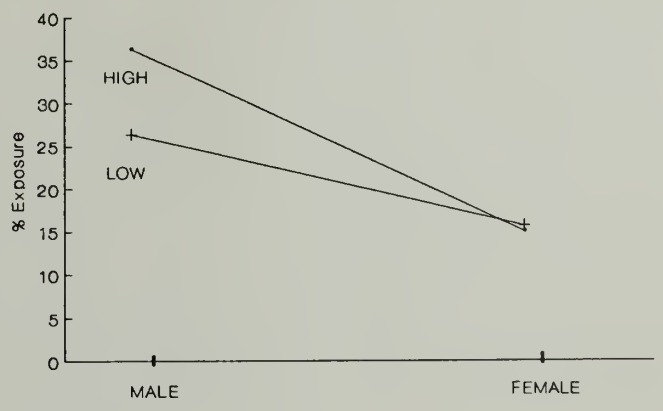

Figure 4.4 Means in % for exposure to male and female, adult, human television characters. Displayed on the X axis for high and low gender constancy.

be greater for the high gender constancy boys than the low gender constancy boys. The difference in attention to child, human characters was not significant using a one-tailed independent samples t-test on the difference in attention to male minus female child, human characters for the high and low gender constancy groups, $t(10) = 0.055$, $p<.479$ (see Figure 4.5). The average boy looked at a male, child, human television character 65.9% and 69.8% at a female, child, human character. The high gender constancy boys looked at 71.4% of the male, child, human television characters on the average whereas the low gender constancy boys looked at 60.4%. The overall mean percent of looks at a female, child, human character for the high gender constancy boys was 75.1% and 64.4% for the low gender constancy boys (see Figure 4.6).

The analysis used in assessing the difference in attention was used to test the exposure variable. The effect was found to be nonsignificant, $t(10) = -0.933$, $p<.187$ (see Figure 4.7). Of the characters on television, on the average, 5.9% of the inserts contained a child, human character, and of the 5.9%, 3.4% of the rateable inserts contained a male, child, human character and 2.5% of the inserts contained a female. The average high gender

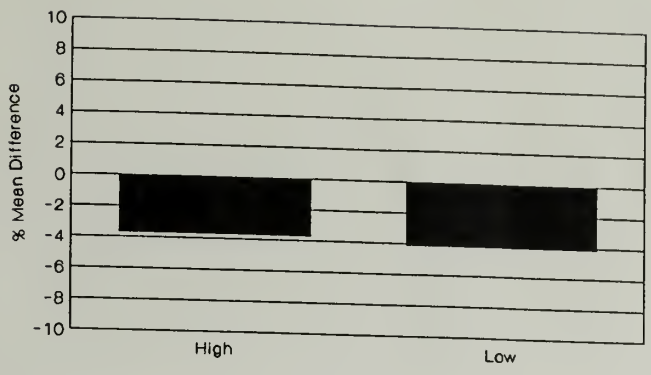

Figure 4.5 Means in % for the difference scores for attention to male - female, child, human television characters. Displayed on the X axis for high and low gender constancy.

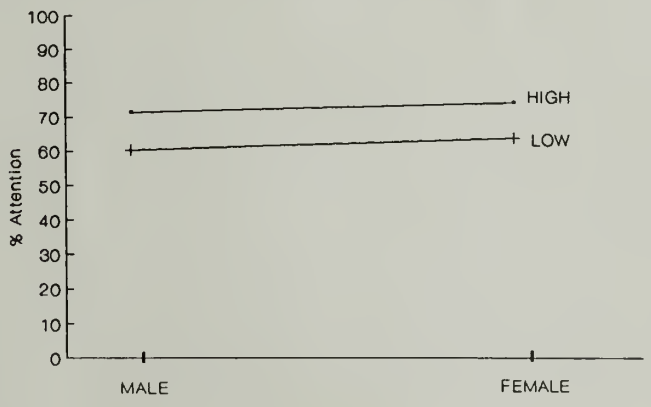

Figure 4.6 Means in % for attention to male and female, child, human television characters. Displayed on the X axis for high and low gender constancy.

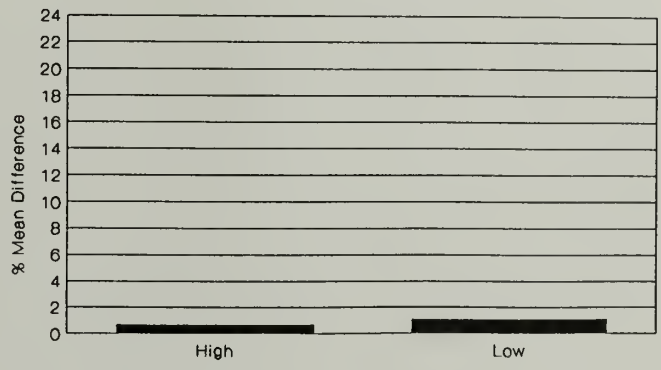

Figure 4.7 Means in % for the difference scores for exposure to male - female, child, human television characters. Displayed on the X axis for high and low gender constancy.

constancy boy was exposed to 2.6% male and 1.9% female, child, human television characters of the total number of rateable inserts. Of the rateable inserts the low gender constancy boys were exposed to, 4.2% were male and 3.1% were female, child, human characters (see Figure 4.8).

Adolescent, Human Characters. In order to test the gender constancy hypothesis, a one-tailed independent samples t-test was run on the difference in attention to male minus female adolescent, human television characters. It was predicted that the difference for high gender constancy boys would be greater than the difference for the low gender constancy boys. The hypothesis was not confirmed, $t(8) = 0.863$, $p<.413$ (see Figure 4.9). Two subjects, one from each gender constancy group, were dropped from the analysis due to lack of exposure to adolescent characters. The criterion for dropping a subject from the analysis was set such that the child must be exposed to four or less instances of a character type on the television. The overall mean percentage of inserts the boys were looking at a male, adolescent, human television characters was 67.3% and to a female was 64.0%. The high gender constancy boys looked on the average 64.4% at a male, adolescent, human and 57.4% at a female. The low gender constancy boys, on the

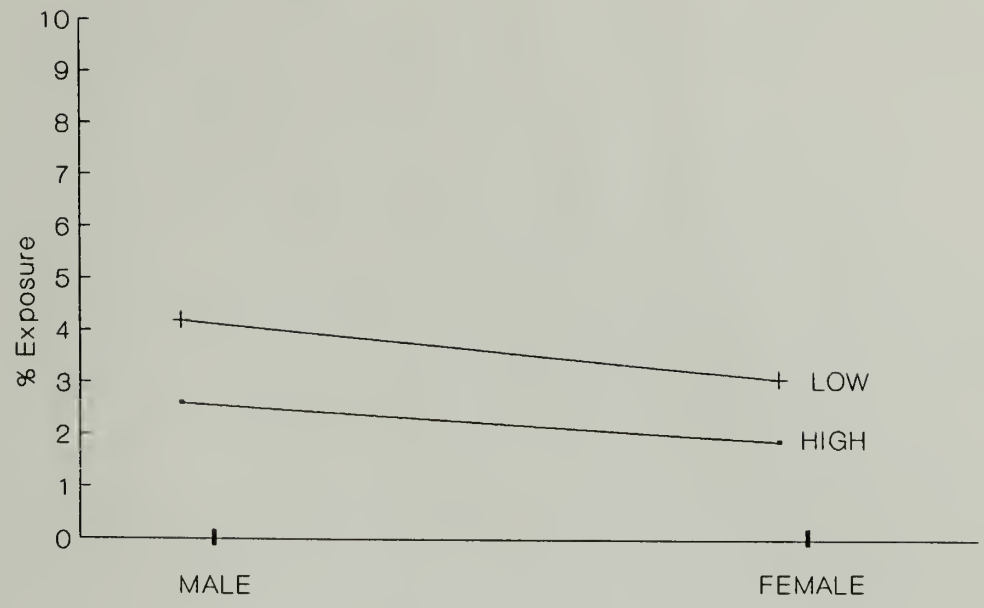

Figure 4.8 Means in % for exposure to male and female, child, human television characters. Displayed on the X axis for high and low gender constancy.

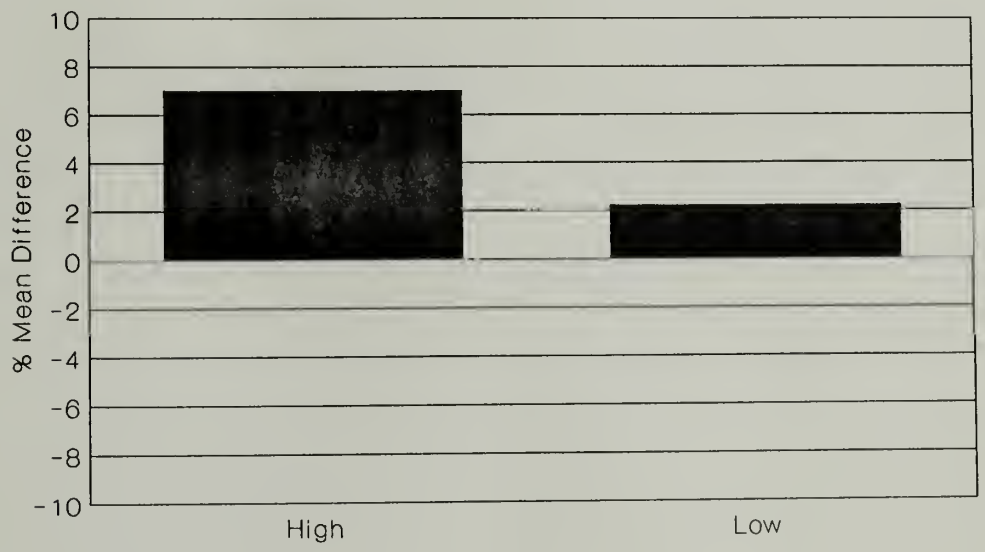

Figure 4.9 Means in % for the difference scores for attention to male - female, adolescent, human television characters. Displayed on the X axis for high and low gender constancy.

other hand, looked at a male 70.3% and 70.7% at a female, adolescent (see Figure 4.10).

A one-tailed independent samples t-test was found to be nonsignificant, $t(10) = -0.995$, $p<.172$, for the prediction that the high gender constancy boys would be exposed to more male than female adolescent, human television characters than the low gender constancy boys (see Figure 4.11). This prediction was tested by taking the difference in exposure to male minus female, adolescent, human characters for the high and the low gender constancy groups. Very few adolescent, human characters were found on television. The mean percentage of inserts containing adolescent, human character was 2.0% with 1.2% of the inserts containing a male and only 0.8% a female. Of the rateable inserts, the average high gender constancy boy was exposed to 0.7% male and 0.5% female, adolescent, human television characters, whereas the average low gender constancy boy was exposed to 1.6% male and 1.1% female (see Figure 4.12).

