1986

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Running Head: EFFECTS OF SEX TYPING

Abstract

The present study replicates and extends Lash and Polyson's (1986) findings that a majority of mental images of commonly projected animals are gender associated. In the present study 91 subjects created mental images of the same animals and rated them on degree of masculinity-femininity and clarity on seven point Likert scales. The two studies were very consistent for feminine animals, but many of the masculine associated animals in the original study were found to be non-gender associated. With few exceptions the gender associations generalized across sex type as measured by the Personal Attributes Questionnaire, visualizing ability, and sex of subject. As predicted by gender schema theory sex typed subjects perceived non-gender associated animals more in terms of gender than did non-sex typed subjects, $p < .05$. However, no differences were found between the groups for masculine or feminine animals. Additionally, sex typed and non-sex typed subjects did not differ in their ratings of masculine, feminine, or neutral animals as rated on the Bem Sex Role Inventory.

The Effects of Sex Typing on the Perception of Gender in Projected Animal Content

Distinctions between what is masculine and what is feminine are found in all cultures and made on a wide variety of dimensions (Bem, 1981 b). For instance, the Chinese distinguished between the Ying, the feminine principle in nature, and the Yang, the masculine principle. This catagorization of the world into a masculine half and a feminine half also occurs in many languages such as Spanish, French, and Latin in which nouns are either masculine or feminine. Gender distinctions are also common in symbolism and mythology. Symbolic and metaphorical gender distinctions are found so extensively in such a wide variety of cultures that Jung (1964) proposes both a feminine and a masculine archetype, the anima and the animus respectively, as components of the collective unconscious. Today we are most aware of gender distinctions in the form of sex roles and sex stereotypes. There is evidence these distinctions are strong and generalize across cultures. In a thirty nation study Williams and Best (1982) found sex-trait stereotypes in all the countries and more agreement in these gender distinctions than

differences.

Although gender distinctions based on actual differences between males and females exist, many are only metaphorically related to actual sex differences. For example, many personality characteristics and things which are no more masculine than feminine are often perceived in terms of gender. For instance, assertiveness and bear are associated with masculinity while submissiveness and cat are associated with femininity.

Animal figures in dreams, artwork, fairy tales, and projective test responses have been interpreted as symbolic representations of significant personality themes and issues. In a comprehensive study of animal images in the art of western society, Klingender (1971) demonstrates the important symbolic function animal images have served throughout history. In our culture animals continue to serve as a rich source of symbolism. For instance, Bettelheim (1975) discusses the developmental issues and conflicts reflected in the animal content of fairy tales. And in the Rorschach testing animal images are the most frequently reported category of projections. Ames, Metraux, and Walker

(1971) found that 48% of all Rorschach responses by adolescents are animals, and in Exner's (1974) list of common Rorschacch responses 21% of the most frequently occurring or popular projections are whole animal images.

Considering the symbolic importance attached to animals and the general tendency in our culture to catagorize a wide variety of objects and traits as masculine or feminine, it is not surprising that many animals are gender associated. Jung (1968) states that animals often symbolize specific archetypes related to gender such as the mother figure or the anima. Additionally, in their classic guide to Rorschach interpretation, Phillips and Smith (1953) argue certain animal images may represent the mother or the father figure. For instance, a bear may represent "a benign and sympathetic father figure" (p.120) and a spider may represent a "wicked mother" (p.122).

There is also empirical evidence indicating projections of animal images are commonly associated with either masculinity or femininity. To determine gender associations to animal images Lash and Polyson (1986) had subjects create mental images of animals

frequently found in projective test responses and then catagorize that animal as male or female. Since ambiguity is a key feature in all projective test stimuli and the most ambiguous stimuli is one which is the sole creation of the subject, these gender associations to mental images are believed to reflect associations reported in other kinds of projections. They found 67 of the 93 animal images in their study were gender associated. Animals such as shark, eagle, and ape were found to be masculine; others including cat, butterfly, and kangaroo were found to be feminine; and a minority of animals such as fish, and horse were not gender associated. Additionally, they found these gender associations generalized across sex and visualizing ability of subjects.

