

EMOTIONAL AROUSAL AND SEXUAL ATTRACTION

by

Joseph A. Istvan

B. A., Ohio University, 1972

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Psychology

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1977

Approved by:


Major Professor

LD
2668
T4
1977
I85
C.2
Document

CONTENTS

Introduction	1
Method	13
Results.	19
Discussion	34
Reference Notes.	40
References	41
Appendix A	46
Appendix B	54
Table 1. Mean ratings on feelings scale one.	22
Table 2. Main effects and interactions for arousal source x low or high arousal analysis of variance.	29
Table 3. Group means for perceived sexuality and likability items.	31

One of the more productive areas of research within social psychology over the past decade and a half has been associated with the construct of interpersonal attraction. The efforts of investigators in this field have been summarized in a number of books (Berscheid & Walster, 1969; Byrne, 1971; Huston, 1974) and review articles (Aronson, 1969; Byrne & Griffitt, 1973). The dominant theoretical approach in much of this research has been one or another version of a reinforcement model (e.g., Byrne & Clore, 1970; Lott & Lott, 1972). In the most general sense, a reinforcement model of attraction predicts that one will be attracted to an individual who has been associated with a positive (rewarding) experience, while one will tend to dislike a person associated with a negative (punishing) experience. Attraction, in this case, has been most often conceptualized as "liking" for a specified target person, and operationalized in terms of verbal measures of likability. A considerable amount of supportive research for a reinforcement formulation of attraction is cited in articles by Clore and Byrne (1974) and Lott and Lott (1974).

Recently, however, Berscheid and Walster (1974) have claimed that attraction that is specifically heterosexual in character could prove to be an exception to a reinforcement model of attraction. To these investigators, heterosexual attraction seems to differ in a number of respects from the sort of attraction captured by the reinforcement approach. It often seems to be the case, for instance, that attraction for a member of the opposite sex arises in the

face of negative, as well as positive experiences. Frustration, rejection, and jealousy would all seem to clearly be negative experiences, yet all often seem to coexist with heterosexual attraction. Further, despite the continuing exchange of reinforcement in a heterosexual relationship, the intensity of mutual attraction almost inevitably wanes with the passage of time. Conversely, intense heterosexual attraction often develops after only the most limited interaction with a member of the opposite sex (the so-called "love at first sight" phenomenon).

Such anecdotal evidence suggested to Berscheid and Walster that the antecedents of heterosexual attraction might be different from the sort of attraction studied by reinforcement theorists. Indeed, with a few notable exceptions (e.g., Byrne, Ervin, & Lamberth, 1970; Allgeier & Byrne, 1973; Griffitt, May, & Veitch, 1974), attraction between individuals of opposite sexes has largely been ignored in research stemming from reinforcement formulations. To reconcile the seemingly disparate set of phenomena associated with heterosexual attraction, Berscheid and Walster invoked Schacter's two-factor theory of emotion (Schacter & Singer, 1962; Schacter, 1964). Schacter has argued that to experience any emotional state an individual must be a) aroused physiologically; and b) label this arousal in terms of available situational cues. Thus, given any general state of arousal, the particular emotion an individual experiences will depend upon his cognitions concerning the

source of his arousal. One of Schacter's later studies (Nisbett & Schacter, 1966) will serve as an example of this approach. In this experiment, all subjects were initially led to believe that they were to receive a series of electric shocks as a test of "skin sensitivity". Prior to administering the electric shocks, half of the subjects were given a pill which was described as producing symptoms similar to those of fear (a pounding heart and increased respiration rate), while the remaining subjects were given a pill which was described as producing symptoms irrelevant to fear (numb feet and a slight headache). In both cases, this pill was actually a placebo. Each subject was then given a series of painful electric shocks, which he was free to terminate at any point if his discomfort became intolerable. Consistent with the experimenter's expectations, those individuals who believed that the pill was actually responsible for their fear symptoms not only reported feeling less fearful, but were able to tolerate a greater number of shocks than those subjects who were provided with irrelevant symptoms.

Berscheid and Walster's application of Schacter's two-factor theory of emotion to heterosexual attraction is straightforward. Given that an individual is aroused physiologically, he will attribute his arousal to heterosexual attraction if situational cues indicate that this is the appropriate label for his feelings. If either the state of arousal itself ceases, or the individual can no longer reasonably attribute his arousal to a member of the opposite

sex, attraction should also wane correspondingly. It would appear that some of the phenomena associated with heterosexual attraction (which, by virtue of being linked with arousal, Berscheid and Walster refer to as passionate attraction) are explained more easily by this model than within the framework of reinforcement theory. For instance, the transient nature of many heterosexual relationships seems quite reasonable if one considers that, through the process of habituation, the arousal originally associated with attraction may decay, and with it, attraction itself. Similarly, both positive and negative emotional experiences could be expected to produce attraction, if circumstances seem to indicate that this is the appropriate label for one's feelings.

Support for these notions, however, remains largely anecdotal, and anecdotal evidence can hardly be a firm base of support for any theory. No experiment has yet been performed to directly test these propositions concerning the antecedents of heterosexual attraction.