Adult, Nonhuman Characters. As with human character types, the difference in attention to male minus female nonhuman television characters was expected to be greater for high gender constancy than low gender constancy boys. This prediction was

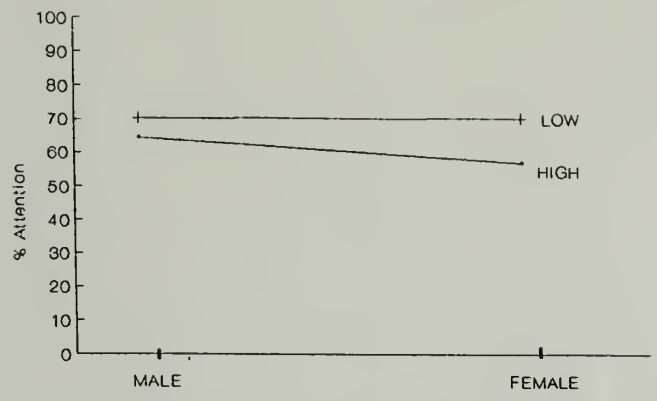

Figure 4.10 Means in % for attention to male and female, adolescent, human television characters. Displayed on the X axis for high and low gender constancy.

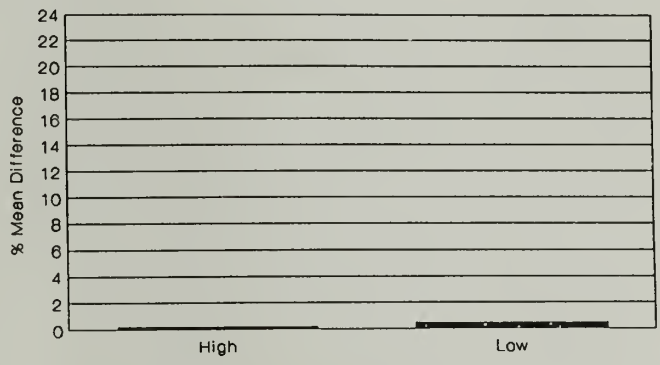

Figure 4.11 Means in % for the difference scores for exposure to male - female, adolescent, human television characters. Displayed on the X axis for high and low gender constancy.

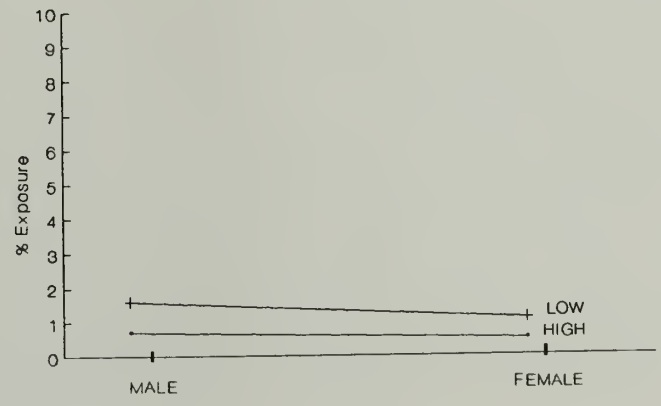

Figure 4.12 Means in % for exposure to male and female, adolescent, human television characters. Displayed on the X axis for high and low gender constancy.

found to be significant when the difference scores were tested with a one-tailed independent samples t-test, $t(9) = 1.909$, $p<.045$ (see Figure 4.13). Of the inserts in which a male, adult, nonhuman character was present, the average boy looked 76.5% of the time a male, adult, nonhuman character was present and looked 77.5% of the time a female was present. The high gender constancy boys looked 82.8% where as the low gender constancy boys looked 71.2% at a male, adult, nonhuman on the average. On the average, a female, adult, nonhuman character was looked at 80.2% of the time by the high gender constancy boys and 75.2% of the time by the low gender constancy boys (see Figure 4.14). One subject was dropped from the high gender constancy group due to insufficient exposure to adult, nonhumans.

The hypothesis that the difference in exposure to male minus female adult, nonhuman television characters would be greater for the high gender constancy than the low gender constancy boys was not supported. The one-tailed independent samples t-test result computed on the difference scores for the two gender constancy groups was $t(10) = -0.407$, $p<.347$ (see Figure 4.15). The mean number of inserts in which a male, adult, nonhuman television character was present was 7.8% and a female 2.6% with

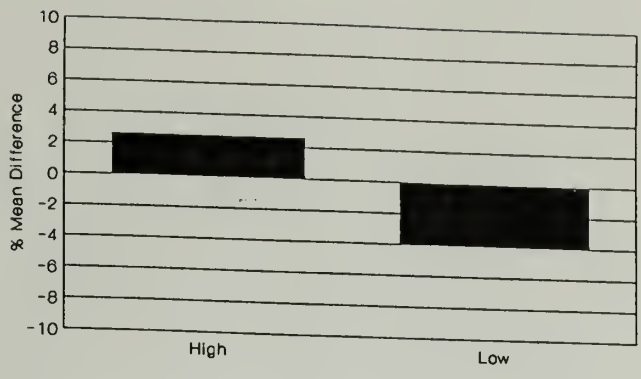

Figure 4.13 Means in % for the difference scores for attention to male - female, adult, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

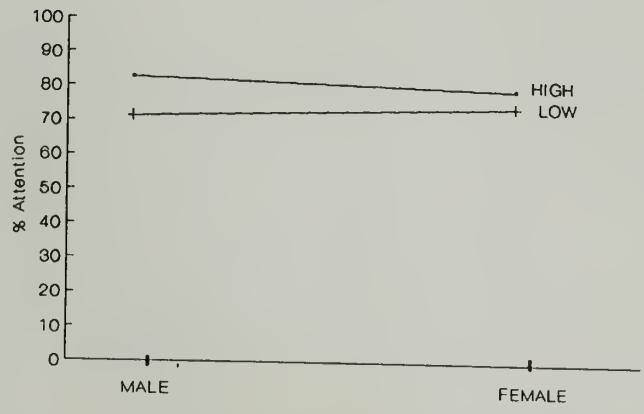

Figure 4.14 Means in % for attention to male and female, adult, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

Figure 4.15 Means in % for the difference scores for exposure to male - female, adult, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

the total mean of adult, nonhuman characters present on television being 10.4%. Broken down by level of gender constancy, the overall mean percentage of rateable inserts containing male, adult, nonhuman characters for the high gender constancy boys was 7.5% and 1.9% contained females. The low gender constancy boys, however, were exposed to 8.1% male and 3.2% female, adult, nonhuman characters (see Figure 4.16).

Child, Nonhuman Characters. Two boys were dropped from the high gender constancy group due to insufficient exposure. All six subjects, however, were kept for the analysis in the low gender constancy group. The average subject looked at a male, child, nonhuman television character 70.3% of the time and 75.9% at a female. The high gender constancy boys looked at a male 80.4% and at a female, child, nonhuman character 88.6%. The low gender constancy boys looked at a male 63.5% and at a female 67.4% (see Figure 4.17). The hypothesis that the difference in attention to male minus female child, nonhuman television characters would be greater for the high gender constancy boys than the low gender constancy boys was not confirmed with a one-tailed independent samples t-test, $t(8) = -0.622$, $p<.276$ (see Figure 4.18).

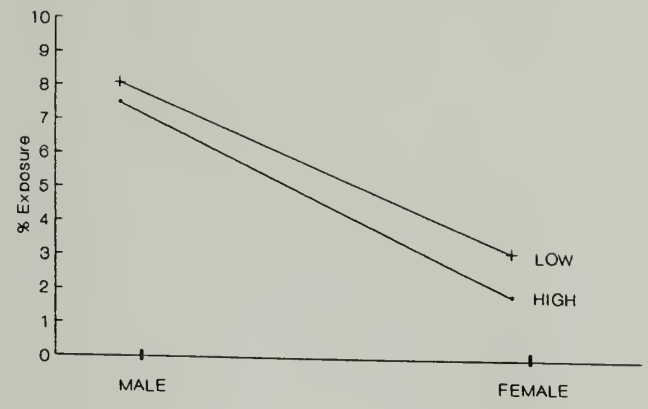

Figure 4.16 Means in % for exposure to male and female, adult, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

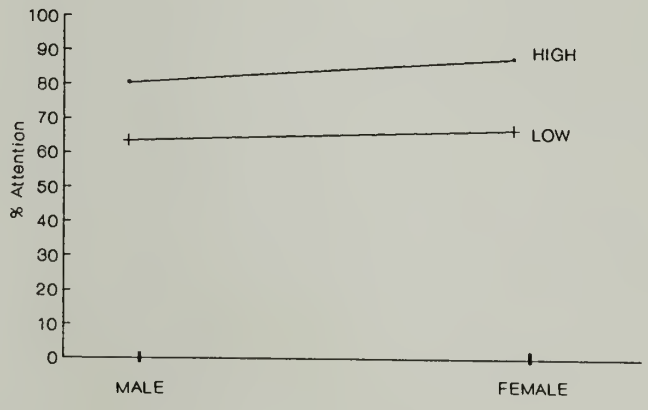

Figure 4.17 Means in % for attention to male and female, child, nonhuman television character. Displayed on the X axis for high and low gender constancy.

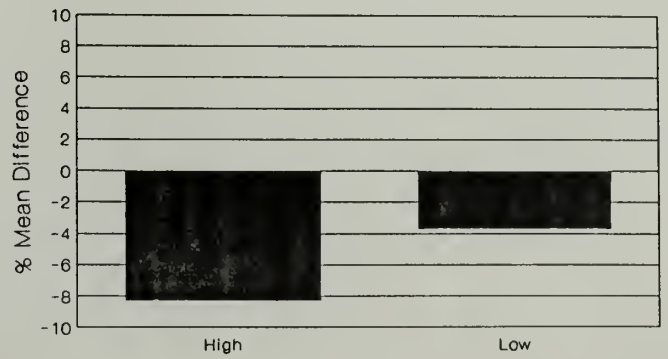

Figure 4.18 Means in % for the difference scores for attention to male - female, child, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

A one-tailed independent samples t-test was also computed on the exposure to child, nonhuman television characters. The difference in exposure to male minus female characters was predicted to be greater for the high than the low gender constancy boys. As with the attention measure, the exposure prediction was found to be nonsignificant, $t(10) = 0.0$, $p<.500$ (see Figure 4.19). Only 3.8% of the rateable inserts contained a child, nonhuman character of which only 2.2% of the television characters were male and 1.6% were female. The high gender constancy boys were exposed to 2.2% male and 1.6% of female child, nonhuman, characters on television out to the total rateable inserts the boys were exposed to. Of the rateable inserts the low gender constancy boys were exposed to 2.2% contained male and 1.6% contained female, child, nonhuman characters (see Figure 4.20).