The present study seeks to replicate and extend Lash and Polyson's (1986) findings. The methodology has been changed to take into consideration two criticisms of that study. Lash and Polyson had subjects catagorize each of the animal images as masculine or feminine. In the present study subjects rated the animal images on Likert scales with the two end points marked "much more masculine" and "much more feminine". These ratings

allowed subjects to report differnt degrees of masculinity-femininity as well as neutral ratings for the animals. A second criticism of the original study is that subjects' ability to visualize the animals was assessed indirectly through Mark's (1973) Vividness of Visual Imagery Questionnaire (the VVIQ). Although the VVIQ measures differences in visualizing ability, it provides no information about how well subjects could visualize particular animals. In the present study subjects rated how clearly they were able to visualize each animal to examine if clarity ratings are related to gender associations. Visualizing ability was defined as subjects' mean clarity rating for all the animal images.

In addition to subject's sex and visualizing ability, the effects of sex typing on gender associations to animal images are examined in the present study. A growing body of research has demonstrated that sex typed individuals are more likely to perceive the world in terms of a basic gender distinctions than are non-sex typed subjects (Bem, 1984). Since animals are perceived in terms of gender, sex-typed subjects should rate animals as more gender related than non-sex typed subjects.

Schemas, Gender, and Sex Typing:

Developmental psychologists have proposed an information processing account of sex typing that explains how gender distinctions influence our perception, behavior, and attitudes (Bem, 1981 b; Martin & Halverson, 1981). They propose that an individual's learned gender distinctions are stored in a gender schema. A schema is a cognitive structure that organizes and guides perception, resulting in a readiness to process information in terms of its content and structure (Bem, 1983). Thus, under schema theory, the projective hypothesis might be restated. How we structure an ambiguous stimuli reflects our cognitive structures rather than our personality. How we perceive mental images of animals may reflect schematic processing as well as personality issues.

Schemas allow us to process the vast array of information that we are presented with everyday, but they are only helpful to the degree they are valid (Nisbitt and Ross 1980). Schemas change and filter input, thus biasing our perceptions in terms of the content and organization of the schema. Additionally, use of a less appropriate schema may prevent the use of

one more appropriate to the situation.

Bem's (1981 b) gender schema theory is concerned with how individuals come to process a great deal of information not directly related to gender in terms of culturally defined gender stereotypes. Bem proposes that in all cultures sex is a basic distinction upon which a vast array of our experiences are organized. Through social learning individuals learn what is masculine and what is feminine as well as to evaluate and assimilate new information in terms of their developing gender schema. Our gender schema becomes even more salient as we identify ourself as masculine or feminine and incorporate this identity into our gender schema. That is, during sex-typing, our self esteem becomes based in part on how well we fit our cultural definition of our respective gender and we are motivated to conform to these definitions. Our gender schema becomes even more salient for processing a wide variety of information about ourself, others, and gender associated information.

Differences in our tendency to use our gender schemas, or the salience of our gender schemas, are reflected in our degree of sex typing. Highly sex typed

individuals have more salient gender schemas than non-sex typed individuals. That is, they are more likely to spontaneously sort and process information in terms of their gender schema. The more salient one's schema, the more that schema influences and biases ones perception and thought. For instance, it has been found that subjects with well developed schemas make more distortion errors than people with less well developed schemas (Tesser & Leone, 1977). From this finding we can expect that sex typed individuals, who have highly salient gender schemas, will have greater biases than non-sex typed indivdiuals in the perception of gender relevant information.

Bem (1981 b) lists four examples of gender schematic processing that should be more evident among sex typed individuals than among non-sex typed individuals. Among these is the hypothesis that they should make more extreme or highly differentiated judgements on information relevant to the gender schema. Research on the perception of gender related information has supported this hypothesis. Sex typed indivdiuals differentiate more between people and even handwriting on the basis of gender than do non-sex typed

individuals. Deaux and Major (1977) found that sex typed subjects distinguished between males and females more than non-sex typed subjects when asked to divide a person's videotaped behavior into natural and meaningful segments. When rating body outlines of human figures in which the width of the waist and shoulders were systematically varied Lippa (1983) found that sex typed subjects rated more figures as masculine or feminine while non-sex typed subjects were more often uncertain of a figure's gender. Additionally, sex typed subjects' choices of the most attractive male and female figures were more different than those chosen by non-sex typed subjects. However, the average or typical male and female figures chosen by the two groups did not differ.