However, a study by Jacobs, Berscheid and Walster (1971) does provide somewhat tangential support for the two-factor theory of heterosexual attraction. Jacobs, et. al. initially lowered the self-esteem of one group of male subjects by providing them with an unfavorable evaluation of their personality adjustment, while the members of a second group received a positive personality report. Following this manipulation of self-esteem, all subjects received an

a female confederate who was either warm and accepting, ambivalent, or cold and rejecting. Surprisingly, the members of the lowered self-esteem group (who should have been feeling both aroused and fairly unpleasant) were found to be just as attracted to the warm and accepting confederate as subjects in the raised self-esteem condition, while the ambivalent or cold and rejecting confederate was liked less by lowered self-esteem individuals. Thus, in response to a receptive confederate, both low and high self-esteem individuals might have found attraction to be an appropriate label for their feelings. When the confederate was either ambivalent or cold and rejecting however, this label might have seemed implausible, and attraction responses seemed to correspond to the positivity or negativity of an individual's feelings, which would, of course, be more in accord with reinforcement theory. However, there was no control group in this study, nor was it reported that any measures of arousal were obtained from subjects, so it remains unclear whether or not arousal was indeed related to attraction toward the confederate.

Studies by Brehm, Gatz, Geothals, McCrommon and Ward (Note 1) and Dutton and Aron (1974) do provide more direct support for Berscheid and Walster's notions concerning heterosexual attraction. In the Brehm et. al study, one group of male subjects were led to believe that they would receive electric shocks, while the subjects in a second group were initially threatened with shock, but told later that they were actually in a no-shock control group. The

members of the actual control group were not informed that the experiment involved receiving electric shock. All subjects were subsequently introduced to a female confederate, and asked whether they were attracted to her. The members of the group led to believe they would be shocked, and the group threatened with shock, each liked the confederate more than the members of the control group. Presumably, the arousal the two experimental groups experienced in this study (fear or anxiety) was relabeled as attraction for the confederate.

In a similar study, Dutton and Aron (1974) also offered results that provide some support for Berscheid and Walster's hypotheses. These experimenters, however, have approached heterosexual attraction from a somewhat different theoretical perspective. Drawing on Barclay's work (1969, 1970) demonstrating a link between aggression and sexual arousal, these authors hypothesized that strong emotions are simply relabeled as sexual attraction if these emotions are experienced in the presence of an acceptable sexual object. A person may clearly know that the source of his arousal is not this particular individual, yet through some form of automatic transference process, emotional experiences will generally facilitate sexual attraction. In contrast, Berscheid and Walster's two-factor theory places more of an emphasis on the cognitions an individual has concerning the source of his arousal. In Dutton and Aron's study, one group of male subjects was initially told that they were to receive painful

shocks in a learning task, while a second group expected much weaker shocks described as a "mere tingle". A female co-participant (actually an experimental confederate) was seated alongside the subject while the experimenter explained the details of the experiment. Once the experimenter had concluded, the confederate and subject were separated and the subject was requested to provide information on his present feelings concerning his co-participant in the study. In accord with the original hypotheses of these investigators, subjects in the strong shock condition were more attracted to the confederate than subjects in the weak shock condition. The authors acknowledged, however, that this result provides support not only for a general link between emotional arousal and heterosexual attraction, but also for a cognitive labeling approach of the sort discussed by Berscheid and Walster, since subjects might have misattributed their arousal to the presence of the attractive female confederate.

As mentioned previously, these results would seem to contradict reinforcement theories of attraction in general, and a great deal of research related to the reinforcement-affect model (Byrne & Clore, 1970) in particular. Cast in the language of classical conditioning, this model asserts that an individual's effective response to any particular reinforcing or punishing event can influence evaluative responses toward individuals or objects associated with that event. If an individual's affective response is primarily positive, evaluations of any associated discriminable stimulus

will also tend to be positive, while a negative affective response should evoke unfavorable evaluations.

Griffitt (1970), for instance, manipulated the ambient effective temperature in an experimental chamber, producing either comfortable (67.5) or unpleasantly hot (90.6) temperature conditions. In response to the simulated attitude questionnaire of an anonymous same-sex stranger, subjects in the hot condition provided less favorable evaluations than subjects in the comfortable temperature condition. In a later study, Griffitt and Veitch (1971) found that an unpleasantly crowded experimental chamber also had a deleterious effect on interpersonal evaluative responses. Of further interest, however, is the fact that in both of these studies, the positivity or negativity of an individual's affective response was significantly related to judgements of the stranger.

Gouaux (1971) used films to induce either "elation" or "depression" in female subjects. As in Griffitt's studies, all subjects then examined the questionnaire responses of an anonymous same-sex stranger and were asked to make a series of evaluations regarding this individual. Attraction toward the stranger was found to be related not only to the original experimental manipulation, but also to the subject's mood state, as independently assessed in a post-experimental questionnaire.

In a more recent experiment, Griffitt, May, and Veitch (1974) examined the relationship between individual differ-

ences in subjects' responses to erotic stimuli and subsequent approach behaviors to an opposite-sex target person. These investigators discovered that those individuals whose affective response to sexual arousal was primarily negative chose to sit closer to a same-sex confederate rather than an opposite-sex confederate, while individuals whose response to sexual stimulation was primarily positive were found to look more at the opposite-sex confederate than the same-sex confederate. These latter subjects also evaluated the opposite-sex confederate more favorably than the same-sex confederate, while subjects whose affective response was more equivocal or clearly negative responded similarly to both the same and opposite-sex confederates.

