THE EFFECT OF SEX OF STIMULUS ON PERCEPTION OF VIOLENT THEMES IN A BINOCULAR RIVALRY SITUATION

by

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INTRODUCTION

In a binocular rivalry situation, two non-identical stimuli are presented to the subject simultaneously in a tachistoscope or tachistoscopic-like apparatus, one stimulus to each eye. The subject is asked what he saw after the stimuli have been presented. The subject may report one stimulus or the other, or he may report elements of both. Engel (1956) sought to ascertain if in an ambiguous situation, such as a binocular rivalry situation, stimuli more familiar to the subject would be reported more frequently than stimuli which were less familiar. In his study, two faces, one upright and one inverted, were shown to the subject. One of these faces was shown to each eye. The more familiar figure of the upright face was reported significantly more often than the unfamiliar figure, the inverted face. In fact, the upright face was reported exclusively over 90% of the time. A study by Hastorf and Myro (1959) used postage stamps of busts of famous people as the stimuli and replicated Engel's findings. Again, it was found that in an ambiguous perceptual situation, individuals tended to report the familiar, rather than the unfamiliar stimulus.

This finding of familiarity being more frequently reported was extended by Bagby (1957), who paired scenes from Mexican and American cultures in a binocular rivalry paradigm. These pairs were presented to groups of Mexican and American children. The results indicated that the Mexican children saw the Mexican scenes more often, while the American children reported seeing the American scenes more often. Pettigrew, Allport, and Barnett (1958), in a study done in South

Africa, found that whites tended to dichotomize the presented stimuli of faces as being either white or black. The whites usually did not perceive the oriental or mulatto faces as being oriental or mulatto, but as black. This was not true of other racial groups tested. This study seems to have demonstrated the effects of culture and national policy upon the whites of South Africa.

Beloff and Beloff (1959) performed an experiment in which subjects were tachistoscopically shown pairs of photographs of faces. In some of the pairs, the subject's own photo was used as one of the pictures, whereas other pairs contained photographs of strangers. Several weeks before the actual experiment, the subjects were asked to rate a set of photographs of faces of strangers for "likeability," using themselves as a standard. Only those pictures judged by the subject as being as likeable as himself were used in the presentation. The subjects were asked to rate the various pairs of pictures for attractiveness. The subjects consistently reported pairs that contained their own pictures as being more attractive than those that did not contain their pictures. At the same time, any subject who recognized that his own picture was being shown to him was discarded from the study. Here again, preferring the familiar to the unfamiliar was demonstrated in the binocular rivalry situation.

Differential perception of religious words and symbols among different religious sects was investigated by Lo Sciuto and Hartley (1963). In this study, groups of Jewish and Catholic subjects were shown words or pictures in a binocular rivalry situation, one eye being shown a word or symbol readily identifiable as pertaining to the

Catholic faith. For example, a picture of a Star of David might be paired with a Rosary. It was found that members of each religious sect reported seeing the words and symbols of his own sects signficantly more often than the words and symbols of the other sect.

Perception of aggression in a binocular rivalry situation was first investigated by Toch and Schulte (1961). One eye was tachistoscopically presented with a violent scene, while the other eye was simultaneously presented with a nonviolent picture of similar shape and occupying roughly the same area of the visual field. The subjects in this experiment included a group with three years of "Police Administration" training, a match group of liberal arts students, and a group just entering the police training program. The group with police training experience reported seeing significantly more violent pictures than did either of the other two groups. Evidently, their training had sensitized them to the perception of violence in the ambigious situation of binocular rivalry.

Using the same set of pictures studied by Toch and Schulte (1961), Shelley and Toch (1962) attempted to predict prison adjustment by binocular rivalry. All inmates at a minimum security prison were tested for their perception of violence. From the scores, the experimenters chose two groups. The first group had scored one standard deviation above the prison mean in their reported perception of violence. They were matched for age and race with an equal number of prisoners who scored as low perceivers of violence. In addition, subjective ratings of two groups for "prison adjustment" by the staff did not differ. Nevertheless, more of the high perceivers of violence

subsequently broke prison rules, acted out aggressively, or attempted to escape. In fact, seven of the eleven high perceivers versus one of the eleven low perceivers acted in this manner, necessitating their transfer to a higher security prison.

Berg and Toch (1964) showed prison inmates pictures of drives, but not pure aggression. Examples of the drives used include sex and hunger. Each pair of pictures presented contained a blatant as well as a socialized form of expression of the drive in question. With the sex drive pictures, for example, a rape scene in a park was paired with a scene of a couple making love in a bedroom. Two groups of prisoners were chosen based upon past histories as well as scores on certain scales of the MMPI. The "Impulsive" group, those who exhibited a tendency to behave in a blatant, non-socialized manner, consisted of inmates who had demonstrated markedly anti-social behavior as well as having scored two standard deviations above the mean on the Pd scale of the MMPI and within one standard deviation of the mean on the Hs, D, and Hy scales. The "Neurotic" group, those who had exhibited a tendency to be over-controlled in their behaviors, consisted of inmates who had an absence of disciplinary violations, as well as having achieved scores two standard deviations above the mean on at least two of the neurotic scales. If there was a lower score on one of the neurotic scales, a Pd score of less than one standard deviation above the mean was also required. The groups were matched for ethnic background, age, intelligence, and length of time served on current sentence. All subjects were shown the set of violent-nonviolent slides and it was found that the Impulsive group reported significantly more of the pictures of

the nonsocialized expression of the drive than did the Neurotic group. That is, the binocular rivalry situation was able to separate the two groups of subjects reliably.