Sex typed subjects have also been shown to differentiate between masculine and feminine speech styles while non-sex typed subjects do not (Warfel, 1984). Sex typed subjects associate powerful speech with masculinity and powerless speech with femininity while non-sex typed make no differentiation. In another study Lippa (1977) found that sex typed subjects differentiated between masculinity and femininity more

strongly than androgenous individuals when judging the similarity of handwriting samples. Lippa also found that sex typed subjects weighted the dimension of masculinity-femininity more heavily than did androgenous subjects. In other words, when rating the degree masculinity-femininity of handwriting samples on a seven point scale, sex typed subjects reported more extreme masculinity and femininity ratings while androgenous subjects reported more neutral ratings. Thus, sex typed subjects viewed the handwriting samples more in terms of gender than did androgenous subjects.

The present study attempts to replicate the findings of Lash and Polsyon (1986). A large number of animals are hypothesized to be gender associated and these associations should generalize across sex and visualizing ability of subjects. Sex type, an additional independent variable, is also examined. Sex typed subjects should make more extreme gender ratings of animal images than will non-sex typed subjects. They should perceive animal images as more masculine or more feminine while non-sex typed subjects will perceive them as less gender associated. Specifically, it is hypothesized that when asked to rate

list of animals on their degree of masculinity-femininity, the difference in the mean gender ratings from a neutral rating of 4.0 will be greater for sex typed subjects than for non-sex typed subjects. Additionally, since sex typed subjects perceive more things in terms of masculinity-femininity they should report a greater number of significant gender associations to animals than will non-sex typed subjects. It is also hypothesized that when asked to rate animals on a variety of personality characteristics that discreetly measure masculinity and femininity, sex typed subjects will rate animals as more sex-typed (high on one scale and low on the other) than non-sex typed subjects.

Method

Subjects

Fifty-six female and thirty-five male students enrolled in either introductory psychology or methods and analysis in psychology at the University of Richmond in the 1986 spring semester were recruited to serve as voluntary participants in the present study. The introductory students received one hour of credit for their efforts as a partial fulfillment of a research

paticipation requirement.

Procedure

A male experimenter briefly informed subjects the purpose of the present study was to examine how people with certain personality characteristics perceive different animals, in terms of masculinity and femininity as well as other personality characteristics. The experimenter explained the procedure thoroughly and answered all questions that subjects had as completely as possible.

The subjects were asked to complete three questionnaires. On the top of the first questionnaire subjects reported their social security number, age, year in school, and sex. Their names appeared only on the informed consent forms so the experimenter could assure them anonymity. All subjects agreed to participate and completed informed consent forms stating that they understood the nature of the research and voluntarily agree to participate with the understanding that their results would be completely confidential, that any publications resulting from the study would not disclose the names of individual participants, and that they could withdraw from the study at any point without

penalty.

Subjects then completed the self scale of Spence, Helmreich, and Stapp's (1974, 1975) Personal Attributes Questionnaire (the PAQ) in which they rate themselves on 55 personality dimensions on five point scales, labeled at both ends with a verbal description (e.g., very submissive-very dominant). Subject's responses are scored to produce both a masculinity and a femininity score. After Bem's (1977, 1981 b) definition of sex typing, those scoring above the median on the sex-congruent scale and below the median on the sex-incongruent scale are categorized as sex typed (N = 37) and those showing the reversed pattern are defined as cross-sex typed (N = 8). Additionally, subjects scoring above the median on both scales are categorized as androgenous (N =23), while those scoring below the median on both scales are defined as undifferentiated (N = 23). The distribution of males and females within these categories in the present study was similar to percentages reported by Spence, Helmreich, and Stapp. In their original study on the PAQ Spence, Helmreich, and Stapp reported alpha coefficients of .73 and .91 for males and females

respectively, as measures of internal consistency. Test retest reliability was also good. After 13 weeks the *r*'s were .92 for males and .98 for females.