Review of further research within this paradigm would be largely redundant, since the results from study to study provide consistent support for the general propositions of the reinforcement-affect model. That is, individuals who feel affectively positive tend to positively evaluate persons associated with this experience, while individuals who feel affectively negative respond negatively to such persons. For a number of reasons, however, these studies do not really present evidence contrary to Berscheid and Walster's two-factor theory of heterosexual attraction. First, and most obviously, same-sex, rather than opposite-sex individuals were evaluated in the majority of these studies. (The Griffitt, May, and Veitch (1974) study does, however, remain an exception.) Second, it is not clear whether attributions

(or misattributions) of arousal were related to subjects' evaluative responses. It will be recalled that Berscheid and Walster have maintained that arousal will enhance attraction for a particular opposite-sex target person only in those situations where a subject actually does attribute his arousal to this individual. If this attributional shift does not occur, the relationship between arousal and attraction no longer falls within the predictive realm of the two-factor theory. Finally, measures of arousal independent of an individual's affective state were not obtained from subjects. In the Griffitt, et. al. study, for example, it remains possible that individuals whose response to sexual stimulation was primarily positive were also more aroused than subjects whose response was primarily negative. Thus, these results would not contradict Berscheid and Walster's two-factor theory if higher levels of arousal, in an absolute sense, were associated with greater attraction for the opposite-sex confederate.

Experiments generated by reinforcement-affect notions, therefore, do not generally fulfill the criteria necessary to provide an adequate test of the two-factor theory of heterosexual attraction. In the present experiment, then, an attempt was made to provide a point of contact between these contrasting conceptualizations of sexual attraction processes. Specifically, subjects were either sexually

aroused*, negatively aroused, or exposed to nonarousing stimuli in the presence of an attractive opposite-sex confederate. Further, a manipulation was introduced which favored the attribution of arousal to the original arousal stimuli in one condition (arousal-informed), while subjects in a second condition were free to attribute their arousal to the confederate (arousal-uninformed). In consideration of Berscheid and Walster's theory, it was expected that 1) arousal-uninformed subjects would be more attracted to the confederate than arousal-informed; and 2) both sexually aroused and negatively aroused individuals would be more attracted to the confederate than nonaroused control subjects. Dutton and Aron's findings would suggest that even in those situations where misattribution of arousal would be unlikely to occur, a negatively arousing experience may enhance subsequent attraction responses. Thus, even in the negative arousal-informed group, it seems possible that arousal would generally facilitate attraction.

Additionally, it seems conceivable that sexual experience could bear some relationship to an individual's readiness to label any state of arousal as sexual attraction. Epstein

*Although previous studies, such as Griffitt, et. al. (1974), have found that sexual arousal may be associated with a considerable degree of negative affect, most of these studies have employed stimuli depicting auto- and homosexual activities. The arousal stimuli used in the present experiment depicted only conventional heterosexual activities, and most sexually aroused subjects described their emotional experience solely in positive terms.

and Smith (1957) found that frequency of orgasm in males was positively related to "sex appeal" ratings of photographically depicted women. Individuals who have acquired a great deal of sexual experience, and presumably found these experiences enjoyable, might be more likely to label their arousal sexual attraction when such states of arousal have led to positively reinforcing experiences in the past. Since Griffitt (1975) has demonstrated that sex experience is positively related to responsiveness to erotic stimuli, it seems likely that there will be overall differences in arousal between experienced and inexperienced subjects in the sexual arousal condition. As a consequence, it would not be clear whether differences found between experienced and inexperienced subjects on the major dependent measures are due to differential labeling of arousal or are simply a result of differences in the magnitude of arousal. Therefore, the variable of sex experience would be of greater interest in the negative arousal condition, where it seems unlikely a relationship between sex experience and arousal would exist.

METHOD

Subjects: The subjects for the experiment were sixty male introductory psychology students at Kansas State University. All subjects were run individually by a male experimenter.

Procedure: Upon arrival for the experimental session, each subject was informed regarding the nature of the stimulus materials to which he was to be exposed, and given the opportunity to withdraw with full credit. In the course of the experiment, only one potential subject declined to participate. Once the subject did agree to serve in the experiment, it was explained that "Since the second subject who signed up for this session isn't here yet, you can wait in the experimental room and I'll wait outside to see if the other subject shows up." The experimenter then escorted the subject to the experimental room and departed, re-entering the room in a few minutes with the second subject.

This 'second subject' was actually an attractive female confederate. The confederate was instructed not to display any overt response to the experimental materials, nor to initiate conversation with the subject. She would, however, respond if asked a direct question by the subject. In the course of the experiment, only a few subjects in each experimental condition made any comments to the confederate regarding the experimental materials, or asked the confederate a direct question.

The subject and confederate were seated at adjoining desks facing a projection screen. The desks were separated by a low partition that prevented the subject and confederate from seeing each other's questionnaire responses, yet allowed the confederate to remain in the subject's view. After the confederate had taken her seat, the experimenter asked the subjects if they wouldn't mind working on a "two-person problem-solving task" following exposure to the slides since the experiment would be so brief. All subjects agreed to this request. At this point, the subject and confederate were given the set of rating scales for the slides. To reassure the subjects that their responses would remain confidential, they were instructed not to place their names anywhere on the questionnaire materials, and to deposit their completed questionnaires in a sealed ballot box directly in front of them. After answering any further questions concerning the procedure, the experimenter went to an adjoining room and projected the series of slides through a one-way mirror into the experimental room. The stimuli employed in the experiment were either slides of accident victims (negative arousal), of a heterosexual couple engaged in a variety of sexual activities (sexual arousal), or arrangements of geometric figures (a nonaroused control condition). The reliability of the effects produced by these slides was established in a pilot study prior to this experiment. Each slide was shown for a period of ten seconds followed by a twenty second interval during which the slide was rated.