Adolescent, Nonhuman Characters. There was only one boy in the high gender constancy group and three boys in the low gender constancy group who were exposed to enough adolescent, nonhuman characters for the attention measure analysis. No analysis, therefore, was performed for the adolescent, nonhuman television character type.

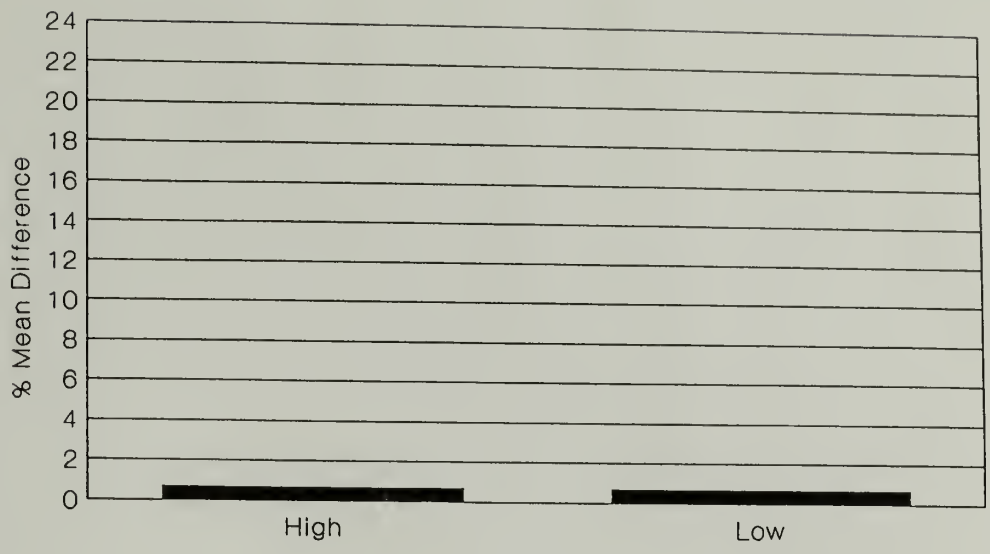

Figure 4.19 Means in % for the difference scores for exposure to male - female, child, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

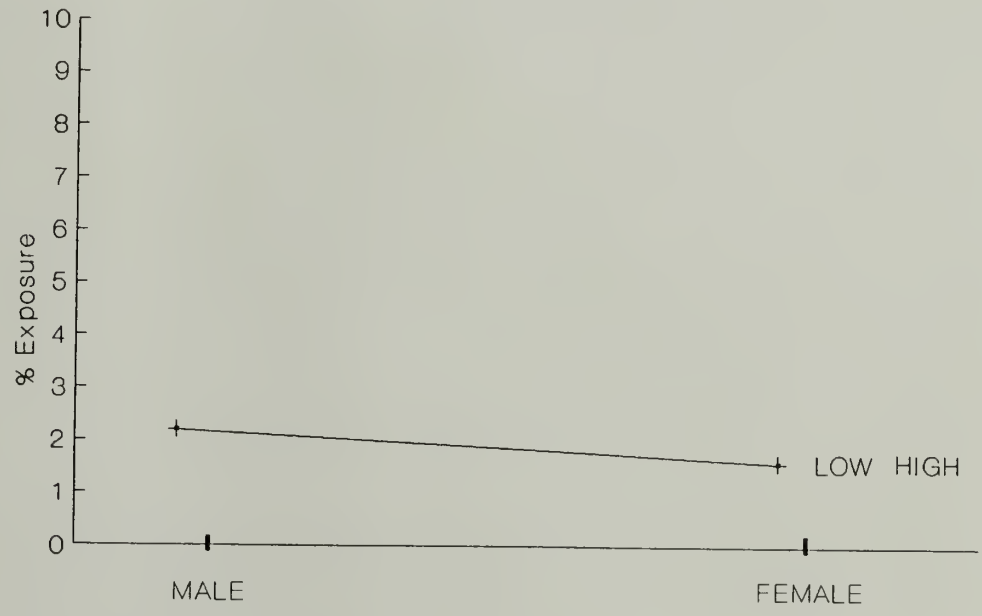

Figure 4.20 Means in % for exposure to male and female, child, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

Analysis on the exposure measure, however, was carried out on the difference in exposure to male minus female adolescent, nonhuman television characters. A one-tailed independent samples t-test was found to be nonsignificant with a $\underline{t}(10) = 1.071$, $\underline{p}<.155$ (see Figure 4.21). The average percentage of rateable inserts containing a male, adolescent, nonhuman television character was 0.7% and 0.4% of the inserts contained a female character, therefore 1.1% of the inserts contained an adolescent, nonhuman character. The average high gender constant boy was exposed to 0.6% male and 0.1% female, whereas the average low gender constant boy was exposed to 0.8% male and 0.7% female adolescent, nonhuman characters out of the total number of ratable inserts (see Figure 4.22).

Television Theories

Prediction by Anderson and Lorch (1983) and Huston and Wright(1983) that the subjects would attend more to adult, human, females than adult, human, males was unsupported as tested by a paired samples t-test, $\underline{t}(11) = 0.393$, $\underline{p}<.248$. Further hypotheses were also tested using paired samples t-tests. It was expected the subjects would attend more to child than adult human television characters as predicted by Anderson and Lorch (1983).

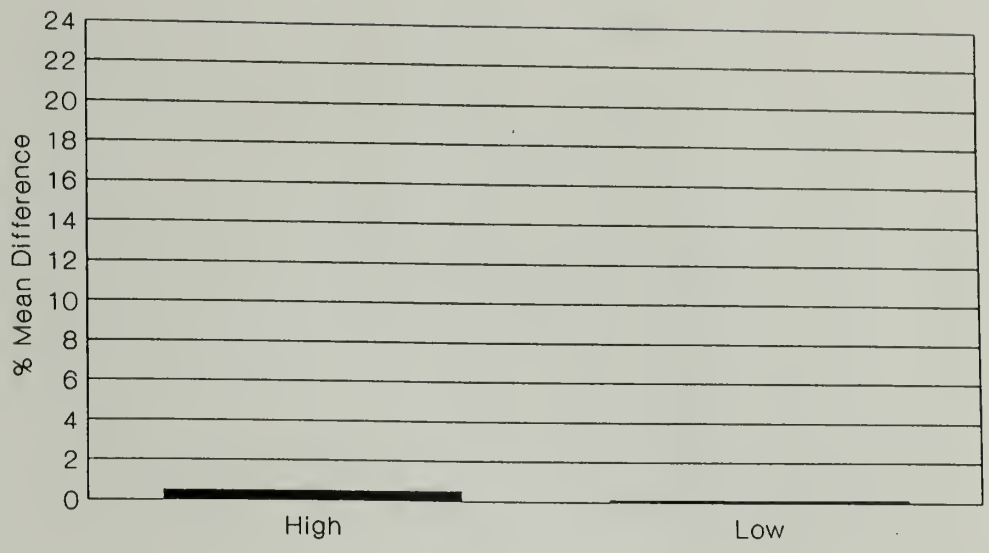

Figure 4.21 Means in % for the difference scores for exposure to male - female, adolescent, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

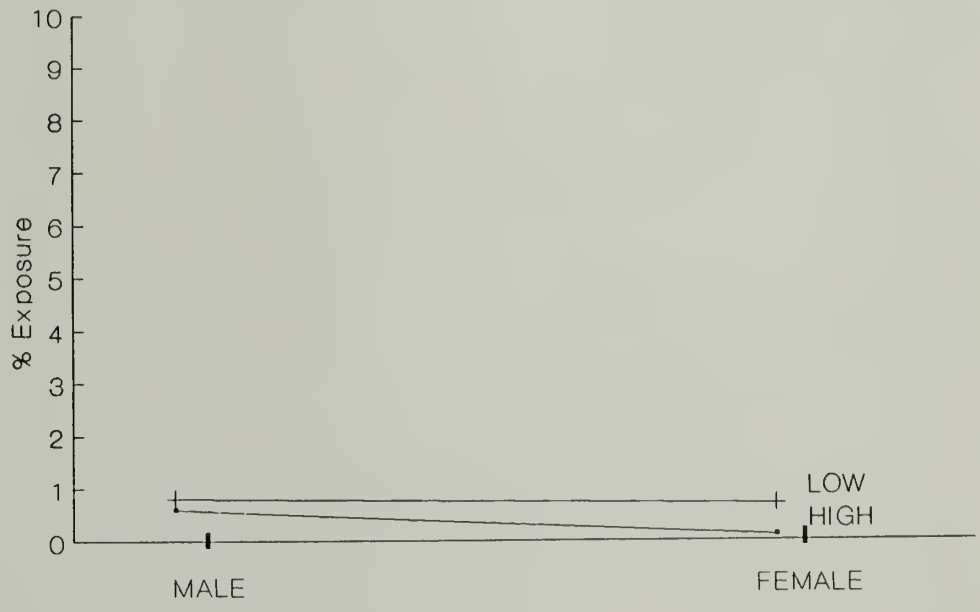

Figure 4.22 Means in % for exposure to male and female, adolescent, nonhuman television characters. Displayed on the X axis for high and low gender constancy.

This prediction was confirmed, $t(11) = -2.461$, $p<.032$. In addition, boys attended to nonhuman characters more than human television characters as was predicted by Anderson and Lorch (1983), $t(11) = -4.463$, $p<.001$.

Exploratory Analyses

In order to rule out confounding variables, independent samples t-tests were computed to look for gender constancy group differences in IQ, amount of time spent in the viewing room, and the number of samples in which the boys were looking at the television. The results indicated no gender constancy group differences in IQ score, $t(10) = 0.216$, $p<.833$. The average IQ for the low gender constancy group was 118, where as the average IQ for the high gender constancy group was 115. There was also no significant difference in the amount of time the high gender constancy boys spent with the television as compared to the low gender constancy boys, $t(10) = -0.174$, $p<.865$. The mean time the high gender constancy group spent in the viewing room was 15.348 hours where as the low gender constancy group spent 16.391 hours during the ten day observation period. No difference was found between the gender constancy groups in the number of looks at the television, $t(10) = -0.108$, $p<.916$. The average amount of time

spent looking at the television was 54.0% for the high gender constancy boys and 55.0% for the low gender constancy boys.