To test for differences between sex typed and non-sex typed subjects, androgenous and undifferentiated subjects are classified as non-sex typed while sex typed and cross-sex typed subjects are defined as sex typed. Although cross-sex typed individuals are still an anomaly in gender schema theory, they do share a tendency to perceive many things in terms of gender like sex typed individuals even though they perceive themselves in term of the characteristics of the opposite sex (Bem, 1984). Since we are concerned with the tendency to differentiate animals according to gender, for the purposes of the present study cross-sex typed subjects are catagorized as sex typed.

When subjects had completed thes PAQ they completed two additional questionnaires. One half the male and female subjects complete one of these questionnaire first while the remaining subjects completed the other questionnaire first. One questionnaire listed the 93 animals examined by Lash and Polyson (1986) in a random

order and subjects were asked to create a mental image of each animal. After creating each image subjects rate it as on a seven point scale with 1 marked as "much more masculine" and 7 marked as "much more feminine". After each gender rating subjects rate how clearly they were able to visualize that animal. A clarity rating of 1 is assigned to an animal visualized "as clearly as normal vision" while 7 represents an inability to visualize a particular animal. Therefore, subjects with a mean clarity rating below the median are defined as strong visualizers and those scoring above the median are categorized as weak visualizers. The mean rating of strong visualizers was 1.57 with a standard deviation of 0.24. Weak visualizers mean rating was 2.89 with a standard deviation of 0.72.

The list 93 animals was originally compiled from Phillips and Smiths' (1953) list of 26 animals symbolizing either a male or a female role figure, along with 60 animals commonly found in Rorschach responses according to Exner (1974). Additionally, a few animals that do not appear in these lists are included. To assess reliability of both the gender and clarity ratings, cow, horse, and snake are listed twice in the

questionnaire, once on the first page and again on the second page. The correlations of these gender ratings for these three animals were .92, .83, and .89 respectively, indicating the gender ratings had good reliability. The correlations for the clarity ratings of these three animals were .48, .89, and .89 respectively. These clarity ratings indicate fairly good reliability although the reliablity for cow was weaker than for the other two animals.

This procedure improves upon the method used by Lash and Polyson (1986) in which they had subjects categorize each animal as either male or female and did not directly assess how well subjects could visualize particular animals. They found that gender associations generalized over visualizing ability as measured on Marks' (1973) Vividness of Visual Imagery Questionnaire, but they included no measure of how well subjects visualized particular animals. Clarity ratings for each image will give some indication of the degree to which subjects are responding to visual images rather than the verbal concept of the animal and to see if the clarity of the image is related to the gender rating.

Another criticism of the original study is the

assumption that an animal image neutral with respect to gender would be categorized by chance an equal number of times to both genders which would result in non-significant gender associations. However, because of a tendency to label neutral stimuli as masculine (Hyde, 1985), the possibility exists that an animal that is actually non-gender associated, might have been found to be masculine associated in that study because of the methodology used. Allowing subject's to rate the degree of masculinity-femininity of animal images on 7 point scales may more accurately assess gender associations.

To more discreetly compare sex typed and non-sex typed subject's perceptions of animal's gender, subjects also completed the Bem Sex Role Inventory (Bem, 1974) according to their perceptions of the personality characteristics of an assigned animal. Each subject rated one animal on 7 point scales with one end marked "never or almost never true" and the other "always or almost always true" for 60 adjectives or descriptive pharses. The experimenter informed subjects that this task requires some imaginitive thinking and that they should give their best response to each item while

thinking in a metaphorical sense. To produce a sample with a similar number of masculine, feminine, and neutal animals to use on this questionnaire, 16 masculine, and 16 neutral animals were randomly selected, and all 13 feminine animals were selected from Lash and Polyson's (1986) results. Because of an unequal sample size of male and female subjects, not all the animals were assigned to the male subjects while several of the animals were assigned to two female subjects.