In the two arousal conditions, the slides were rated on a scale ranging from 0 ("not arousing") to 5 ("highly arousing"). In the control condition, slides were rated on a 0-5 scale ranging from "not interesting" to "highly interesting". Following the presentation of the 19 slides in each condition, all subjects provided self-ratings on a feelings scale consisting of such dimensions as "disgusted", "affectionate" and "anxious". Subjects were required to indicate the extent to which they were experiencing each feeling on a seven-point scale ranging from "not at all" to "very". The slide rating scale and complete feelings scale are included in Appendix A.

Following the completion of the feelings scale, the experimenter mentioned to the subjects in the arousal-informed condition that:

If you were aroused by these slides, you can probably expect to feel some lingering arousal for awhile. Most of the people who have participated in this experiment so far have said they still feel somewhat aroused several minutes after they've seen the slides.

Subjects in the arousal-uninformed condition were not provided any information regarding any possible persisting arousal.

The experimenter then told the subjects that before working on the problem-solving task together, he'd like them to fill out a second set of questionnaires privately. At this point, the confederate was escorted to a second experimental room. The experimenter returned in a few seconds,

gave the subject the second questionnaire booklet, and explained:

When we've had people evaluate materials of this type in the past, we've usually had just a single subject rating these slides at one time. However, in a particular experiment last semester, we had two people evaluating a set of slides during the same experimental session. At that time, we were doing this simply because an experiment can be finished twice as fast if two people participate at the same time. What we found, however, is that the ratings people gave of the slides were a bit different than we'd come to expect on the basis of our previous research. Now, there were also a few other things in this experiment that were different from most of our other experiments, so we aren't sure if having a second person present somehow affects each subject's ratings or if one of these other differences was somehow responsible for our unexpected results. So, this semester we're doing the same experiment again and taking a closer look at these differences to try to figure out which one might have produced our unusual results. In this second set of questionnaires, we're trying to find out whether or not the immediate impressions subjects had of each other were in some way related to slide evaluations. You might find it difficult to

make some of the judgements required in these questionnaires, but I'd like you to try to answer everything.

The questionnaires provided to the subject included the Interpersonal Judgment Scale (Byrne, 1971), a "personality impressions" scale, and a second feelings scale. The Interpersonal Judgment Scale contains six seven-point scales on which the confederate was evaluated in terms of intelligence, morality, adjustment, how much the confederate was liked, the confederate's desirability as a work partner, and the confederate's desirability as a dating partner. The subject's ratings on the fourth and fifth items were summed to provide an overall measure of liking. The personality impressions scale includes 36 items presented in a semantic differential format. A previous factor analysis of this scale (Griffitt & Istvan, Note 2) found that a subject's impressions of an opposite-sex target person primarily fall along a dimension of perceived sexuality (e.g., sexy-not sexy, inhibited-uninhibited) and a dimension of likability (e.g., unpleasant-pleasant, nice-nasty). Items loading on the sexuality factor are indicated by a 1 in the left margin of the scale, while items loading on the likability factor are indicated by a 2 in the margin. A total factor score was computed for each of these sets of items by summing the subject's ratings on each of the indicated scales. The Interpersonal Judgment Scale and personality impressions scale are presented in Appendix B.

Following the completion of these two scales, the experimenter returned to the room and told the subject that:

A friend has asked me to help him with a survey he's been conducting by giving the male subjects in my experiment a brief questionnaire to fill out.

I should tell you that this questionnaire does ask for some personal information concerning certain sexual experiences you may or may not have had.

You aren't required to fill it out in order to get credit for the experiment. I can assure you, however, that if you do decide to complete this questionnaire, the information that you provide will remain anonymous.

All subjects agreed to complete this last scale. This final questionnaire (also included in Appendix B) included the Heterosexual Behavior Inventory (Bentler, 1968) and additional items relating to the subject's current heterosexual involvements. (These latter items served primarily as a screening process to avoid including excessive numbers of married subjects.) After completing this questionnaire, the subject was debriefed and questioned concerning his awareness of the experimental deceptions.

RESULTS

To determine the effectiveness of the arousal manipulation, all items on the first feelings scale were compared in a 3 (arousal condition) x 2 (informed-uninformed) analysis of variance. As had been expected, mean scores for the "aroused" item were higher in both the sexual arousal condition ($X=4.20$) and negative arousal condition ($X=4.00$) than in the control condition ($X=1.90$), and the main effect for the arousal factor was highly significant, $F(2,54)=14.95$, $p<.001$. Additionally, subjects in the two experimental conditions were not found to differ significantly on this item, $t(38)=.41$, ns. A second index of arousal in the experimental conditions is provided by the sum of the individual "not arousing-highly arousing" ratings of the 19 slides in each condition. Subjects in the two experimental conditions did not differ significantly on this measure, $t(38)=.59$, ns. (Since the control slides were rated on an "uninteresting-interesting" dimension, the control group could not be included in this comparison.) Thus, the arousal manipulation was successful in both producing comparable levels of arousal in each experimental condition and a greater degree of arousal in both of these conditions than in the control condition.