Subsequent two-way mixed design univariate repeated measures analyses of variance were performed on attention and exposure to each character type on television. (See Tables 4.1 and 4.2 for F values and Table 4.3 for means). These analyses looked for effects other than those hypothesized above. The homogeneity of variance assumption was met for all character types following the Myers and Well (1991) criterion of a 4 to 1 ratio. The normal curve assumption was also met for all character types. Additional analyses were carried out in order to asses skew and kurtosis of the distributions. According to Myers and Well (1991), skew should not be greater than the absolute value of two and kurtosis should not exceed the absolute value of four. All assumptions were met on skew and kurtosis.

Adult, Human Characters. The analysis of variance for attention to television found no significant main effect for level of gender constancy, $F(1,10) = .637$, $p<.443$. In addition, no sex of

Table 4.1 Analysis of Variance for Attention

Variable	df	F	p
Adult Humans			
Sex of character	1,10	0.248	.629
Gender constancy	1,10	0.637	.443
Sex*Gender constancy	1,10	7.620	.020
Child Humans			
Sex of character	1,10	1.352	.272
Gender constancy	1,10	1.463	.254
Sex*Gender constancy	1,10	0.003	.957
Adolescent Humans			
Sex of character	1,8	0.787	.401
Gender constancy	1,8	1.315	.285
Sex*Gender constancy	1,8	0.745	.413
Adult Nonhumans			
Sex of character	1,9	0.161	.698
Gender constancy	1,9	1.231	.296
Sex*Gender constancy	1,9	3.644	.089
Child Nonhumans			
Sex of character	1,8	2.921	.126
Gender constancy	1,8	5.757	.043
Sex*Gender constancy	1,8	0.386	.552

Table 4.2 Analysis of Variance for Exposure

Variable	df	F	p
Adult Humans			
Sex of character	1,10	78.586	.001
Gender constancy	1,10	1.265	.287
Sex*Gender constancy	1,10	8.787	.014
Child Humans			
Sex of character	1,10	19.941	.001
Gender constancy	1,10	3.570	.088
Sex*Gender constancy	1,10	0.949	.353
Adolescent Humans			
Sex of character	1,10	5.548	.040
Gender constancy	1,10	1.209	.279
Sex*Gender constancy	1,10	0.989	.343
Adult Nonhumans			
Sex of character	1,10	219.258	.001
Gender constancy	1,10	1.356	.271
Sex*Gender constancy	1,10	1.232	.293
Child Nonhumans			
Sex of character	1,10	5.171	.046
Gender constancy	1,10	0.000	1.000
Sex*Gender constancy	1,10	0.000	1.000
Adolescent Nonhumans			
Sex of character	1,10	3.425	.094
Gender constancy	1,10	1.492	.250
Sex*Gender constancy	1,10	1.148	.309

Table 4.3 Means for Attention and Exposure

Attention	N	Mean	Sd
Adult Human			
Sex of Character			
Male	12	55.4	14.7
Female	12	54.2	15.8
Gender Constancy			
High			
Male	6	55.6	12.3
Female	6	47.3	10.5
Low			
Male	6	55.3	18.0
Female	6	61.0	18.0
Child Human			
Sex of Character			
Male	12	65.9	16.9
Female	12	69.8	16.7
Gender Constancy			
High			
Male	6	71.4	14.8
Female	6	75.1	16.7
Low			
Male	6	60.4	18.3
Female	6	64.4	16.2
Adolescent Human			
Sex of Character			
Male	10	67.3	14.8
Female	10	64.0	15.3
Gender Constancy			
High			
Male	5	64.4	12.4
Female	5	57.4	11.8
Low			
Male	5	70.3	17.8
Female	5	70.7	16.7

Continued next page

Table 4.3 Continued

Attention	N	Mean	Sd
Adult Nonhuman			
Sex of Character			
Male	11	76.5	13.0
Female	11	77.5	12.8
Gender Constancy			
High			
Male	5	82.8	3.0
Female	5	80.2	4.6
Low			
Male	6	71.2	16.1
Female	6	75.2	17.2
Child Nonhuman			
Sex of Character			
Male	10	70.3	14.7
Female	10	75.9	17.4
Gender Constancy			
High			
Male	4	80.4	6.1
Female	4	88.6	7.8
Low			
Male	6	63.5	15.2
Female	6	67.4	17.1

Continued next page

Table 4.3 Continued

Exposure	N	Mean	Sd
Adult Human			
Sex of Character			
Male	12	31.3	9.0
Female	12	15.4	7.3
Gender Constancy			
High			
Male	6	36.3	8.6
Female	6	15.1	7.6
Low			
Male	6	26.4	6.7
Female	6	15.8	7.8
Child Human			
Sex of Character			
Male	12	3.4	1.6
Female	12	2.5	1.3
Gender Constancy			
High			
Male	6	2.6	1.2
Female	6	1.9	1.2
Low			
Male	6	4.2	1.6
Female	6	3.1	1.2
Adolescent Human			
Sex of Character			
Male	12	1.2	1.5
Female	12	0.8	1.0
Gender Constancy			
High			
Male	6	0.7	0.4
Female	6	0.5	0.3
Low			
Male	6	1.6	2.1
Female	6	1.1	1.4

Continued next page

Table 4.3 Continued

Exposure	N	Mean	Sd
Adult Nonhuman			
Sex of Character			
Male	12	7.8	1.8
Female	12	2.6	1.3
Gender Constancy			
High			
Male	6	7.5	2.4
Female	6	1.9	1.2
Low			
Male	6	8.1	1.1
Female	6	3.2	1.0
Child Nonhuman			
Sex of Character			
Male	12	2.2	1.1
Female	12	1.6	1.1
Gender Constancy			
High			
Male	6	2.2	1.5
Female	6	1.6	1.4
Low			
Male	6	2.2	0.8
Female	6	1.6	0.7
Adolescent Nonhuman			
Sex of Character			
Male	12	0.7	0.7
Female	12	0.4	0.6
Gender Constancy			
High			
Male	6	0.6	0.8
Female	6	0.1	0.2
Low			
Male	6	0.8	0.6
Female	6	0.7	0.7

character main effect was found as noted earlier, $F(1,10) = .248$, $p<.629$.

Exposure to adult, human television characters was also explored in the same way as attention. The analysis of variance revealed no significant main effect for level of gender constancy, $F(1,10) = 1.265$, $p<.287$, however, a significant sex of character main effect was found, $F(1,10) = 78.586$, $p<.001$, due to the great preponderance of male characters.

Child, Human Characters. A repeated measures analysis of variance of attention to child, human, male and female television characters was run with all effects being nonsignificant as follows: main effect for level of gender constancy, $F(1,10) = 1.463$, $p<.254$; main effect for sex of character, $F(1,10) = 1.352$, $p<.272$.

As with the attention measures, an analysis of variance was run using exposure to child, human characters as the dependent variable. There was again a significant main effect for sex of character, $F(1,10) = 19.941$, $p<.001$, reflecting more male than female characters. The main effect for level of gender constancy was found to be nonsignificant with $F(1,10) = 3.570$, $p< .088$.

Adolescent, Human Characters. Attention to adolescent, human television characters served as the dependent variable in a repeated

measures analysis of variance. Two subjects were dropped due to insufficient data. Both main effects, level of gender constancy and sex of television character were nonsignificant at the .05 level with level of gender constancy, $F(1,8) = 1.315$, $p<.285$; and sex of character, $F(1.8) = 0.787$, $p<.401$.

The repeated measures two-way mixed design analysis of variance on the amount of time the subject spent in the viewing room when there were adolescent, human characters on television indicated no significant main effect for level of gender constancy, $F(1,10) = 1.209$, $p<.297$. There was, however, a significant sex of television character main effect, $F(1,10) = 5.548$, $p<.040$, indicating more male than female adolescent, humans of television.

Adult, Nonhuman Characters. There were no significant effects found for the repeated measures analysis of variance of attention to adult, nonhuman television characters. The main effect of level of gender constancy was nonsignificant with an $F(1,9) = 1.231$, $p<.296$. The sex of character main effect was nonsignificant, $F(1,9) = 0.161$, $p<.698$. One subject was dropped due to insufficient exposure to adult, nonhuman characters.

A repeated measures analysis of variance was also run on the amount of time the child was in the viewing room when an adult,

nonhuman character was on television. There was a significant main effect for sex of character, $F(1,10) = 219.258$, $p<.001$, again indicating more male than female, adult, nonhuman characters on television. The level of gender constancy main effect was nonsignificant with the result being, $F(1,10) = 1.356$, $p<.271$.

Child, Nonhuman Characters. Attention to child, nonhuman television characters served as the dependent variable in a repeated measures analysis of variance. A significant level of gender constancy main effect was found, $F(1,8) = 5.757$, $p<.043$, due to the high gender constancy boys looking at more child, nonhuman characters than the low gender constancy boys. The main effect for sex of character was nonsignificant, $F(1,8) = 2.921$, $p<.126$. Two subjects were dropped due to insufficient exposure.

A repeated measures analysis of variance was also run using exposure to child, nonhuman television characters as the dependent variable. The sex of character main effect was significant, $F(1,10) = 5.171$, $p<.046$, due to a preponderance of male characters. The main effect for level of gender constancy, however, was found to be nonsignificant, $F(1,10) = 0.0$, $p<1.000$.

Adolescent, Nonhuman Characters. The analysis for attention was dropped due to too few boys providing enough data. There

were nine boys who were exposed to male and seven boys who were exposed to female, adolescent nonhuman television characters. Of the remaining boys only three were exposed to a sufficient number of male and female adolescent, nonhuman television characters. (See Table 4.4 for number of observed dependent variables).

In the analysis for exposure to adolescent, nonhuman television characters neither the sex of character; $\underline{F}(1,10) = 3.425$, $\underline{p}<.094$, nor the level of gender constancy main effects; $\underline{F}(1,10) = 1.492$, $\underline{p}<.250$, were significant, .