Moore (1966) investigated the relationship between reported perception of violence and the sex and age of the perceiver. Equal groups of male and female school children in the third, fifth, seventh, ninth, and eleventh grades were tested as well as a group of male and female college freshman. As predicted, males consistently reported more violence than did females, and for both sexes as age increased, so did the number of violent percepts. This increase was a linear one for both males and females.

The ability of the binocular rivalry situation to discriminate high aggressive versus low aggressive subjects as judged by the Buss-Durkee Aggression Inventory (Buss and Durkee, 1957) and by peer ratings was demonstrated by Fremouw (1973). Four groups were established: high aggressive male, low aggressive male, high aggressive female, and low aggressive female. The results indicated that high aggressive subjects reported significantly more violence than low aggressive subjects and while there was a trend for males to perceive more violence than females, this trend was slight and not significant.

In summary, the motivation for previous research grew out of the demonstration that in an ambiguous situation, the familiar will be reported over the unfamiliar. This concept was extended to cultural and religious differences. The technique was subsequently utilized to predict aggressive, antisocial behavior, and to demonstrate the effects of socialization on the reported perception of violence. The aim of the

present study was to extend the investigation of the effects of socialization on the reported perception of violence. It investigated whether or not males and females would react similarly to the presentation of violence in each sex via the binocular rivalry situation.

Because previous research in binocular rivalry demonstrated that the familiar is more frequently perceived and reported than the unfamiliar, it would be expected that pictures viewed as inconsistent with one's sex-role could conceivably be viewed differently than pictures consistent with one's sex-role. That is perception of activities deemed not in keeping with one's sex-role may be misinterpreted or not perceived at all, deferring to a more sex-appropriate activity. This could lead to differences in the overall perception of violence in male versus female pictures by male versus female subjects.

The basic assumption underlying these potential differences is that they will be mediated by social conditioning or learning which has typically led males to "see themselves" as aggressive, whereas females "see themselves" as submissive. Bandura and Walters (1963) offer evidence that males and females learn different sex-roles. With sex-roles comes the lesson that certain behaviors are proper and appropriate to each sex. Physical aggression is considered characteristically male and appropriate for males (Sears, 1951). This sex-typing of behavior is an important influence on a child throughout his schooling (Mussen and Distler, 1959; Mussen, 1961). "Empathic" learning, a vicarious response-contingency process espoused by Mowrer (1960), allows the child additional ways to learn such behaviors. Society rewards such sex-appropriate behaviors and thus thoroughly conditions the

child in the behavior of his or her appropriate role (Bandura, Ross, and Ross, 1963).

The methodology of the present study was based primarily on that used in Moore (1966). A significant methodological departure from Moore (1966) and other studies such as Toch and Schulte (1961) and Shelley and Toch (1962) was that of using sets of pictures of both males and females as stimuli to test the possible differences in perception and reporting of violence by male and female subjects. Some adjustments were made in the stimuli to assure consistency with the sex-role of males and females in the tachistoscopic presentation of the pictures. In such cases, however, the general outline and size of the corresponding male and female pictures were kept as close as possible to avoid disrupting the equality of the stimuli across sex. For example, the corresponding female picture for a farmer with a plow was a woman with a vacuum cleaner. This allowed for an almost totally unambiguous identification of the sex of the stimulus via sex-role. The use of long versus short hair, skirts versus trousers, and other sex-typing cues also helped clarify the sex of the stimulus. It should be noted that these sex-role modifications were necessary only in the case of the nonviolent half of a stimulus pair. That is to say, all violent pictures were the same in all respects for both sexes.

The following hypotheses were tested:

1. When presented with a pair of pictures, one violent, one nonviolent, in a binocular rivalry situation, males will report more violence in both male and female pictures than will females.

2. Males will report more violence when viewing the male violent/nonviolent pairs than when they view the female violent/nonviolent pairs. That is, males will be less likely to interpret violence in the female pairs than in the male pairs.

Hypothesis one is largely a simple restatement of a relationship shown by Moore (1966). But, though both male and female stimuli are used in this study, it was hypothesized that males will report more violence overall whether the pictures are of males or females, since it is acceptable for males to do so. The end result of this is that the total perceived violence scores of males will be significantly greater than those of females.

Hypothesis two is based upon the assumption that males are socialized to consider their sex as more aggressive and more violent than females (e.g., Bandura and Walters, 1964; Sears, 1951). This would tend to create differential reporting of perceived violence. Fewer violent percepts would therefore be reported for the female picture pairs than for the male picture pairs.