It had also been anticipated that individuals in the sexual arousal and negative arousal conditions would display differences in terms of the reported affective quality of their arousal. Some indication of this is provided by the

remaining items on the first feelings scale. A significant main effect for arousal was obtained for eighteen of the twenty-two remaining items, while no main effects for the informed-uninformed factor or arousal condition x informed-uninformed interactions reached conventional levels of statistical significance. (Indeed, there should not have been any significant effects involving this factor, since the first feelings scale was completed before the informed-uninformed manipulation.) A brief inspection of the mean scores for these items would seem to indicate that the overall feelings of subjects in the negative arousal condition were predominantly unfavorable and the response of sexually aroused subjects primarily positive, with control subjects generally expressing indifference. Individuals in the negative arousal condition were, for example, more disgusted ($X=3.65$) than subjects in either the control condition ($X=1.65$) or sexual arousal condition ($X=1.65$). As expected, subjects in this latter condition reported a greater degree of sexual arousal ($X=4.35$) than those in the control ($X=2.10$) or negative arousal ($X=1.05$) conditions. Mean ratings and p levels associated with all significant effects on the first feelings scale are presented in Table 1.

A 3 (arousal condition) x 2 (informed-uninformed) analysis of variance was performed on all Interpersonal Judgment Scale and personality impressions scale items and the three derived scores from these scale (attraction, perceived sexuality, and likability). It will be recalled that support for a general

relationship between emotional arousal and attraction would be obtained by finding that subjects in both experimental conditions were more attracted to the confederate than subjects in the control condition. Additionally, to the extent that this attraction is a function of subjects mis-attributing their arousal to the confederate, individuals in the arousal-uninformed condition should be more attracted to the confederate than those in the arousal-informed condition. However, with one minor exception, the only significant effects obtained were contrary to these hypotheses. On the Interpersonal Judgment Scale, for example, both sexually aroused subjects ($X=5.25$) and control subjects ($X=5.35$) expressed a greater desire to date the confederate than individuals in the negative arousal condition ($X=4.45$), $F(2,54)=3.76$, $p<.05$. For all six items on this scale, plus the attraction score, this was the only effect to reach acceptable levels of statistical significance. On the personality impressions scale, there were significant main effects for arousal condition on tense-relaxed, $F(2,54)=3.90$, $p<.05$, retiring-outgoing, $F(2,54)=4.82$, $p<.05$ and sexually unresponsive, $F(2,54)=3.72$, $p<.05$. Subjects in the sexual arousal condition saw the confederate as more relaxed, outgoing, and sexually responsive, respectively, than subjects in either the control or negative arousal conditions. Individual comparisons failed to reveal any significant differences between the two latter conditions for these three

TABLE 1

Mean Ratings on Feelings Scale One

	Sexual Arousal	Negative Arousal	Control	<u>F</u>
Aroused	4.20	4.00	1.90	14.95**
Pleasant	4.45	1.30	4.10	38.27**
Excited	3.75	2.65	2.30	5.08*
Angry	1.30	2.35	1.40	4.58*
Tense	2.65	3.80	2.25	4.89*
Disgusted	1.65	3.65	2.15	7.97**
Calm	4.10	3.40	5.25	6.06**
Bored	2.45	2.65	4.20	6.89**
Sad	1.60	4.45	1.70	24.80**
Affectionate	4.10	1.85	2.60	18.01**
Emotional	3.00	4.20	2.30	10.88**
Sexually Aroused	4.35	1.05	2.10	32.31**
Warm	4.00	2.55	3.40	4.59*
Bad	2.05	3.55	1.60	8.59**
Nauseated	1.25	2.50	1.35	6.54**
Afraid	1.30	2.90	1.25	11.44**
Curious	4.05	3.75	5.60	5.34**
Depressed	1.35	3.60	1.85	14.30**
Entertained	3.65	1.65	2.85	8.97**

* $p < .05$

** $p < .01$

variables. This pattern of results was maintained for the perceived sexuality factor score, with subjects in the control condition ($X=51.25$) and negative arousal condition ($X=51.35$) regarding the confederate as less sexual than sexually aroused subjects ($X=59.00$), $F(2,54) = 5.02$, $p < .05$. The only remaining significant effect, and the only significant result involving the informed-uninformed factor, was a tendency for arousal-uninformed subjects to see the confederate as more "active" on the "active-passive" dimension of the personality impressions scale than arousal-informed subjects, $F(1,54) = 4.24$, $p < .05$.

Overall, it must be concluded that the results of this analysis fail to support the original experimental hypotheses. Although sexually aroused subjects did indicate greater attraction for the confederate than control subjects for a few of the dependent measures, this finding could offer support for a two-factor theory of heterosexual attraction only if individuals in the negative arousal condition were also more attracted to the confederate than those in the control condition. However, the only significant difference between these two conditions that did appear was actually in the opposite direction - control subjects evaluated the dating desirability of the confederate more favorably than did subjects in the negative arousal condition, $t(38) = 2.79$, $p < .01$. Additionally, the informed-uninformed factor was found to have an effect on only one variable, a result which, considering the large number of dependent measures, certainly

could have occurred by chance.