Table 4.4 Number of Dependent Variables

Human

Gender	Adult		Child		Adolescent	
High	M	F	M	F	M	F
1	865	271	26	12	25	8
2	1860	1331	127	115	36	44
3	1134	425	152	121	20	7
4	358	158	54	45	12	6
5	349	116	28	10	7	8
6	355	108	9	6	1	1
Low						
1	911	461	206	154	29	27
2	217	172	16	9	6	2
3	698	510	94	98	155	106
4	523	247	74	39	24	21
5	617	296	173	114	22	10
6	371	178	58	49	6	6

Nonhuman

Gender	Adult		Child		Adolescent	
High	M	F	M	F	M	F
1	117	18	81	81	36	3
2	227	64	101	84	9	2
3	404	153	82	80	59	17
4	110	27	17	9	0	0
5	115	29	41	5	0	0
6	43	4	1	2	0	0
Low						
1	342	89	57	31	24	15
2	55	21	10	8	5	4
3	197	67	82	28	3	0
4	168	99	48	32	33	47
5	207	94	71	59	38	21
6	117	45	32	30	4	1

Continued next page

Table 4.4 continued

Gender		
High	Look	Insert
1	859	2040
2	1893	4485
3	2213	3960
4	987	1421
5	719	1137
6	395	770
Low		
1	2449	5152
2	157	578
3	1342	2843
4	1446	2395
5	1840	2442
6	969	1342

CHAPTER 5

DISCUSSION STUDY ONE

The cognitive-developmental theory of gender development was supported for attention to adult, human and adult, nonhuman television characters. The gender constant boys looked more at male adult, human characters and male, adult, nonhuman characters than did the pregender constant boys. The high and low gender constancy boys did not differ significantly in attention to male and female, child, human or child, nonhuman characters on television. The analyses for adolescent, nonhuman characters was not carried out due to lack of exposure. The low gender constancy boys looked at more female than male, adult, human characters following the Anderson and Lorch (1983) theory of television viewing.

For the exposure variable, the cognitive-developmental theory was supported only with the adult, human character type. High gender constancy boys were exposed to relatively more men on television. The high gender constancy boys were not exposed to significantly more male than female child or adolescent, human characters or adult or child or adolescent, nonhuman characters relative to the low gender constancy boys. There were so few child

or adolescent, humans and nonhumans that it is difficult to draw any conclusions based on the results.

The cognitive-developmental theory was supported overall. Social-learning and gender schema theory predictions were not confirmed. Subjects did not show enhanced attention to male characters relative to female characters regardless of level of gender constancy. The Anderson and Lorch (1983) theory held true only for the pregender constant boys in that attention was suppressed to men relative to women. Attention was enhanced to child characters regardless of sex for both gender constancy groups as Anderson and Lorch (1983) hypothesized. The Singer (1980) theory predicts women would receive the least attention assuming they are the least likely to be associated with action and movement. This prediction was confirmed only with the gender constant subjects. Singer (1980), however, made no distinction based on gender development.

For future research, characterizing programming the child watches as male, female, or neutral sex-typed would help to assess if the gender constant boys are attending to and exposed to more male sex-typed television shows relative to the pregender constant boys.

CHAPTER 6

STUDY TWO

Cognitive-developmental Theory

In the second and larger study, children's play with sex-stereotyped toys was examined in relation to level of gender constancy. Level of gender constancy should have an effect upon stereotyped toy play according to the cognitive-developmental theory of sex-role development. Children who have attained gender constancy should play with appropriate sex-typed toys more than children who have not attained gender constancy. A study by Stangor and Ruble (1989) supports the cognitive-developmental theory.

Stangor and Ruble (1989) conducted a study in which it was found that gender constant children were more likely to prefer same-sex toys than pregender constant children. Twenty preschoolers, 20 kindergartners and first graders, and 20 third and fourth graders with an equal number of males and females in each group served as the subjects. The children were administered the Slaby and Frey (1975) gender constancy interview. In addition, each child participated in a toy preference task. The children were asked which hypothetical toy they would prefer for sex and activity.

For example, a sex preference item was, "We have one toy that girls play with and one toy that boys play with"(p. 361). The activity preference item may be, "We have one toy that kids run with and one toy that kids sit with"(p. 361). In addition, there were composite questions integrating both sex and activity preference. Activity preference was included to control for confounding of male sex-typed toys being more attractive due to the activity performed with them. This design was taken from Eaton, Von Bargen, and Keats (1981).

Study Two differs from Stangor and Ruble (1989) in that children of one age group were observed. Stangor and Ruble (1989) asked children about their preference for hypothetical toys, whereas in Study Two children were observed playing with sex-typed toys.

Social-learning Theory

Social-learning theory, however, contends that past experiences with toys and the reinforcement received for playing with sex-typed toys leads the child to play with the appropriate sex toys well before the age at which gender constancy is normally reached (i.e. before the age of five or six). Previous research (Weinraub, Clemens, Sockloff, Ethridge, Gracely and Myers, 1984; Fagot 1974; Smetana and Letourneau 1984) indicates that by age three sex-

typed toy preferences are already established. The purpose of Study Two is to examine toy play with a homogeneous age group in relation to gender constancy.

Smetana and Letourneau (1984) studied preschool children during free play in order to determine whether preferences for sex-typed activities, type of play (alone, onlooker, parallel, and interactive), and playmates differ according to the level of gender constancy. Male, female, and neutral activities and toys were used as a measure of sex-typing. Sixty-four children ages 27 to 70 months were administered the Slaby and Frey (1975) gender constancy interview. In addition, a checklist was kept for each child and each child was observed 40 times in a free play situation by three blind observers. Children's toy choices and activities were sex-typed at all levels of gender constancy. However, toy choices were only sex-typed in certain play styles. When playing alone or with the same sex, boys played more with male and neutral toys than with female sex-typed toys, and girls played more with female and neutral toys. Boys interacting with girls played more with neutral than female or male toys, but there was no difference in toy preference for girls in opposite-sex interactions. Smetana and Letourneau (1984) suggest that gender constancy may have an

organizing effect on sex-typed behavior. Children who had acquired gender constancy actively sought out social interactions with the same sex peers to acquire information about what is appropriate for their sex. As in the Ruble et al. (1981) study, self-regulated behavior such as attention or peer choice may depend on cognitive development. As the child begins to realize the invariance of gender, he/she is motivated to acquire knowledge about what is appropriate behavior for his or her gender.

It is important to note the possible flaws with the Smetana and Letourneau (1984) and its differences with the current proposed study. Smetana and Letourneau (1984) found level of gender constancy by sex and sex-typing to be nonsignificant. However, this result may have been due to the low proportions of subjects within the male, female, and neutral activities, the small number of subjects used, and the division of the gender constancy measure into four levels. The present study will more than quadruple the number of subjects, use only high and low categories of gender constancy, and will not include the neutral activity category which forces the child to choose either a male or female sex-typed toy. Age could have also been a confounding factor for Smetana and Letourneau (1984). Qualitatively, a two year old could play

differently than a five year old. The proposed study will only involve five year olds to avoid any possible confounds.

Weinraub et al. (1984) investigated the relationship between sex-typed toy preferences and sex role knowledge. Seventy-one children between the ages of two and three participated in the study. Sex-typed toy preference was assessed during a six minute observation period. Amount of time the child spent touching a male-typed toy and a female-typed toy was recorded. Children as young as 26 months showed sex-typed toy preferences. This effect did not differ across age groups.

Fagot (1974) gives further evidence of sex-stereotyped play in children as young as 18 to 24 months of age. During five sixty minute periods of in home observation, it was found that girls played with soft toys and dolls, danced, asked for help, and dressed up in adult like clothes significantly more than boys. Boys played with blocks and manipulated objects or toys significantly more than girls.

Fagot, Leinbach, and Hagan (1986) and Fagot and Leinbach (1989) tested sex-typed toy preferences in relation to gender labeling. According to the gender schema theory, if the child can label him/herself and objects as being for either males or females,

then sex-typed toy play should be observed (Martin and Halverson, 1981). Both studies used a gender labeling task. The child had to identify boys and girls in stereotyped pictures of children and men and women in stereotyped pictures of adults. Fagot et al. (1986) found that even children who could not yet apply gender labels played with sex-typed toys. Sex-typed toy play continued in those children who could apply gender labels. These results are in opposition to the gender schema theory. Fagot and Leinbach (1989) divided the children into early and late labelers. Early labelers were defined as those children who could pass the gender labeling task before the age of 28 months. Late labelers were those who passed the gender labeling task after 28 months or reached the age of 30 months. The results showed that early-labelers were more sex-typed in toy choices than late-labelers at 28 months of age. Furthermore, Fagot and Leinbach (1989) looked at parental reaction to the child's sex-typed behaviors. It was found that more attention and positive and negative reinforcement was given to the early labelers than the late labelers.

A related area of study is the attribution of gender-role stereotypes. Levy and Carter (1989) performed an experiment in which eighty-three 27- to 63-month old children were given a

gender constancy interview and several gender-role stereotype attribution measures. The experimenters did not find any significant correlations between stage of gender constancy and the gender-role stereotype attributions. From the toy play research, these results would have been expected because the child is reporting what is stereotypical for males and females without having to seek information about the appropriate sex-typed behavior.

Study 2 had the advantage of a large sample of same aged subjects which the aforementioned studies did not have. It should, therefore, not have the problem of confounding the data in terms of toy play preferences of different age subjects.

CHAPTER 7

STUDY TWO METHOD

Subjects

Three hundred thirty preschoolers participated in the study. There were 161 boys and 169 girls within three months of their fifth birthday when recruited.

Toy Play and TV Viewing

For the toy play and TV viewing session, the child was brought to the viewing room which was comfortably furnished with a floor lamp, end table, couch, and a shelf with toys. The parent was instructed not to direct or distract the child's attention during the viewing session. The 16 toys used were rated by undergraduate students at the University of Massachusetts as being highly sex-stereotyped. Twenty-seven toys were rated on a five point scale; one being strongly female oriented and five being strongly male oriented according to common stereotypes in our society. On the basis of the mean scores each toy received, eight toys were chosen to be highly female-stereotyped: an iron, stuffed pink animal, dust pan and brush set, girl doll, white bonnet, stove set with dishes, mirror, comb and brush set, and carpet sweeper. Eight highly male-stereotyped toys were also selected: a helmet, toy soldiers, GI

Joe doll, tow truck, tool kit, match box cars, chainsaw, and a gun. The child and the parent were brought into the testing room. The subject was instructed that there would be a five minute play period before the forty minute Sesame Street program. The child was free to play with the toys before and during the TV show. The parent was given a questionnaire unrelated to this study to complete during this time period so that there would be as little interaction with the child as possible.

Following note of the first toy chosen, ongoing toy play and attention to the TV was recorded with a Cromemco Z2D microcomputer. Buttons were depressed for male stereotyped, female stereotyped, persistent toy play, and attention to TV by the experimenter who observed the child through a two-way mirror. Each button press sent a signal to the microcomputer which recorded the time of each behavior on- and off-set. After approximately half the subjects had been run, the microcomputer malfunctioned and a REVOX reel-to-reel magnetic tape then recorded the on- and off-set of attention to the TV. Male toy play was timed with a stop watch and female toy play with another watch.