No specific hypothesis, corresponding to the hypothesis for males, was formulated for differences within the female subject group. The present study is exploratory in this regard, since no previous study has approached this question as the present study did. The behavioral tendencies operating within the female ought to be very similar to those operating in the male. However, these same tendencies that allow a fairly specific prediction in the case of male subjects, can give rise to three predictions in female subjects. First, the effects on females could be the same as those on males. That is, more violence would be reported when viewing male pictures than when viewing female pictures.

The reason for this would be identical to that assumed to be responsible in the male subjects, that being, that by socialization, males are considered more violent and aggressive, whereas females are considered the submissive, nonviolent sex. A second possible predition is that the level of violence reported by females for male and female pictures might not differ, but both be at a level approximating the amount of violence reported by males viewing male pictures (a sex of subject x sex of stimulus interaction). This might be so because while females are socialized to see themselves as the submissive sex, their formative years are spent in intimate association with other females. Such experience could result in females learning that aggression is found in the female as well. (This is not to say that males do not encounter such models of female aggression. The "empathic" learning theory of Mowrer (1960) suggests that they do. One's mother, if no one else, might provide such a model). The argument here is that females, through usual childhood play and a greater likelihood of having more female friends while growing up, are provided with a greater exposure to incidents of female aggression and violence. This increases the habit strength of such behavior in a female's behavioral repertoire. These childhood and growing-up experiences make the recognition of female violence more familiar and, therefore, according to the principles of previous research in binocular rivalry, more likely to be reported. The third possible outcome for females is that the conflicting messages described above might result in uncertainty and indecision in the experimental situation, leading to a noncommital, low-risk kind of responding. That is, the reports of male and female violence would

approximate each other in frequency, but be at a low level, for example, at the level of males reporting female violence.

Given these three possible outcomes, all predictable from basically the same factors, no hypothesis was advanced for female subjects. This study was considered to be an exploration of the responses of female subjects when faced with an equal amount of male and female violence.

In any study dealing with binocular rivalry, the question of the effects of eye dominance must be considered. By its very nature, binocular rivalry places one eye in competition with the other. A choice must be made at each presentation as to which image will be attended to, so the question becomes whether the nondominant eye would ever predominate so that the image presented to it would be reported over the image presented to the dominant eye. The literature on eye dominance is, in the main, quite dated. There have not been any comprehensive studies in this area since the late 1930s. The research of that time, for example, Warren and Clark (1938), Clark (1936), and Buxton and Crosland (1937), indicated that when stimuli were presented for a long enough time to permit scanning of the stimulus, the image presented to the dominant eye will not systematically be "preferred" over the image presented to the nondominant eye. However, to protect against any possibility of demonstrated, consistent preference in a subject becoming a factor, all previous binocular rivalry studies, as well as the present study, have reversed all pairs on a second presentation so that each eye sees every picture. Therefore, each pair is actually presented twice to every subject, with the second presentation being the reverse of the first.

An additional precaution was taken in this study in that the stimuli were cross-matched by sex. That is, the male and corresponding female pairs were presented so that the violent pictures of both pairs were not presented to the same eye in the same half of the total series. If this additional counterbalancing measure had not been used, the subject might have been predisposed to report the scene shown the same eye in the female pair as was reported in male pair, and vice versa. Thus these procedures controlled for any contaminating effects of eye dominance.

Any experiment that uses the verbal reports of subjects as its dependent measure must also control as much as possible for problems with subjects' reliability. The experimenter can never be absolutely certain that the subject reports what he has actually seen, but there are precautions which can be taken to eliminate the unreliable subject and minimize his effect on the data. In the present study, two pairs of "lie detector" pictures were used, one pair with male stimuli and one pair with female stimuli (cf. Moore, 1966). For these presentations, the same obviously violent scene was shown to both eyes. A subject who was carelessly reporting his perceptions, not paying close attention, or trying to "fake good" might be expected to give some nonviolent kind of response to such pairs. A criterion for a subject's inclusion in this study was that he or she report <u>both</u> "lie detector" pairs accurately. Failure to do so resulted in exclusion from the analysis.

In addition to the "lie detector" procedure, the present study used another technique to assess a subject's reliability. A picture checklist was administered to the subject after the presentation of all

picture pairs. This checklist contained all of the test pictures as well as four pictures that were never shown. There was a 11-point scale under each picture. On the scale under each picture, the subject was to show his degree of certainty that he did or did not see that particular picture. The scale ranged from "No" (certain did not see picture) through "Don't know" (unsure) to "Yes" (certain did see picture). There also were intermediate points provided, allowing the subject to express varying degrees of certainty.

METHOD

Subjects. All subjects were students in the Introductory Psychology course at Virginia Polytechnic Institute and State University. Participation was voluntary, although such participation earned extra credit in the course. The total sample for the experiment was 60--30 males and 30 females. Eight female and eight male subjects were eliminated from the study, due to their failure to identify one or both "lie detector" pairs accurately. Additional subjects were tested to replace those eliminated.