It remains possible, though, that the informed-uninformed manipulation was unsuccessful in affecting subjects' attributions concerning the source of their arousal. A strict interpretation of Berscheid and Walster's theory would suggest that unless subjects in the arousal-uninformed conditions did misattribute their arousal to the confederate, they should not have been expected to be any more attracted to her than arousal-informed subjects. If, however, this manipulation was successful, it seems reasonable that arousal-uninformed subjects would subsequently feel more positive than arousal-informed subjects, since individuals in this latter condition would have been less likely to have associated their arousal with attraction for the confederate. In this regard, one would expect the largest differences between informed and uninformed subjects in terms of reported feelings to appear in the negative arousal condition, since the response of these individuals to the original slide presentation was highly unfavorable. Some indication of the affective state of informed and uninformed subjects subsequent to the manipulation is offered by their responses to the second feelings scale. An arousal condition x informed-uninformed analysis of variance was performed on this scale, and did reveal that uninformed subjects felt more pleasant, $F(1,54)=5.97$, $p<.05$, and more warm, $F(1,54)=10.22$, $p<.01$, than informed subjects. Additionally, there were significant interaction effects for nervous, $F(2,54)=3.88$, $p<.05$, and

angry; $F(2,54)=3.52$, $p<.05$. Comparisons within the negative arousal condition revealed that uninformed subjects felt both less nervous, $t(18)=1.87$, $p<.05$, one-tailed, and less angry, $t(18)=1.73$, $p<.05$, one-tailed, than informed subjects. However, since no main effects or interactions for such relevant items as affectionate, sexually aroused, or entertained approached significance (all F s 1), it generally can be concluded that the informed-uninformed manipulation had a negligible effect on attributions of arousal.

The two remaining effects for the informed-uninformed factor present a somewhat contradictory picture - uninformed subjects indicated that they felt both more aroused, $F(1,54)=4.19$, $p<.05$ and more calm, $F(1,54)=4.55$, $p<.05$, than informed subjects. With regard to the effect for the aroused item, it seems possible that informed subjects indicated that they were less aroused ($X=3.00$) simply because it was suggested to them that they should feel "somewhat" aroused, while the response of uninformed subjects remained near the midpoint of this scale ($X=3.90$). It should be noted that the second feelings scale was filled out approximately twenty minutes after the arousal manipulation, so it seems the arousing effects of the slides were remarkably persistent. It is not immediately clear why uninformed subjects should have felt more calm than informed subjects, and considering the overall pattern of results, it would perhaps be most reasonable to attribute this effect to Type I error.

The informed-uninformed status of subjects, then, was weakly associated with feelings and almost totally unrelated to evaluations of the confederate. It could be argued, however, that the types of arousal induced in this experiment were too strongly associated with specific physiological cues for individuals to reasonably attribute their arousal to anything but the previous slide presentation. Although the relationship between varieties of arousal and specific autonomic correlates has not been extensively investigated (Fehr & Stern, 1970), the general proposition that arousal will not be misattributed to an extraneous source if the original arousal cues remain clear and distinguishable has received considerable support in the research of Zillman and his co-workers (Zillman, Katcher, & Milavsky, 1972; Cantor, Zillman, & Bryant, 1975; Tannenbaum & Zillman, 1975). In a similar vein, the specific physiological cues associated with either negative arousal or sexual arousal in the present experiment might be less salient to individuals experiencing relatively low levels of this arousal. Thus, among aroused subjects, it might be that only these individuals were able to attribute their arousal to attraction. At higher levels of arousal, the cues associated with arousal might have been too obvious for misattribution to occur. In these circumstances, the most reasonable predictions concerning the effect of arousal on evaluative responses would seem to be provided by the reinforcement-affect model of attraction (Byrne & Clore, 1970). Quite simply, highly aroused subjects

who feel affectively positive should positively evaluate the confederate, while those who feel affectively negative would be expected to negatively evaluate her. Taking both of these factors into account, it would be predicted that low aroused subjects in both the negative and sexual arousal conditions would respond similarly to the confederate, while high aroused subjects in the former condition would be less attracted to her than those in the latter.

To test for this possibility, an overall median split was performed on the summed total arousal score for all subjects in the experimental conditions. The resulting group frequencies were: negative arousal-low=9; negative arousal-high=11; sexual arousal-low=10; sexual arousal-high=10. All ratings of the confederate were re-analyzed within a 2 (low or high arousal) x 2 (negative or sexual arousal) analysis of variance. (Because of the general lack of effects for the informed-uninformed manipulation, the analysis was collapsed across this factor.) All significant effects obtained in this analysis and the corresponding F values and p levels are presented in Table 2. With respect to the main effects for arousal source, sexually aroused subjects felt the confederate was a more desirable dating partner, and perceived her as more relaxed, outgoing, liberal, high, uninhibited, and sexually responsive than subjects in the negative arousal condition. The confederate was also given a higher rating on the summed factor score of perceived sexuality by sexually aroused subjects. Of further interest

are the interactions between arousal source and level of arousal. High aroused subjects in the sexual arousal condition felt the confederate was a more desirable work partner ($t(19)=2.33$, $p<.05$, one-tailed) and dating partner ($t(19)=3.98$, $p<.05$, one-tailed), and saw her as more smooth ($t(19)=2.40$, $p<.05$, one-tailed) and seductive ($t(19)=3.30$, $p<.01$, one-tailed) than did high aroused subjects in the negative arousal condition. Additionally, high sex aroused subjects evaluated the confederate more favorably on the summed attraction measure ($t(19)=2.31$, $p<.05$, one-tailed) and perceived her as more sexual ($t(19)=4.71$, $p<.01$, one-tailed) than high negatively aroused subjects. All corresponding comparisons between low aroused subjects in the negative and sexual arousal conditions were nonsignificant.