Gender Constancy Interview

Refer to the methods section of the proposed Study 1 for a description of the interview. All the children received this interview. There were 42 females and 40 males in the high gender constancy group; 117 females and 120 males in the low gender constancy group according to the criterion stated in the next section.

Analyses

For each subject, there was a record of amount of time spent in several play categories. From the play categories, total amount of time spent in stereotyped and antistereotyped play was calculated. Stereotyped play was a girl's time spent playing with a female-typed toy or a boy's time spent playing with a male-typed toy. Antistereotyped play was the child's time spent with an opposite sex toy and simultaneous play with male- and female-typed toys. From the play category data, a ratio of stereotyped play was computed for the warm-up period and the TV viewing session: (s-o)/(s+o), cumulative duration of play with same-sexed toys, (s), minus cumulative duration of play with opposite-sexed toys, (o), divided by cumulative toy play. The ratio ranges from -1.0; play is entirely with opposite-sexed toys, to +1.0; play is entirely with

same-sexed toys. Interobserver reliability for the ratio measure was r(15)=.99 (slope=.999). Subjects were divided into a high-gender constancy group and a low gender constancy group based on their answers to the thirteen questions in the Slaby and Frey (1975) gender constancy interview. The criterion followed that of Ruble et al. (1981) (See the section Slaby and Frey (1975) Gender Constancy Interview of Study 1 for a complete description of the criterion). A multivariate analysis of variance was run with sex nested within high and low gender constancy as the between subjects variables and first toy choice, warm-up session ratio, and TV session ratio as the within subjects variables. It was predicted that level of gender constancy will have a significant effect upon the dependent play variables. High gender constant boys should play significantly more with the male stereotyped toys than the girls or low gender constant boys, and high gender constant girls should play significantly more with the female stereotyped toys than the boys or low gender constant girls.

CHAPTER 8

RESULTS STUDY TWO

A multivariate repeated measures analysis of variance was run with first-toy choice and stereotyped toy play during the warm-up and the television viewing sessions serving as the dependent variables. Table 8.1 indicates the results of the analysis. Level of gender constancy and sex of subject served as the independent variables. One hundred seventy-six subjects were dropped from the analysis due to missing data for one or more of the dependent variables (see Table 8.2). One boy did not complete the gender constancy interview and the equipment malfunctioned during the television session. The gender constancy interview was not complete for one boy along with no data collected for the warm-up or television sessions nor was first-toy choice noted due to equipment problems. One more boy did not have complete data for the gender constancy interview as well as no data for the warm-up session due to equipment malfunction. Two girls and one boy did not have complete data for the gender constancy interview. There were 153 subjects providing full data: 62 low gender constancy females, 19 high gender constancy females, 49 low gender constancy

Table 8.1 Analysis of Variance for Toy Play

Between Subjects

Source	df	F	p
Constancy	1	0.004	.948
Sex	1	32.596	.001
Constancy*Sex	1	0.722	.397
Error	149		

Within Subjects

Source	df	F	p
Play	2	6.959	.001
Play*Constancy	2	4.667	.010
Play*Sex	2	3.057	.049
Play*Constancy*Sex	2	8.544	.001
Error	298		

Table 8.2 Subjects Missing Data by Dependent Variable

Missing Data	# of Subjects
First Toy, Warm-up, TV	
Sex and Gender Constancy	
Male, Low	24
Male, High	5
Female, Low	17
Female, High	9
Warm-up, TV	
Sex and Gender Constancy	
Male, Low	39
Male, High	12
Female, Low	43
Female, High	14
Warm-up	
Sex and Gender Constancy	
Male, Low	3
Male, High	0
Female, Low	2
Female, High	0
TV	
Sex and Gender Constancy	
Male, Low	1
Male, High	0
Female, Low	0
Female, High	1

males, and 23 highgender constancy males. Each dependent variable met the normality and homogeneity of variance assumptions. The level of gender constancy main effect was found to be nonsignificant with $F(1,149) = 0.004$, $p<.948$. The sex of subject main effect, however, was significant, $F(1,149) = 32.596$, $p<.001$, due to the boys engaging in more stereotyped toy play than the girls. The interaction of level of gender constancy by sex of subject was nonsignificant, $F(1,149) = 0.722$, $p<.397$. There was a toy play main effect, $F(2,298) = 6.959$, $p<.001$, due to differing levels of stereotyped play across the dependent variables. First-toy choice was more stereotyped (mean equal to 0.312) than either the warm-up (mean equal to 0.252) or television (mean equal to 0.380) sessions, and play during the warm-up session was more stereotyped than play during the television session. The stereotyped toy play by level of gender constancy interaction was significant, $F(2,298) = 4.667$, $p<.010$, due to the high and low gender constancy subjects differing in stereotyped toy play for the dependent variables. The high gender constancy subjects were more stereotyped for their first toy choice than the low gender constancy subjects. For the warm-up and television sessions, the high gender constancy subjects were less stereotyped in their play than the low gender constancy

subjects. The toy play by sex of subject and the toy play by level of gender constancy by sex of subject interactions were significant with, $F(2,298) = 3.057$, $p<.049$; $F(2,298) = 8.544$, $p<.001$ respectively. The interactions with the play variable indicated that the sex and gender constancy effects depend on which dependent variable is employed. Therefore univariate analyses were used to explore each dependent variable separately.

Univariate analyses of variance were performed for each toy play dependent variable due to the significant interactions found in the multivariate analysis of variance. The means and standard deviations for each dependent variable may be found in Table 8.3. First toy choice was the dependent variable in a univariate analysis of variance. A subject choosing a same-sex typed toy first, received a +1 indicating stereotyped toy choice. A subject choosing an opposite-sex toy received a -1 to signify antistereotyped toy choice. Six subjects were missing data for level of gender constancy. The remaining 56 subjects did not have complete data and therefore were dropped from the analysis. Refer to Table 8.2 on page 88 for the breakdown of high and low gender constancy males and females missing data. Of the remaining 267 subjects, 106 were low gender constancy females, 92 were low gender constancy males, 34 were

Table 8.3 Means and Standard Deviations for Toy Play

	N	Mean	Sd	%
First Toy Choice				
Sex of Subject				
Male	129	0.674	0.741	33.7
Female	142	0.113	0.997	5.6
Gender Constancy				
Low	198	0.333	0.945	66.7
High	69	0.536	0.850	76.8
Sex and Gender Constancy				
Male, Low	116	0.717	0.700	85.9
Male, High	35	0.600	0.812	80.0
Female, Low	106	0.000	1.005	50.0
Female, High	34	0.471	0.896	73.6
Warm-up Session				
Sex of Subject				
Male	75	0.649	0.476	
Female	84	0.012	0.716	
Gender Constancy				
Low	112	0.340	0.696	
High	43	0.266	0.694	
Sex and Gender Constancy				
Male, Low	116	0.693	0.455	
Male, High	23	0.571	0.535	
Female, Low	62	0.056	0.730	
Female, High	20	-0.085	0.701	
Television Session				
Sex of Subject				
Male	78	0.506	0.437	
Female	85	0.018	0.525	
Gender Constancy				
Low	116	0.271	0.524	
High	42	0.195	0.590	
Sex and Gender Constancy				
Male, Low	52	0.490	0.442	
Male, High	23	0.536	0.441	
Female, Low	64	0.093	0.521	
Female, High	19	-0.218	0.475	

Continued next page

Table 8.3 Continued

	N	Mean	Sd
IQ			
Sex of Subject			
Male	160	114.488	14.637
Female	167	111.138	14.432
Gender Constancy			
Low	239	112.921	14.160
High	83	112.892	15.904
Sex and Gender Constancy			
Male, Low	116	114.440	13.557
Male, High	40	115.500	17.494
Female, Low	123	111.488	14.616
Female, High	43	110.465	14.040

high gender constancy females, and 35 were high gender constancy males. The sex of subject main effect was found to be significant, $\underline{F}(1,263) = 12.074$, $\underline{p}<.001$, due to the boys being more stereotyped in their play than the girls. There was a nonsignificant level of gender constancy main effect, $\underline{F}(1,263) = 2.100$, $\underline{p}<.148$. The interaction of level of gender constancy by sex of subject was significant, $\underline{F}(1,263) = 5.821$, $\underline{p}<.017$, due to the high gender constancy girls being more stereotyped in their toy play than the low gender constancy girls or either the high or low gender constancy boys (see Figure 8.1).

An exploratory X^2 test was run in order to ascertain if the differences between the means for females by level of gender constancy was significant for first toy choice. The result was significant, $\underline{X}^2_{(1)} = 9.19$, $\underline{p}<.001$, due to high gender constancy females being more stereotyped in their first toy choice than the low gender constancy females. A X^2 test computed for the boys revealed no significant difference between the high and low gender constancy boys, $\underline{X}^2_{(1)} = 2.46$, $\underline{p}<.100$.

For the warm-up session stereotyped toy play variable, there were 155 subjects: 62 low gender constancy females, 50 low gender constancy males, 20 high gender constancy females, and 23 high

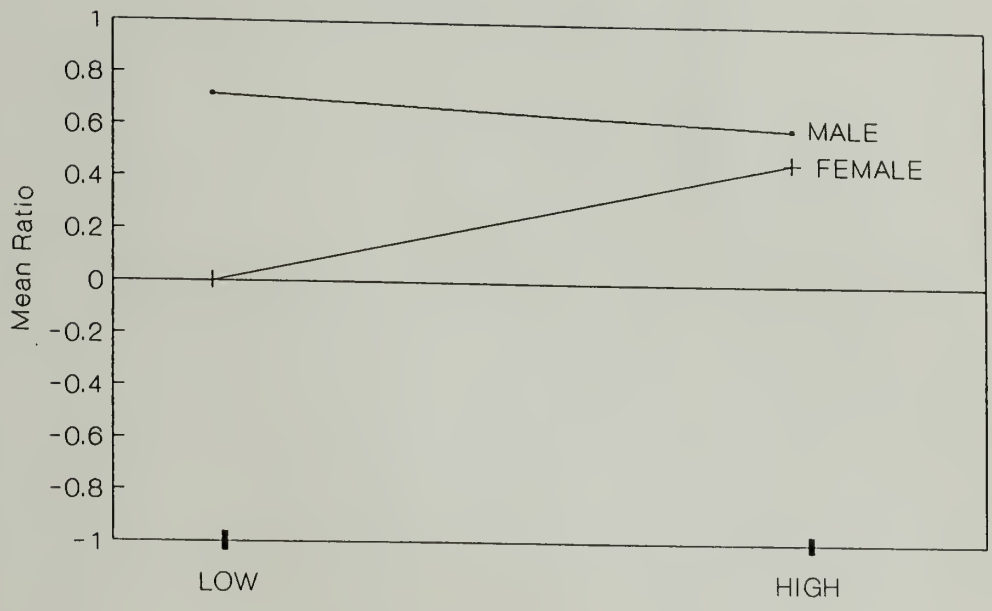

Figure 8.1 Means for stereotyped first-toy choice for males and females grouped by level of gender constancy. A +1 indicates stereotyped and a -1 indicated antistereotyped first-toy choice.

gender constancy males. Refer to Table 8.2 on page 88 for the breakdown of high and low gender constancy males and females missing data for the warm-up session. An additional 6 subjects were missing data for level of gender constancy and were dropped from the analysis. The sex of subject main effect was significant, $F(1,151) = 33.396$, $p<.001$, due to males being more stereotyped than females in their toy play. Both the level of gender constancy main effect and the level of gender constancy by sex of subject interaction were nonsignificant, $F(1,151) = 1.381$, $p<.242$, $F(1,151) = 0.008$, $p<.929$ respectively. Figure 8.2 displays the means for stereotyped toy play for high and low gender constancy males and females.