Apparatus. The apparatus used in this study was a model V-0565 tachistoscope manufactured by Scientific Prototypes, Inc. Cross-polariod filters were installed to set up the binocular rivalry situation, by blocking out the image originating in one field while allowing the image from the other field to proceed unaffected to one eye, and producing the opposite effect in the other eye. Field luminance was 1.0 log ft. L in each field. The tachistoscope's timer was set such that all stimulus

presentations were of 0.5 seconds duration.

The pictures used in this study were based on those used by Moore (1966) and Toch and Schulte (1961). A complete display of the pictures is included in Appendix A. The pictures were presented in pairs, a violent picture matched with a nonviolent picture, closely matched for size, outline, and the amount and part of the visual field covered. The male pictures were as follows:

A. Mailman - man with a knife in his back.
B. Man with suitcase - hanged man.
C. Farmer pushing a plow - man with a gun standing over a dead man.
D. Man at a microphone - man shooting himself in the head.
E. Man at a drill press - man stabbing another man.
F. Man showing another man a picture - man shooting another man.

The female picture pairs were like the male pictures in most cases. However, the "sex-roles" were changed in some of the non-violent pictures in order to be socially more appropriate to the sex of the stimulus. The female picture pairs were as follows:

G. Woman with a large purse - woman with a knife in her back.
H. Woman with suitcase - hanged woman.
I. Woman pushing a vacuum cleaner - woman with a gun standing over a dead woman.
J. Woman at a microphone - woman shooting herself in the head.
K. Woman at a sewing machine - woman stabbing another woman.
L. Woman showing another woman a picture - woman shooting another woman.

Once again, it should be noted that all of the violent pictures were of the same content. This alleviated the problem of equating the amount of violence in a male versus a corresponding female picture,

since the man or woman was performing the same act.

Procedure. All subjects saw each of the pairs twice. The second presentation of each pair was the reverse of the first presentation. That is, the picture presented to the right eye on the first presentation was presented to the left eye on the second presentation and vice versa, the result being that each eye was presented with every picture. This procedure, as well as the counterbalancing technique described in the Introduction, controlled for any dominant eye effects. Also, the entire series was randomized differently for each subject to control for possible serial effects. As was also mentioned previously, "lie detector" pictures were used to assess subject reliability. These two pairs were placed at least five presentations from each other in the series and in a random position which was different for each subject.

Subjects had been previously informed that if they wore glasses they sould bring them to the experiment. At the time of the experiment, each subject was asked if he or she wore or needed glasses. If so, they were instructed to wear them. It was not necessary to dismiss any subject for reason of forgetting needed corrective lenses.

The experimenter read the following instructions to the subject:

> When I tell you, look into the eyepiece with both your eyes open. You will see a picture of a man or a woman doing something. This picture will appear for only a very short time, so look carefully. After you see the picture, look away from the eyepiece and tell me what you can about the picture. Just describe what you see.

Occasionally, a subject would report not being able to discern what he or she saw. In such cases, the subject was instructed again to pay close attention and was given a second trial with the same pair.

This, however, was quite rare, happening only three time during the entire course of the study. If the subject's response did not contain a reference to stimulus sex, he or she was asked if the picture was of a man or woman. This too happened rarely, no more than a dozen times, and seemed to be simply an unintentional omission, since, upon questioning, the subject always identified the sex of the stimulus correctly.

Subjects' responses were tape recorded and scored according to the system used by Moore (1966), as follows:

Points	Description
2	Clearly the violent picture is described by the subject, for example, "A man with a knife in his back."
1	Fusion is described with a sensible percept including violent content (a compromise response), for example, "A mailman with a knife in his back."
1	Clearly the violent picture is described, but not in violent terms (a compromise response), for example, "A man with arms out in front and a stick out in the back."
0	Clearly the nonviolent picture is described by the subject, for example, "A mailman with a pouch, and a letter in his hand."
0	Fusion is described with a sensible or incomprehensible percept, but not including a violent content, for example, "A man running with his arms going in all directions."

Each response was scored individually. Therefore, each pair of pictures was scored twice since each pair of pictures was presented

twice. The theoretical range of a subject's total score was from 0 (violence never reported) to 48 (violent picture accurately described on every trial). A reported male violence score and a reported female violence score were obtained for each subject. When added together, these two scores resulted in the subject's total reported violence score.

Three judges blindly scored all responses independently according to the above system. The judges had at their disposal the responses, the scoring system, and a display of the stimulus pictures in the format shown in Appendix A.

RESULTS

The design of this study was a 2x2 (sex of subject x sex of stimulus) factorial design with both between and within groups measures. The datum analyzed was the median violence score of the three judges. This decision was made a priori in order to keep possibly extreme scores of a judge in some cases from dramatically influencing the data, as would be possible if the means were used. The only problem that might arise with this system of using the median is that of low interjudge agreement. This, however, did not happen. Correlation coefficients were calculated from the analysis of variance of total scores by sex according to the system of Ebel (1951). The intraclass correlation among the judges for the total violence scores was .99 for both male and female subjects. These correlations are very comparable to the correlation of .98 obtained by Moore (1966), who used the same scoring system.