For high aroused subjects, the results of this analysis would seem quite consistent with reinforcement-affect formulations of attraction. To actually show that the obtained effects for low aroused subjects could be an exception to reinforcement-affect notions, however, it would be necessary to demonstrate that these individuals were more attracted to the confederate than nonaroused control subjects. Unfortunately, most of the group differences for individual measures were too small to reveal clearly significant effects in a series of comparisons between each low aroused group and subjects in the control condition. What remained impressive, however, was the consistency of these group differences rather than their magnitude. With regard to the perceived

TABLE 2

Main Effects and Interactions for Arousal Source
x Low or High Arousal Analysis of Variance

<u>Effect</u>	<u>Variable</u>	<u>F</u>
Arousal Source x		
Low-High Arousal	IJS-Working Together	4.83*
Arousal Source	IJS-Dating Desirability	4.22*
Arousal Source x		
Low-High Arousal	IJS-Dating Desirability	6.78*
Arousal Source x		
Low-High Arousal	Attraction Index	6.78*
Arousal Source	Tense-Relaxed	7.59**
Arousal Source	Retiring-Outgoing	9.19**
Arousal Source x		
Low-High Arousal	Rough-Smooth	5.98*
Arousal Source	Liberal-Conservative	4.21*
Arousal Source	Low-High	4.66*
Arousal Source	Inhibited-Uninhibited	5.31*
Arousal Source x		
Low-High Arousal	Seductive-Nonseductive	7.02*
Arousal Source	Sexually Responsive-	5.53*
	Sexually Unresponsive	
Arousal Source	Perceived Sexuality	8.65**
Arousal Source x		
Low-High Arousal	Perceived Sexuality	4.83*

* $p < .05$

** $p < .01$

sexuality factor, for instance, the mean response of low aroused subjects in the negative arousal condition was greater than that of control subjects for 12 of the 13 items constituting this measure. A Wilcoxon signed-rank test (Hays, 1973) performed on this set of differences was highly significant ($Z=2.97$, $p<.001$). The corresponding comparison between low aroused subjects in the sexual arousal condition and control subjects for the perceived sexuality factor was also significant ($Z=3.18$, $p<.005$). Further, for each of the eight items contributing to the likability factor, the ratings of low aroused subjects in the negative arousal and sexual arousal conditions were also consistently greater than those of control subjects ($Z=2.52$, $p<.01$, $Z=1.89$, $p<.05$, respectively). Signed-rank comparisons between the two low aroused groups for each of these factors were nonsignificant. Additionally, high aroused subjects in the sexual arousal condition saw the confederate as more sexual ($Z=1.71$, $p<.05$) and likable ($Z=2.45$, $p<.01$) than low aroused subjects in this condition. Within the negative arousal condition, high aroused subjects perceived the confederate as less sexual ($Z=3.11$, $p<.005$) and likable ($Z=2.38$, $p<.01$) than low aroused subjects. All group means for sexuality and likability factor items are included in Table 3.

What these results seem to suggest then, is that the relationship between arousal and attraction is linear if an individual is sexually aroused and curvilinear if an individual is experiencing negative arousal. A trend analysis performed

TABLE 3

Group Means for Perceived Sexuality

and Likability Items

Perceived Sexuality

	<u>Control</u>	<u>Low Sex Arousal</u>	<u>Low Neg. Arousal</u>	<u>High Sex Arousal</u>	<u>High Neg. Arousal</u>
<u>Careful-</u> <u>Careless</u>	2.90	3.20	2.78	3.40	3.09
<u>Dull-Exciting</u>	4.10	5.10	4.89	4.80	4.27
<u>Stimulating-</u> <u>Unstimulating</u>	4.35	4.50	4.77	4.90	4.18
<u>Active-Passive</u>	3.95	4.40	4.22	4.50	3.72
<u>Modest-</u> <u>Immodest</u>	3.35	3.70	3.55	3.80	2.81
<u>Tense-</u> <u>Relaxed</u>	4.30	5.00	4.33	5.00	3.36
<u>Sexy-Not Sexy</u>	4.45	4.50	5.11	5.30	4.45
<u>Retiring-</u> <u>Outgoing</u>	3.90	4.80	4.11	5.00	3.63
<u>Willing-</u> <u>Unwilling</u>	4.45	5.10	4.56	4.70	4.27
<u>Liberal-</u> <u>Conservative</u>	3.95	4.80	4.33	4.50	3.18
<u>Inhibited-</u> <u>Uninhibited</u>	3.70	4.30	4.00	4.60	3.27
<u>Seductive-</u> <u>Nonseductive</u>	3.90	4.30	4.55	5.20	3.72
<u>Sexually</u> <u>Responsive-</u> <u>Sexually</u> <u>Unresponsive</u>	4.20	4.80	4.66	5.40	3.81
Mean Overall Summed Score	51.25	57.50	55.67	60.50	47.81

TABLE 3 (CONT'D)