Exploratory independent samples t-tests were run for both females and males for the warm-up session grouped by level of gender constancy. The females t-test was nonsignificant with $t(80) = 0.761$, $p<.449$. The result for the males was also nonsignificant, $t(71) = 1.001$, $p<.320$. Figure 8.2 displays the means for stereotyped toy play for high and low gender constancy males and females.

A univariate analysis of variance was also run for the television session stereotyped toy play dependent variable. The number of

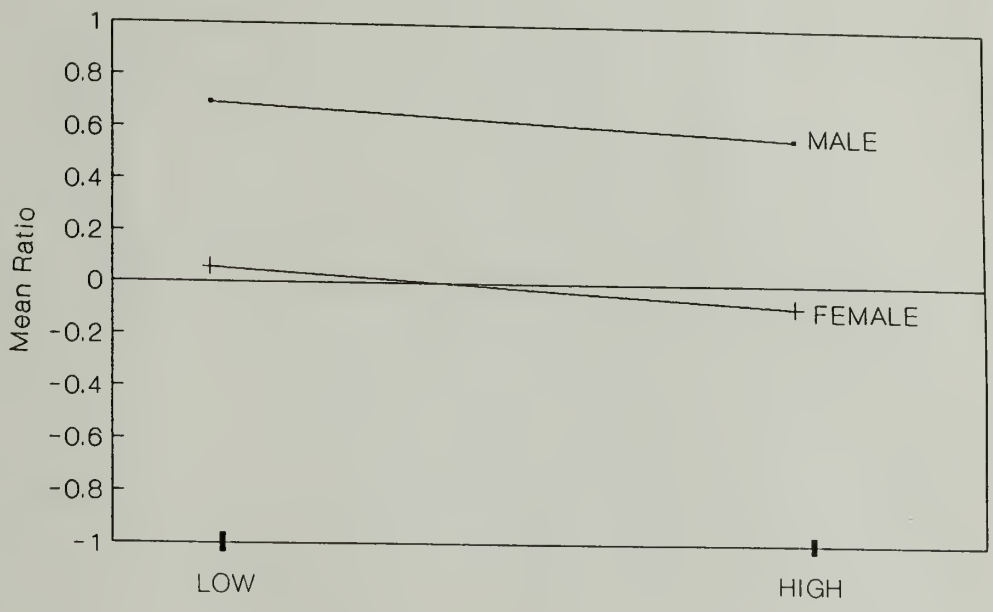

Figure 8.2 Means for stereotyped play during the warm-up session for males and females grouped by level of gender constancy. A +1 indicates stereotyped and a -1 indicates antistereotyped toy play.

subjects equaled 158 of which there were 64 low gender constancy females, 52 low gender constancy males, 19 high gender constancy females, and 23 high gender constancy males. Six subjects were dropped from the analysis due to lack of data for level of gender constancy. Refer to Table 8.2 on page 88 for the number of subjects missing data. The level of gender constancy main effect was nonsignificant, $F(1.154) = 2.322$, $p<.130$. The sex of subject main effect, however, was significant, $F(1.154) = 44.034$, $p<.001$, due to males playing with more sex-typed toys than females. In addition, the level of gender constancy by sex of subject interaction was significant, $F(1,154) = 4.243$, $p<.041$, due to less stereotyped play by the high gender constancy girls as compared to the low gender constancy girls. Both groups of boys, on the other hand, had high levels of stereotyped play and did not differ.

Exploratory independent samples t-tests were run for the boys and girls television stereotyped play grouped by level of gender constancy. The low gender constancy girls tended to be more stereotyped in their toy play than the high gender constancy girls as indicated by a significant t-test result, $t(81) = 2.329$, $p<.022$. The high and low gender constancy boys, however, did not differ

significantly in their stereotyped toy play for the television viewing session, $t(73) = -0.420$, $p<.676$ (see Figure 8.3).

Stereotyped toy play during the warm-up session was correlated with stereotyped toy play during the television viewing session, $r = .466$, $p<.001$. Stereotyped toy play during the television session and first toy choice were correlated, $r = .262$, $p<.011$. The correlation of stereotyped toy play during the warm-up session and first toy choice correlation was significant with $r = .399$, $p<.001$. Subjects, therefore, tended to be somewhat consistent in toy play across the dependent variables. By inspection, however, stereotyped toy play decreased from first toy choice to warm-up session to television session, especially for high gender constancy girls.

Additional univariate analyses were also run to test if IQ of the subject confounded sex of subject or level of gender constancy. The total number of subjects used in this analysis was 322. Seven subjects were not included in the analysis of which one girl was missing data for IQ, one girl did not have complete data for IQ or gender constancy, and 4 boys did not have complete data for the gender constancy interview. There was a significant sex of subject main effect, $F(1,318) = 4.629$, $p<.032$, due to higher IQ scores for boys. The level of gender constancy main effect and the sex of

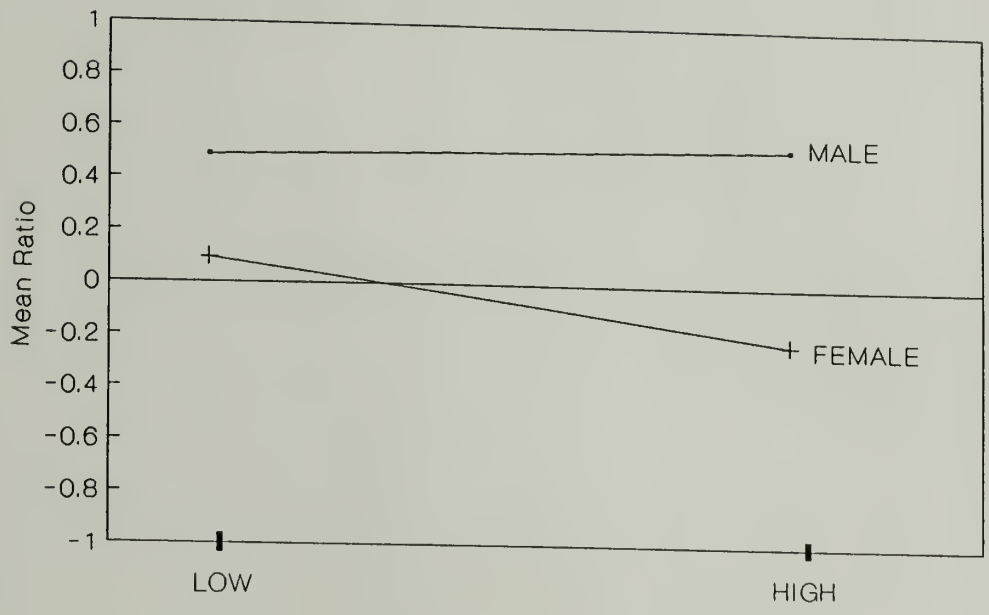

Figure 8.3 Means for stereotyped play during the television session for males and females grouped by level of gender constancy. A +1 indicates stereotyped and a -1 indicates antistereotyped toy play.

subject by level of gender constancy interaction were found to be nonsignificant, $\underline{F}(1,318) = 0.000$, $\underline{p}<.992$, and $\underline{F}(1,318) = 0.315$, $\underline{p}<.575$ respectively. The overall mean for IQ of subject collapsing across sex of subject and level of gender constancy was 112.973.

CHAPTER 9

DISCUSSION STUDY TWO

The results did not confirm the cognitive-developmental hypothesis. The gender constant boys did not play significantly more with the male stereotyped toys than the pregender constant boy. The gender constant girls displayed an interesting pattern of results. The high gender constancy girls were more stereotyped in their first toy choice than the low gender constant girls. During the warm-up session, there was no difference between the pregender or gender constant girls in stereotyped play. The television session stereotyped play analysis, however, revealed the high gender constant girls were less stereotyped in their play than the low gender constant girls. Pregender constant girls tended to remained about the same across conditions and divided their play time between male and female sex-typed toys.

The results lend themselves to several interpretations. The male subjects, both high and low gender constant, tended to be very stereotyped in their play, thus no difference for gender constancy could be observed. For the gender constant girls, perhaps they adhered to female sex-typed toys for first toy choice in order to be consistent with their gender role knowledge, thus following the

cognitive-developmental theory. The gender constant girls began to tire with the female sex-typed toys during the warm-up session so they played with both male and female sex-typed toys. During the television session, gender constant girls spent more time playing with male than female sex-typed toys. After the novelty decreased, perhaps the gender constant girls chose to play with some male sex-typed toys because the toys were associated with a more attractive activity. Eaton et al. (1981) and Stangor and Ruble (1989) warn against such a possible confound. The pregender constant girls were as likely to choose a male as a female sex-typed toy for first toy choice revealing their lack of gender constant knowledge. During the warm-up and television sessions, the activity attraction of the male sex-typed toys led the pregender constant girls to play with both male and female sex-typed toys. There was a trend by the gender constant girls to play with more male sex-typed toys from the warm-up to the television session. The pregender constant girls, on the other hand, were fairly consistent in their toy play. With more observation time available, the pregender constant girls may have exhibited toy play patterns similar to the gender constant girls. There is the possibility that the television being on during 40

of the 45 minutes of observation could have altered the children's usual toy play; thus resulting in the inconsistent results.

Investigation of the toys used in Study Two revealed more male than female sex-typed toys were associated with high levels of activity. It is therefore possible that the low and high gender constancy boys were both sex-typed in toy play due to the pregender constant boys choosing male sex-typed toys more on the basis of activity and the gender constant boys more on the basis of stereotype. The pregender constant girls who played with both sex-typed toys may have found the male sex-typed toys attractive for the activity as well as the female sex-typed toys to adhere to sex role stereotypes. The gender constant girls may have chosen a female sex-typed first toy in order to comply with the sex-appropriate stereotype. During the warm-up and television sessions, male and female sex-typed toys were both played with due to the activity attraction of the male sex-typed toys.