An analysis of variance was performed on the subjects' violence scores. The total violence scores ranged from 1 to 27. The summary table of the analysis of variance is shown in Table 1. The analysis indicated that there was no difference overall between males and females in reports of violence. There was a significant difference in the perceived violence with regard to sex of stimulus, however. The male stimuli elicited significantly more violent responses than did the female stimuli, $F(1,58) = 7.75$, $p<.01$. The Sex of subject x Sex of stimulus interaction was not significant ($p>.61$). The analysis of variance summary table for the data can be found in Table 1, while the means and standard deviations of the data are in Table 2. A graphical presentation of the data, presented in Figure 1, clearly shows the effects obtained in this study.

An analysis of variance was also performed on the results of the checklist that was administered to the subjects after the presentation of the stimuli. The ratings were scored by the experimenter from 0 (for a "No" rating) to 10 (for a "Yes" rating). The results of this analysis paralleled those of the subjects' verbal reports. There was no difference in overall checklist reporting of seeing the violent stimuli by males versus females. However, male violent stimuli elicited reliably higher ratings of certainty (that the stimulus was seen) than did female violent stimuli, $F(1,58) = 8.98$, $p<.01$. Again, there was no significant interaction. The analysis of variance summary table for these results is contained in Table 3. Means and standard deviations of the ratings are shown in Table 4.

Table 1. Analysis of Variance Summary Table Violence Scores

Source	S.S.	M.S.	df	F	p
Sex of Subject	1.633	1.633	1	0.126	0.724
Sex of Stimulus	24.300	24.300	1	7.750	0.007
Interaction	0.833	0.833	1	0.266	0.614

Table 2. Means and Standard Deviations of Violence Scores

		Sex of Stimulus: M	Sex of Stimulus: F
Sex of Subject	M	7.47 ±2.54	6.40 ±2.15
	F	7.53 ±3.37	6.73 ±3.10

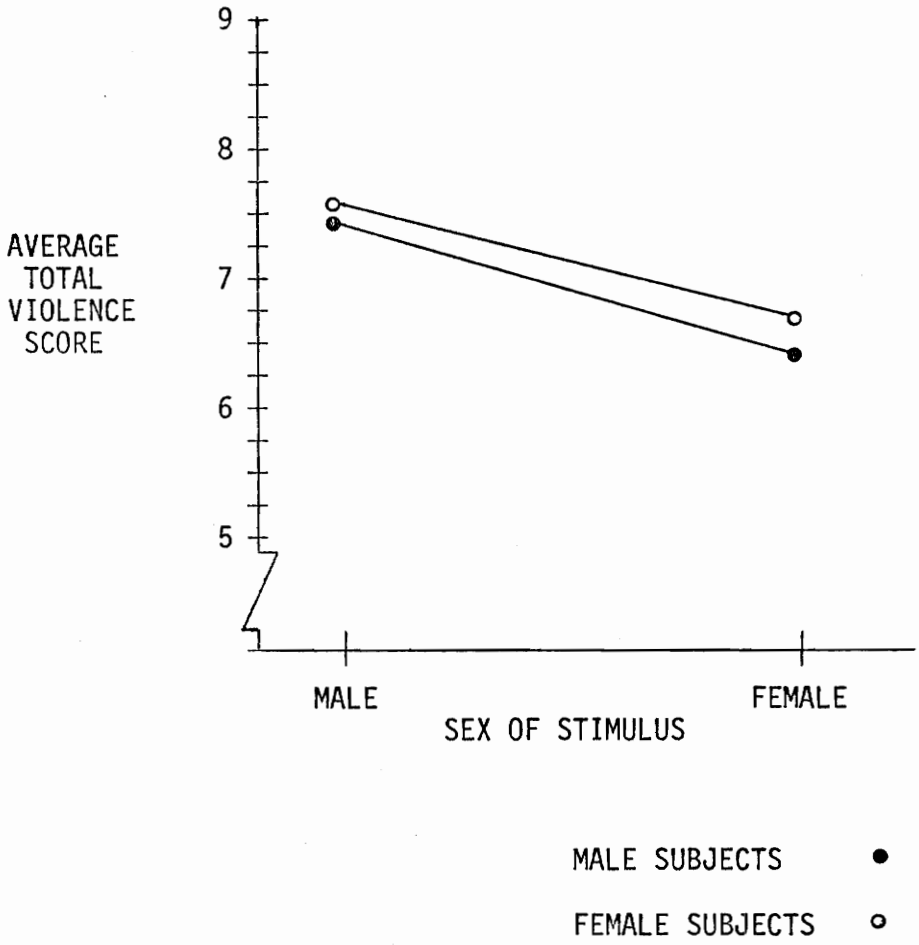

FIGURE 1. AVERAGE TOTAL VIOLENCE SCORES
BY SEX OF STIMULUS

Table 3. Analysis of Variance Summary Table for Figure Checklist

Source	S.S.	M.S.	df	F	p
Sex of Subject	72.966	72.966	1	0.606	.554
Sex of Stimulus	424.862	424.862	1	8.978	.004
Interaction	72.966	72.966	1	1.542	.217