Results

Confidence intervals around 4.0, the neutral gender rating, were created to determine gender associations for each animal at $p < .05$, and $p < .01$, and $p < .001$. Table 1 indicates which animals were associated to masculinity and femininity respectively. Table 2 shows the animals for which there was no statistically significant gender association. With $p < .05$, 41 animal images were perceived as masculine, 13 were perceived as feminine, and 39 were perceived as neutral. Lash and Polyson (1986) found when forced to categorize the

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Insert Tables 1 and 2 about here

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animal images as either masculine or feminine, 54 of the animals were masculine associated, 13 were feminine, and 26 were not gender associated at $p < .01$. In the present study in which subjects rated animal's degree of masculinity-femininity only 31 animal were masculine and only 8 were feminine at $p < .01$. While one animal previously found to be nongender associated was now found to be masculine, and 7 that were feminine associated were now found to be neutral, a total of 23 animals that were found to be masculine when subjects categorized animals as masculine or feminine were found to be neutral with respect to gender in the present study. In summary, a majority of the visually projected animal images in this study were perceived in relation to a particular gender although many of the animals previously found to be gender associated (especially masculine animals) were not significantly associated.

Lash and Polyson (1986) compared their gender associations to the 26 gender associations hypothesized by Phillips and Smith (1953) in their classic guide to Rorschach interpretation. In the that study and the present study, only 12 of the 26 animals are in agreement with the associations listed by Phillips and

Smith. Seven of the 8 animal images described as projections of male figures by Phillips and Smith were masculine associated, however, only 5 of the 18 animals described as feminine figures were found to be feminine.

The findings in the present study are generally consistent across sex of subject. As found by Lash and Polyson (1986), no animal image was cross-associated, (i.e., perceived as masculine by subjects of one sex and feminine by subjects of the other sex) and there was no difference in the number of masculine, feminine, nonsignificant gender associations by male and female subjects, $\underline{x}2$ (2 $\underline{N}$ = 93) = .78, $\underline{p}$ = .68. In contrast to the original study, the mean gender ratings for the two groups could also be compared in the present study. These gender ratings did not differ significantly between males (3.53) and females (3.51) when compared using a oneway ANOVA, F= .547, df = 90, $\underline{p}$ = .46. The data met both the homogeneity of variance and the normality assumptions of ANOVA procedures.

The results are also generally consistent for strong versus weak visualizers. Consistent with Lash and Polyson's (1986) findings, not a single animal image was cross-associated by the two groups and there was no

difference between the groups on the number of masculine, feminine, and nonsignificant gender associations, $\underline{x}2$ (2 $\underline{N}$ = 93) = .77, $\underline{p}$ = .68. In further support of the consistency of gender ratings across the visualizing ability is the finding that the mean gender ratings for strong (3.48) and weak (3.55) visualizers did not differ significantly when compared using a oneway ANOVA, F = .809, df = 90, $\underline{p}$ = .37. Again, the data met both the homogenity of variance and normality assumptions for ANOVA procedures.

Subjects reported being able to visualize the animals quite well. Mean clarity rating for all subjects was 2.24 with a rating of 1.0 on a 7 point scale corresponding to a mental image which is seen "as clearly as normal vision". To determine the animals that subjects had the most trouble visualizing, one-tailed confidence intervals were constructed around the mean clarity rating of 2.24 for each animal. The 9

Insert Table 3 about here

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animals with significanlty poor clairty ratings are listed in Table 3. It is important to note that all

nine of these animal were not gender associated.

Mean clarity ratings were also correlated with gender ratings to see if either strong or weak images predicted masculine, feminine, or neutral gender associations. Subjects' mean clarity ratings did not significantly correlate with their mean gender rating which indicates that visualizing ability is not related to a tendency to perceive the animals as more masculine or feminine, $r = .161$, $p = .13$. Additionally, clarity ratings correlated significantly with the gender ratings for only 10 of the 93 animals at $p < .05$. Five significant correlations would be expected by chance, indicating there was no strong relationship between clarity and gender rating. The results were also analyzed to see whether clarity of an animal image related to a tendency for it to be more or less gender associated. To examine this possibility clarity ratings were correlated with the absolute difference in the gender ratings from a neutral rating of 4.0. Subjects' mean clarity rating did not significantly correlated with this mean difference score, $r = -.124$, $p = .24$. However, the mean clarity rating for 29 of the animal images correlated with difference scores in the gender

rating for that animal. Intrestingly, 27 of these significant correlations were negative and only 2 were positive. Since lower clarity ratings correspond to clearer mental images, the large majority of negative correlations indicate that the more clearly subjects visualized these animals the more likely they were to associate them with a gender (either masculinity or femininity).