If the subjects were grouped by gender identity, stability, and constancy, the cognitive-developmental theory could have been better tested. The subjects, however, were all of the same age and therefore the majority were gender stable with very few in the gender identity stage. As Martin and Halverson (1981) point out,

the child need only be stable in his or her gender in order to prefer same sex-typed toys. Gender is recognized to be an important organizer, thus the child will choose a same-sex toy before full constancy is reached.

More research needs to be conducted in this area. Future research should focus on eliminating any confounding variables involved in same-sex toy play or preference such as activity level associated with the toys. It is also advised that a distinction be made between observing toy play over differing lengths of time to ascertain if sex of toy preference changes as time with toys increases.

Finally, it is suggested that parental influence upon the child's sex stereotyping be controlled. Repetti (1984) found parents' gender consistent scores on the Bem Sex Role Inventory was a predictor of their child's toy stereotyping. Toy play, therefore, could be influenced by parents' behavior; thus the social-learning theory would be operating and no difference would be observed between pregender and gender constant children.

CHAPTER 10

GENERAL DISCISSION

Gender constant boys attended more to adult, male, human characters than the pregender constant boys. They were also exposed to relatively more adult, male, human television characters. There was, however, no difference between the two gender constancy groups in amount of time spent in the viewing room or time spent looking at the television. The gender constant subjects, on the other hand, did not play with stereotyped toys more than the pregender constant subjects. These results could be interpreted in light of Repetti's (1984) findings. Repetti (1984) found total television viewing time had almost no relationship with subjects tendency to sex type toys. Even though attention to television in Study One appeared to be consistent with the cognitive developmental theory, television may not significantly influence toy play.

Frueh and Mcghee (1975) and Mcghee and Frueh (1980) have found that heavy television viewers, 25 or more hours per week, hold stronger traditional sex role stereotypes than light viewers, 10 hours or less per week. This effect held for boys and girls and did not vary across ages. This is possibly a reflection upon how the

sexes are portrayed on television and how children perceive these portrayals. Sprafkin and Liebert (1978) note that females on television are portrayed in a biased manner. Of the few females on television, few hold prestigious jobs whereas males are seen as lawyers and doctors. It was found in Study One that the boys were exposed to more male than female characters in almost all age categories. The question then becomes, if the boys are exposed to more males then how do they interpret the characters' behavior. According to Durkin (1984), children are capable of extracting sex role constraints from television. Thus children believe for example that a woman does not give a man flowers. This belief is portrayed on television and reinforces the children's sex role stereotypes of men and women. The gender constant boys were exposed to relatively more adult, human men than the pregender constant boys, and the gender constant boys looked more at adult, human men than the pregender constant boys. Having the knowledge that gender is constant, motivates gender constant boys to not only look at but to seek out more adult, human men than the boys who lack such knowledge. It could therefore be presumed that the subjects were obtaining highly stereotyped information about male behavior

and roles with the gender constant subjects being exposed to more information than the pregender constant subjects.

Stangor and Ruble (1989) found toy preference and memory for commercials exhibiting cross-sex typed toy play for children to be consistent with cognitive-developmental theory. Motivation to learn sex-appropriate behavior is high when the child realizes the invariance of gender. Thus the child wants to adhere to sex-role stereotypes. Study One did support the cognitive-developmental theory, however, Study Two did not. Perhaps there were too many flaws in Study Two to draw any conclusions. It would have been interesting to look at stereotyped toy play for the boys used in Study One, but the majority of high gender constant boys in that study were missing toy play data.

For future research, the cognitive-developmental theory could be tested using television and toy play again but with a few revisions to the current studies. Female subjects need to be included in the Study One data to ascertain if gender constant girls would attend to and expose themselves to more female characters than the pregender constant girls. Additionally, action and movement of the television characters needs to be controlled. It is possible that gender constant boys are attracted to the action and

movement associated with the male, adult, humans and not the sex of the characters. Toy play should then be observed with the same subjects involved in the television viewing observations. Changes to the toy play measurement are suggested in the discussion for Study Two.

From Study One and Two, the importance of gender role knowledge and how it directs a child's behavior is revealed. A child does not simply observe the world around him or her but rather interacts in the environment. The cognitive-developmental theory of gender development as outlined by Kohlberg (1966) has been supported by the results of Study One. This implies a boy who has attained gender constancy is motivated to seek out and take in information about the actions and characteristics of adult men from television. It would be well advised for the television industry to examine at length how the sexes are portrayed on the little black box.

APPENDIX

ADDITIONAL TABLES FOR STUDY ONE

Table A.1 Difference Scores for Attention in %

Gender Constancy	Male Human - Female Human		
High	Adult	Child	Adolescent
1	-6.5	4.2	10.3
2	6.0	1.4	-1.9
3	3.0	10.7	5.5
4	4.2	-0.7	-1.7
5	27.3	-33.3	22.9
6	15.3	-4.4	NA
Low			
1	-6.4	-6.2	10.1
2	-5.9	-4.7	NA
3	-5.8	-8.4	-2.6
4	-1.3	-10.0	12.6
5	-1.8	2.9	5.5
6	-13.1	2.1	-27.7

Gender Constancy	Male Nonhuman - Female Nonhuman		
High	Adult	Child	Adolescent
1	1.7	-9.8	-0.5
2	5.2	0.0	4.7
3	7.2	-1.8	-1.4
4	-3.3	-2.14	-2.5
5	2.2	NA	8.4
6	NA	NA	-1.8
Low			
1	-4.2	16.6	3.9
2	2.3	-10.0	2.0
3	-17.1	-20.9	-13.1
4	-1.9	6.3	0.8
5	-1.5	-3.6	-2.7
6	-1.5	-6.5	0.9

Table A.2 Difference Scores for Exposure in %

Gender Constancy	Male Human - Female Human		
High	Adult	Child	Adolescent
1	29.7	0.7	0.8
2	11.9	0.3	-0.2
3	18.0	0.8	0.3
4	14.6	0.6	0.5
5	20.8	1.6	-0.1
6	32.3	0.4	0.0
Low			
1	8.8	1.0	0.1
2	7.8	1.2	0.7
3	7.0	-0.2	1.8
4	11.8	1.5	0.1
5	13.4	2.5	0.5
6	14.7	0.7	0.0

Gender Constancy	Male Nonhuman - Female Nonhuman		
High	Adult	Child	Adolescent
1	4.9	0.0	1.7
2	3.6	0.4	0.2
3	6.4	0.1	1.1
4	6.0	0.5	0.0
5	7.7	3.3	0.0
6	5.1	-0.2	0.0
Low			
1	5.0	0.5	0.2
2	5.9	0.3	0.2
3	4.9	2.0	0.1
4	3.0	0.7	-0.6
5	4.7	0.5	0.7
6	5.5	0.1	0.2

Table A.3 Attention in %

Gender Constancy	Human Adult		Human Child		Human Adolescent	
High	M	F	M	F	M	F
1	33.2	39.6	91.7	87.5	47.8	37.5
2	55.9	49.9	77.9	76.5	63.6	65.5
3	56.7	53.7	81.6	70.9	72.2	66.7
4	68.4	64.2	54.9	55.6	58.3	60.0
5	64.7	37.4	80.0	66.7	80.0	57.1
6	54.5	39.2	55.6	60.0	100	100
Low						
1	52.5	58.9	61.0	67.2	58.1	48.0
2	27.4	33.3	28.6	33.3	40.0	0.0
3	42.6	48.4	53.3	61.7	59.6	62.2
4	65.7	67.0	64.3	74.3	82.6	70.0
5	75.9	77.7	80.0	77.1	95.5	90.0
6	67.4	80.5	75.0	72.9	55.6	83.3

Gender Constancy	Nonhuman Adult		Nonhuman Child		Nonhuman Adolescent	
High	M	F	M	F	M	F
1	78.6	76.9	72.6	82.4	100	91.7
2	86.5	81.3	86.4	86.4	0.0	87.5
3	83.3	76.1	83.9	85.7	75.0	48.9
4	84.2	87.5	78.6	100	0.0	0.0
5	81.4	79.2	89.5	80.0	0.0	0.0
6	82.5	100	0.0	100	0.0	0.0
Low						
1	69.8	74.0	56.4	44.8	75.0	79.2
2	44.4	42.1	40.0	50.0	0.0	0.0
3	63.5	80.6	57.7	78.6	0.0	33.3
4	76.0	77.9	70.8	64.5	76.2	77.4
5	84.5	86.0	82.6	86.2	95.2	92.1
6	89.0	90.5	73.5	80.0	0.0	75.0

Table A.4 Exposure in %

Gender Constancy	Human Adult		Human Child		Human Adolescent	
High	M	F	M	F	M	F
1	43.2	13.5	1.3	0.6	1.2	0.4
2	42.1	30.2	2.9	2.6	0.8	1.0
3	28.8	10.8	3.9	3.1	0.5	0.2
4	26.1	11.5	3.9	3.3	0.9	0.4
5	31.1	10.3	2.5	0.9	0.6	0.7
6	46.4	14.1	1.2	0.8	0.1	0.1
Low						
1	17.8	9.0	4.0	3.0	0.6	0.5
2	37.9	30.1	2.8	1.6	1.0	0.3
3	26.2	19.2	3.5	3.7	5.8	4.0
4	22.4	10.6	3.2	1.7	1.0	0.9
5	25.7	12.3	7.2	4.7	0.9	0.4
6	28.3	13.6	4.4	3.7	0.5	0.5

Gender Constancy	Nonhuman Adult		Nonhuman Child		Nonhuman Adolescent	
High	M	F	M	F	M	F
1	5.8	0.9	4.0	4.0	1.8	0.1
2	5.1	1.5	2.3	1.9	0.2	0.0
3	10.3	3.9	2.1	2.0	1.5	0.4
4	8.0	2.0	1.2	0.7	0.0	0.0
5	10.3	2.6	3.7	0.4	0.0	0.0
6	5.6	0.5	0.1	0.3	0.0	0.0
Low						
1	6.7	1.7	1.1	0.6	0.5	0.3
2	9.6	3.7	1.7	1.4	0.9	0.7
3	7.4	2.5	3.1	1.1	0.1	0.0
4	7.2	4.2	2.1	1.4	1.4	2.0
5	8.6	3.9	3.0	2.5	1.6	0.9
6	8.9	3.4	2.4	2.3	0.3	0.1

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