Table 4. Means and Standard Deviations of Figure Checklist

		Sex of Stimulus: M	Sex of Stimulus: F
Sex of Subject	M	43.55 ±9.46	41.31 ±8.70
	F	46.72 ±9.02	41.31 ±8.77

DISCUSSION

The present study was conducted to assess the effect of sex of the target stimulus upon the perception of violent themes in a binocular rivalry situation. The results indicated that males and females did not differ significantly in their total perception of violence. That is, there was no main effect for sex of subject. The failure of the results to support this effect might not be considered too surprising is light of the work of Fremouw (1973). In that study, no differences between the sexes in total perception of violence was found. In earlier research however, Moore (1966) had found a reliable difference for sex of subject at all age groups tested. A look at the subject populations themselves may offer a possible reason for the difference in the results of studies spaced a decade apart.

The subject population of the present study is living in a time of blunt expressions of violence in the media, especially television. Inputs, overwhelmingly visual, such as these impart a familiarity with witnessing violence to both sexes. The perception of violence becomes an everyday occurrence. The situation in this study was similar to what the subject, male or female, sees each day on television, and resembled what the subject sees as happening in real life. Also, the subject sees males physically aggressing much more frequently than females on the television screen. Since the familiar is reported more often than the unfamiliar in binocular rivalry, it would probably be no surprise to find an effect for sex of stimulus coupled with the lack of a significant interaction. This was the case in the present study.

Stated simply, the subject sees what he/she expects to see in the sitation. Cues of violence in male pictures elicit significantly more violent responses than those very same cues when occurring in female pictures. The fact that females in this study performed the same as males indicates that the "personal experience" component of females regarding violence in females suggested earlier and assumed to be in direct conflict with societal dictates, is very weak or non-existent, as it did not cause females to differ from males in their performance.

It is, however, impossible to assert positively that the results observed are due only to present-day television violence. The results may be a long-term, historical effect determined by the entire socialization process, though it cannot be refuted that a television explanation is more parsimonious. Television is nontheless a representative of the socialization process. Perhaps one way to resolve this conflict would be to test groups of middle-aged subjects to both male and female pictures. If present-day influences are the cause, there should be identical performances with that of the younger subjects. If it is the long-term effects of a complete socialization process, those subjects, being brought up in a more "traditional" manner, should exhibit an effect similar to the results obtained in Moore (1966).

It should also be noted that in our society, physical aggression is deemed more appropriate to males, whereas females display more "prosocial" forms of aggression, such as verbal aggression, rebukes, and reprimands (Johnson, 1951; Bandura and Walters, 1963). The aggression portrayed in this study, as well as in many other binocular rivalry

studies, is physical in nature. By the studies mentioned immediately above, such a situation favors the male stimuli. Therefore, the violent component of the male pictures would be reported more often, simply because such activity is deemed more appropriate for performance by males. This issue has been addressed by Fremouw (1973), who asserted that such a disposition is expressed in the subject's previous behavior. Thus, the subjects' observation of more physical violence in males (and more verbal, prosocial forms of aggression in females) could lead to an increased reporting of physical violence in male pictures. In addition, it seems that if Fremouw's statement is true, both males and females observe and/or express approximately equal amounts of violence, since equal amounts of violence were reported.

A question frequently considered in binocular rivalry studies of this type is whether the phenomenon encountered is a perceptual or a response bias. If it is perceptual, what is reported is what is seen. If it is a response bias, what is reported is filtered by a judgment of desireability, acceptability, or whatever, so that what is seen is recognized, but may not be reported. In the perceptual case, when violence is not reported, it honestly has not been seen. In the response case, a non-report of violence does not imply that violence was not seen, just that it was not reported. Fremouw (1973) addressed this question and concluded that steps have not yet been taken to separate the two. Davis (1959) used a binocular rivalry paradigm to show that words of high emotional content are suppressed in favor of a competing low emotional content word. Taking a perceptual defense viewpoint, Davis concluded that there may be some form of psychological gating mechanism

involved in these perceptual operations, similar to a defense mechanism like denial. The existence of perceptual gating mechanisms in infra-human species has been well documented (for example, Hernandez-Peon, Scherrer, and Jouvet, 1956). This may be a useful way of conceptualizing the process occurring in binocular rivalry.

In the present study, the checklist of pictures, described earlier and used to assess subject reliability, was also used to attempt to settle the perceptual-response question. Analysis of the responses on the checklist, reported earlier, seemed to indicate that whether perceptual bias or response bias occurred in this study, the bias was consistent both during the presentation and the completion of the checklist. This analysis does not fully reveal which bias took place in this study, and therefore the answer to the perception-response question remains unsettled. Perhaps a better way to resolve the question would be to take some physiological measure at the moment of exposure to the stimulus pair as well as recording the response. In this way, the GSR, pupil dilation, choice reaction time, or whatever was used, might be correlated with the response given to ascertain just how much of the response is actually what the subject sees in the picture and how much is the result of some reflection or filtering process. In the final analysis, though, this may be unanswerable question, or certainly seems so at this time.