Gender ratings also generalized across sex type of subject. In no case was an animal cross-associated. Also the mean gender ratings for the sex-typed (3.52) and non-sex-typed (3.52) did not differ when compared using a oneway ANOVA, $F = .049$, $df = 90$, one-tailed $p = .82$. The data for this ANOVA met both the homogenity of variance and the normality assumptions of ANOVA procedures.

The hypothesis that sex typed subjects would rate the animals as more masculine or feminine while non-sex typed individuals would rate the animal images as more neutral was examined by comparing the mean differnce scores from a neutral rating of 4.0 for the two groups. Using this difference score method, subjects who perceive animals more in terms of

masculinity-femininity have higher mean difference scores since they give more extreme ratings. Lower difference scores indicate a smaller tendency to perceive animals in terms of gender. An ANOVA on subject's mean difference score was proformed to test the hypothesis that sex typed subjects reported more extreme gender ratings than non-sex typed subjects. Additionally sex and visualizing ability of subject were included as independent variables. The analysis of variance, as shown in Table 4, shows no significant results although there was a trend supporting the hypothesis that sex-typed subjects perceive animals as more masculine or feminine than do non-sex-typed subjects. Because of this suggested relationship between sex-type and gender ratings three separate oneway ANOVAs were conducted on subjects' mean difference scores for masculine, feminine, and non-gender associated animal images. The data met both the homogeniety of variance and the normality assumptions required for ANOVA procedures. The sex typed subjects' mean difference scores for the 42 masculine, 12 feminine, and 39 neutral animals were 70.22, 21.33, and 36.24 respectively. The means for the

non-sex-typed subjects were 67.33, 19.57, and 30.78 respectively. The results of these analyses indicate the hypothesis that mean difference score for sex typed and non-sex typed subjects did not significantly differ on their gender ratings for masculine animals ($F = .512$, $df = 90$, one-tailed $p = .238$). However there was a nonsignificant trend showing that sex typed subjects' mean difference scores for feminine animals was higher than the scores of non-sex typed subjects ($F = 2.210$, $df = 90$, one-tailed $p = .070$). For neutral animals sex typed subjects' mean difference scores were significantly higher than those of non-sex typed subjects, ($F = 3.913$, $df = 90$, one-tailed $p = .026$).

The hypothesis that sex typed subjects would report more significant gender associations than non-sex typed subjects was not supported. These two groups did not differ in their number of masculine, feminine, or neutal gender association, $x2$ (2 $N = 93$) $= .20$, $p = .91$.

Finally, the hypothesis that sex typed subjects would rate animals on the BSRI (Bem, 1974) as more sex typed than non-sex typed indivduals was performed by comparing the difference scores between the masculinity and femininity scales on the questionnaire. Since a

oneway ANOVA showed that these difference scores were significantly different according to the gender the animal was associated to in the present study ($F = 11.153$, $df = 90$, $p = .000$), separate oneway ANOVAs were conducted for subjects' ratings of masculine, feminine, and neutral animals. The mean difference scores for sex typed subjects for masculine, feminine, and neutral animals were 60.50, 20.18, and 11.31 respectively. For non-sex typed subjects they were 39.18, 18.73, and 2.80 respectively. Although all the differences between the means were in the right direction, none of the differences were significant. Sex typed individuals did not rate any of the three classifications of animals as more sex-typed than did non-sex-typed individuals, (for masculine animals $F = 2.05$, $df = 22$, $p = .08$, for feminine animals $F = 0.13$, $df = 31$, $p = .45$, and for neutral animals $F = 0.51$, $df = 35$, $p = .24$).

Discussion

The present study is fairly consistent with the findings of Lash and Polyson (1986) showing that many animal images are perceived as masculine or feminine and that these gender associations generalize across

subject's sex, visualizing ability, and sex type. Additionally researchers found some moderate support for Bem's (1981 b) gender schema theory. Although the present study does not suggest how and when projected animal content should be interpreted in relation to gender themes and sex role issues, it does support the assumption that projected animal imagery may be gender related in projective tests, dreams, artwork, and fairy tales.

The majority of animal images in the study by Lash and Polyson (1986) and those of the present study are gender associated. However, the results in the present study are believed to be a more accurate measure of gender asociations to animals. Allowing subjects to rate animals as possessing different degrees of masculinity or femininity, including a neutral rating, left feminine associations relatively unchanged, however many animals that were masculine associated in the original study were found to be nongender associated in the present study. The finding that many of the nongender associated animals in the present study were rated as masculine when subjects were forced to categorize animals as masculine or feminine indicates

that subjects may have been following a sexist tendency to categoize ambiguous stimuli as masculine when forced to catagorize them. This finding is consistent with the sexist tendency to assume neutral stimuli are masculine (for a review see Hyde, 1985 pp. 30 -31 and 220 - 221).

The present study, like the original, found mixed agreement as a test of Phillips and Smith's (1953) interpretations of animal content as projections of male and female figures. For male associated figure the findings are largely in agreement. However there is a large discrepancy for animals thought to symbolize females. Based on the data of both the present and the orignal study, it appears that Phillips and Smith's interpretations may be more valid for animals interpreted as symbolizing male roles. Perhaps the change in women's sex roles since the 1950's accounts for these differences.

Although gender associations consistent across strong and weak visualizing ability and were not related to mean visualizing ability, there is some indication the vividness of the animal images may influence gender ratings for that animal. For many animals, the more vividly they were visualized, the more they were

associated with a gender (either masculinity or femininity), and less with neutrality. This finding, taken in consideration with the finding that all the animals images with significantly low clarity ratings were not gender associated, indicates that there was a tendency to rate images that are less clear as neutral and those that are more clear as gender associated.

The findings were mixed in their support of Bem's (1981 b) gender schema theory. The results failed to support the hypothesis that sex typed subjects would hold a significantly larger number of gender associations to animal images than do non-sex typed subjects, that sex typed subjects would perceive animals in terms of gender when rating them on a variety of personality characteristics, and that they would report more extreme gender ratings of animal images (more masculine or feminine ratings and less neutral ratings). However, sex typed subjects were found to significantly report more extreme gender ratings of neutral animals than did non-sex typed subjects. The failure to find a significant difference between sex-typed and non-sex-typed subjects on their gender ratings of masculine and feminine animal images is believed to be

caused by the strong stereotypes of masculinity and femininity for these animals in our culture. For many of these animals there was very little variation in these gender ratings and thus little room to show differences between groups. This speculation would be consistent with the projective hypothesis which states that our personality and cognitive differences are best reflected in our structuring of neutral or ambiguous stimuli. The more ambiguous the stimuli, the more our perceptions reflect our indivdiual differences. For masculine and feminine animals there is little ambiguity in the gender associations and, therefore, they may not reflect the true differences in the perception of gender between sex typed and non-sex typed individuals. Neutral animals which are ambiguous with respect to gender, may better reflect differences between sex-typed and non-sex-typed subjects in the perception of gender.

These results are also similar to those of Lippa (1983) who found the hypothesized tendency of sex typed subjects to differentiate more between the ideal body outlines of males and females, but no difference between the outlines selected for the typical male and female. Perhaps ratings of ideal figures leave more room for

individual biases to be reflected in judgments while ratings of typical figures do not since typical figures are less ambiguous than ideal ones.

The failure to find significant differences between between the two groups in their ratings of masculine, feminine and neutral animals on the BSRI (Bem, 1974) is believed to be attributable to the small sample size for these analyses. Futrure research needs to reexamine this finding using larger sample sizes.