The positioning of the "lie detector" pairs randomly within the presentation sequence poses a possible methodological problem because it is unknown exactly how much an accurate recognition of one of these pairs affected the subject's sensitivity to seeing violent scenes in

subsequent pairs. Moore (1966) also used a "lie detector" presentation, but it was always placed last in the sequence. This could be done with ease, since with only male stimuli, only one such pair was needed. Placing this study's "lie detector" pairs one after another at the end of the sequence might possibly cue the subject who accurately recognized the first pair to recognize the other more easily. Randomly placing the "lie detector" pairs, and at the same time keeping them no fewer than five presentations apart, is, it seems, the most practical solution. This would effectively randomize any effect of the "lie detector" pairs. However, if both sexes of stimuli were to be used equally and assessed equally, the two pairs of "lie detectors" must be used, and a random placement seems to be the best way to introduce them into the presentation.

Using both sexes of stimuli and having two "lie detector" pairs introduces a question unencountered in previous research. In Moore (1966), for example, any subject not accurately reporting the lie pair was discarded. In the present study, in order for a subject to be included in the analysis, he or she had to have identified both pairs accurately. That means that a subject who identified only one of the two pairs was excluded, just as was a subject who failed to identify either pair. Upon completion of the analysis, the scores of these "one-miss" subjects were examined. The data of these subjects seemed to follow the pattern of the subjects included in the analysis. Also, there were not many "one-miss" subjects, six male and four female. Therefore, it seems that if such subjects were included in the analysis, this would not have altered the overall results. Future research using the two

"lie-detector" pairs technique to assess subject truthfulness could evidently ease the criterion for inclusion in the analysis to the accurate identification of either one of the two pairs.

The outcome of this study support the recommendation of Fremouw (1973) that binocular rivalry might have appeal as a projective technique. It was probable that in this study the results of sex-role socialization (or orientation) were applied to the interpretation of the task at hand. The subject seems to take this ambiguous situation of binocular rivalry and, since an interpretation of the situation is required, uses what is familiar in the context to "project" meaning into it. This is the case in any projective technique. While overall a sex may react a certain way in a situation individual differences in each subject make the technique useful. Fremouw (1973) found that high versus low violence scores separated previously-determined high aggressive males from low aggressive males. Habits and personality traits have been deemed responsible for the results of other binocular rivalry studies (e.g., Toch and Schulte, 1961; Shelley and Toch, 1962). This exploration of binocular rivalry's use as a projective technique seems to be a valuable next step in its development. In a sense, binocular rivalry situations can be considered a rapid-paced TAT. In binocular rivalry, an ambiguous picture (made from two pictures) is presented rapidly and the subject is asked to describe it, to "tell a story" about it. The response can then be scored for certain characteristics. For this reason, it is recommended that future research follow this line and investigate the possibility of binocular rivalry as a possible projective technique. If aggression can be assessed by this technique, then other traits may be

assessible as well. However, there are some disadvantages to the wide-spread use of binocular rivalry as a projective technique. There is equipment involved besides the stimuli themselves, though this equipment need not be so elaborate as a laboratory tachistoscope. A modified Engel stereoscope (Engel, 1956) would serve quite well. The main advantage is that of a saving of time. A binocular rivalry "test" can be administered in 10 or 15 minutes is easily scored, and is fairly trait-specific in its application. That is to say that such a test would assess a certain trait or tendency minimizing other factors.

Recent research which may have an influence on all studies involving sex-role is that of Bem (1974). Her psychological androgyny notion would be of interest in determining differential patterns of responding to binocular rivalry in subjects with strong same-sex identification versus subjects possessing some degree of sex-role flexibility. Perhaps binocular rivalry could become another method of determinig relative degrees of psychological androgyny, such determination depending on the response pattern of a particular subject.

The results of this study indicate that, overall, males and females tend to report violence significantly more often when viewing male pictures than when viewing female pictures. This is probably due to the socialization process, and to the fact that physical aggression is deemed more appropriate in males than in females in our society. The total violence scores attained by each sex did not differ significantly. This result is different from that of a decade ago, but is similar to more recent research. Examination of the results of binocular rivalry literature in general, and more recent studies in particular, leads to

speculation that binocular rivalry may be used as a projective technique, and/or bear on the notion of psychological androgyny and it is recommended that future research purse these possibilities.