The present study offers support to gender schema theory's prediction that sex-typed individuals should exhibit greater biases when processing gender-relevant information. Additionally, while other research has supported this prediction (Lippa 1977,1983; Deaux and Major 1977, Warfel 1984) all these studies have used Bem's (1974) BSRI as a measure of sex-typing. The present study differs in its use of the Spence, Helmrich, and Stapps' (1974) PAQ as a measure of sex-typing. This finding supports Bem's (1981 a) claim that other measures of sex-typing should serve equally as well as the BSRI in descriminating between levels of sex typing.

The present studies also supports the concept of

animals as relevant to schemas consisting of personal attributes. Often we think of people as possessing characteristics of certain animals. For example, one may describe someone as sly as a fox, or as fast as a rabbit. Nisbett and Ross (1980) speak of an animal personae as schemas or cognitive structures in which people are stereotyped as possessing characteristics and behaviors associated with certain animals. Bem (1983, 1984) also lists animals as examples of items found within our gender schemas. The present study supports the belief that gender associations to animals are part of our gender schemas and that projections of animal images are often related to gender.

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Table 1

Significant Gender Associations

	Animal Images Seen as Male		
Ape***	Bat***	Bear***	Buffalo***
Bull***	Cockroach**	Crab**	Crawfish**
Crocodile***	Crow***	Dog***	Donkey***
Eagle***	Eel***	Elephant $	Frog**
Fly*	Fox $$	Lion***	Lizard***
Lobster**	Monkey***	Owl**	Penguin*
Rat***	Reptile***	Rodent*	Scorpion***
Shark***	Snake***	Spider*	Squid*
Stingray***	Tiger***	Turkey*	Turtle*
Vulture***	Walrus***	Wasp*	Wolf***
Worm*			
	Animal Images Seen as Female		
Bird*	Butterfly***	Calf $	Cat***
Chicken**	Cow***	Deer***	Dolphin*
Duck $	Furry Animal*	Kangaroo***	Lamb***
Sheep***			

Note. *p<.05 one-tailed. **p<.01 one-tailed. ***p<.001 one-tailed. $p<.05 two-tailed. $$p<.01 two-tailed.

Table 2

Animals Images Not Associated to Either Gender

Abalone	Albatross	Ameoba	Ant
Beaver	Bacteria	Bee	Beetle
Bug	Caterpillar	Cell	Centipede
Chipmonk	Colt	Cub	Dragon Fly
Fish	Flying	Fish	Germ
Grasshopper	Heron	Horse	Insect
Jellyfish	Mosquito	Moth	Mouse
Octopus	Oyster	Parrot	Pig
Scarab	Sea Animal	Sea Gull	Sea Horse
Seal	Shrimp Snail	Toy Dog	

Table 3

Animals with Significantly Weaker Clarity Ratings

Animal	Gender Association	Mean Clarity Rating
Abalone	Neutral	6.18***
Albatross	Neutral	4.77**
Ameoba	Neutral	4.77**
Bacteria	Neutral	5.33***
Cell	Neutral	4.48**
Germ	Neutral	5.30***
Heron	Neutral	4.45**
Scarab	Neutral	5.88***
Sea Animal	Neutral	4.00*

Note. *$p<.05$ one-tailed. **$p<.01$ one-tailed. ***$p<.001$ one-tailed.

Table 4

Analysis of Variance on Mean Difference of Gender Ratings of the 93 Animals

Source	SS	df	MS	F	prob. of F
Sex-type	0.244	1	0.244	1.795	.092*
Sex	0.006	1	0.006	0.467	.829
Visualizing Ability	0.025	1	0.025	0.186	.668
Sex-type X Sex	0.001	1	0.001	0.893	.925
Sex-type X Vis. Ab.	0.071	1	0.071	0.521	.472
Sex X Vis. Ab.	0.031	1	0.031	0.229	.633
Sex-type X Sex X Vis. Ab.	0.050	1	0.050	0.365	.547
Error	11.261	83	0.136		
Total	11.689	90			

Note. * indicates onetailed probability.