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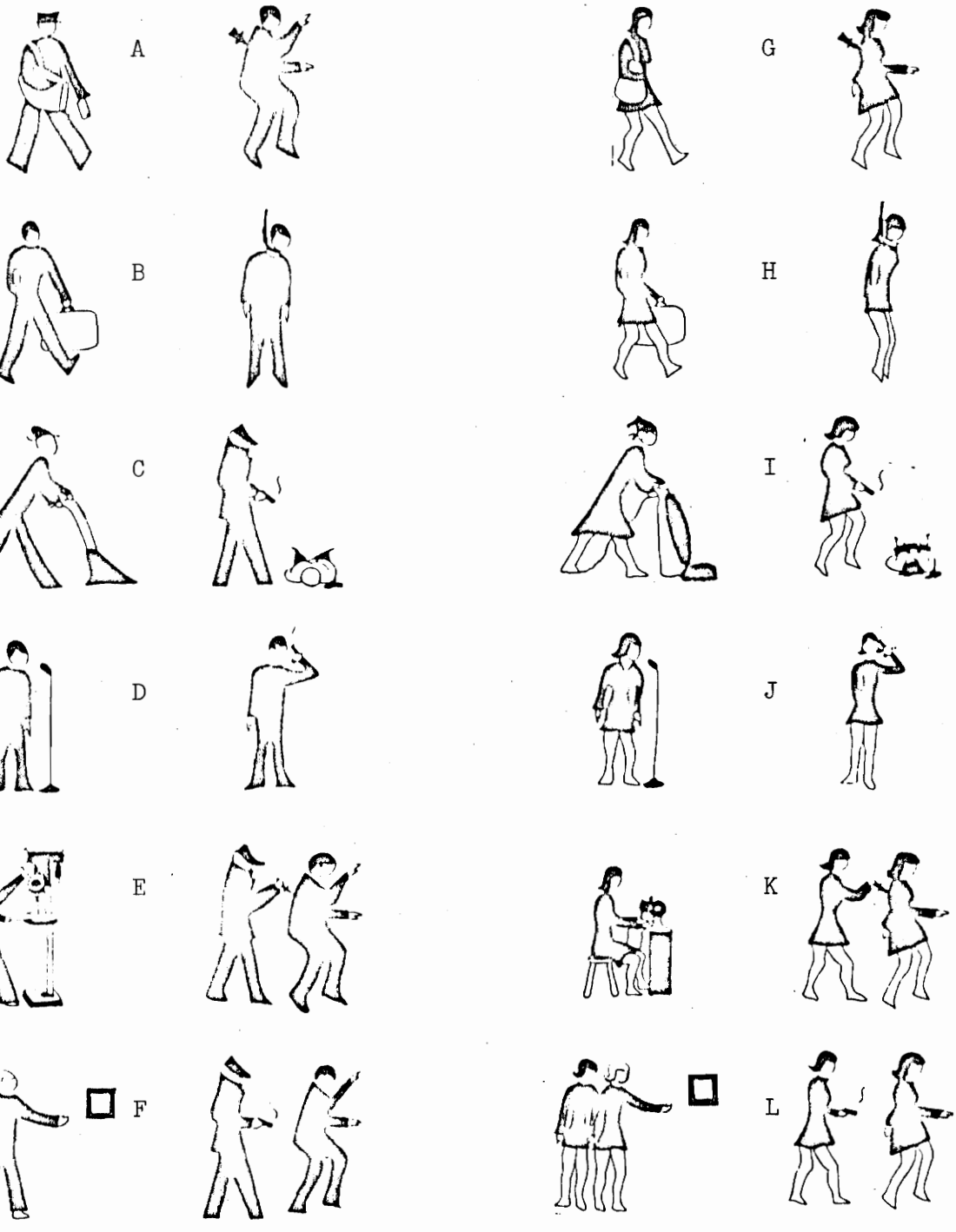
APPENDIX A

Stimulus Figures Used in This Study



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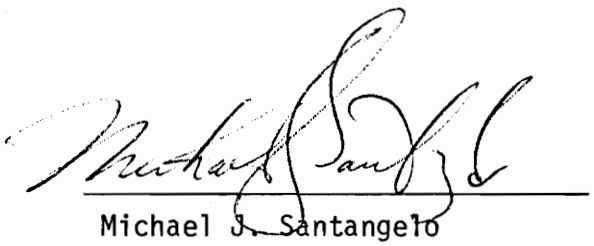

Michael J. Santangelo

THE EFFECT OF SEX OF STIMULUS ON PERCEPTION OF VIOLENT THEMES IN A BINOCULAR RIVALRY SITUATION

by

Michael Joseph Santangelo

(ABSTRACT)

This study investigated the effect of sex of stimulus upon perception of violent themes in binocular rivalry by males and females.

In binocular rivalry, two non-identical stimuli are presented to the subject, one to each eye. The subject then reports his perception of the stimuli shown. Previous research has shown that the familiar is reported more often than the unfamiliar, and that use of violent stimuli elicit more violent responses in certain classes of subject. This study introduced female stimuli in the same number, violent and non-violent, as male stimuli to assess any effect such a modification might have.

The results showed that in both males and females, male stimuli were interpreted violently more often then female stimuli. This seems to be the result of the visual inputs that the subjects are confronted with in real life. Males are portrayed as more physically violent than females, and the results are a reflection of what the subjects expected to see, that is, what was more familiar. The topics of subject reliability,

eye dominance, and perceptual versus response bias were also addressed. It was suggested that binocular rivalry research be conducted in the direction of its use as a projective technique and its relation to such concepts as psychological androgyny.