	<u>Likability</u>				
	<u>Control</u>	<u>Low Sex Arousal</u>	<u>Low Neg. Arousal</u>	<u>High Sex Arousal</u>	<u>High Neg. Arousal</u>
<u>Happy-Sad</u>	4.85	5.10	5.00	5.50	4.45
<u>Unpleasant- Pleasant</u>	5.40	5.55	5.78	6.00	5.27
<u>Dislikable- Likable</u>	5.65	5.60	5.78	5.90	5.36
<u>Adjusted- Maladjusted</u>	5.35	5.60	5.44	5.60	5.45
<u>Unworthy- Worthy</u>	5.20	5.60	5.67	6.00	5.63
<u>Nice-Nasty</u>	5.60	5.50	5.89	6.20	5.63
<u>Weak-Strong</u>	4.05	4.80	4.56	5.00	4.36
<u>Intelligent- Unintelligent</u>	5.15	5.20	5.22	5.50	5.09
Mean Overall Summed Score	40.55	42.90	43.89	45.70	41.27

on the perceived sexuality factor for the control, low sexually aroused, and high sexually aroused groups did reveal a significant linear component, $F(1,37)=6.31$, $p<.05$, while the linear trend for the likability factor was marginally significant, $F(1,37)=3.34$, $p<.09$. For the control, low, and high aroused subjects in the negative arousal condition, the quadratic trend for both of these variables did not reach acceptable levels of significance (perceived sexuality, $F(1,37)=3.47$, $p<.08$, likability, $F(1,37)=3.23$, $p<.09$). Thus, the results of a conventional analysis of variance do not support this hypothesis as strongly as the nonparametric contrasts.

Finally, because there were relationships between the experimental manipulations and sex experience, it was felt these data were of questionable utility. This variable, therefore, was dropped from all further analyses.

DISCUSSION

In terms of the original experimental hypotheses, the findings of this study would seem to offer very little support for Berscheid and Walster's two-factor theory of heterosexual attraction. Overall, uninformed subjects were no more attracted to the confederate than informed subjects. Furthermore, the results for the arousal factor would appear to be more consistent with reinforcement-affect notions - both sexually aroused and nonaroused control subjects desired to date the confederate more than negatively aroused subjects, while sexually aroused subjects perceived the confederate as being more sexual than did nonaroused and negatively aroused subjects.

However, any conclusions based on these results must be tampered by consideration of the fact that the informed-uninformed manipulation seemed to be largely ineffective. It cannot unequivocally be stated, then, that arousal-uninformed subjects would not have been more attracted to the confederate than arousal-informed subjects if the situational cues favoring attribution of arousal to this source had been more compelling. Even in the absence of the sort of supportive information provided arousal-informed subjects, it might have seemed so clear to arousal-uninformed subjects that the source of their arousal was actually the previous slide presentation, that attribution of arousal to the confederate seemed an unreasonable alternative. Further, sexual arousal

and the form of negative arousal induced in this experiment might be too closely linked to specific physiological cues for misattribution of the actual source of arousal to occur. In regard to negative arousal, it might seem logical that feelings of relatively intense disgust or nausea would not be labeled attraction. Sexual arousal, though, would seem to clearly be the sort of state that one might attribute to heterosexual attraction. If sexually aroused, but not negatively aroused individuals, did misattribute their arousal to the confederate, there should have been significant arousal x informed-uninformed interactions on evaluations of the confederate. However, no significant interaction effects appeared.

A somewhat different pattern of results is revealed when the confederate evaluations are examined in terms of individual differences in the subjects' indicated level of arousal. It becomes apparent that the tendency for sexually aroused subjects to perceive the confederate as more sexual and evaluate her dating desirability more favorably than did negatively aroused subjects is largely a result of high aroused subjects in each of these conditions responding differentially to the confederate. Low aroused subjects in each of these conditions, in contrast, responded similarly with respect to the confederate's dating desirability and sexuality. What is of particular interest, however, is the manner in which these latter individuals evaluated the confederate in comparison to subjects in the control condition.

It would be expected, if sexual attraction was a simple linear function of the positivity or negativity of subjects' feelings, that low aroused subjects in the negative arousal condition would tend to be less attracted to the confederate than control subjects, while low aroused subjects in the sexual arousal condition would tend to be more attracted to her than those in the control condition. With regard to the former comparison, however, the differences that did appear were actually in the opposite direction - low aroused subjects in the negative arousal condition tended to regard the confederate as both more likable and sexual than subjects in the control condition. As anticipated, low sexually aroused subjects also saw the confederate as more likable and sexual than did control subjects. Conclusions based on these results must be somewhat tentative, since these group differences were significant only in a nonparametric comparison of mean evaluative responses. What is suggested, though, is that the results obtained with low aroused subjects do offer qualified support for the two-factor theory. As mentioned previously, at higher levels of arousal it might have seemed clear to subjects that the actual source of their arousal was the previous slide presentation, and not the confederate, because the physiological cues associated with arousal remained apparent. When such immediately apparent cues no longer link a state of arousal to its original source, however, misattribution to an alternative source might seem more likely to occur.

Thus, low aroused subjects might have reasonably attributed what arousal they were experiencing to the confederate, and correspondingly, been attracted to her. The results obtained in the nonparametric contrasts tend to support this hypothesis. These general notions regarding the misattribution of arousal are outlined in Tannenbaum and Zillman (1975).

These conclusions, of course, might well be limited to the evaluation of females by males and not generalizable to the evaluation of males by females. Berscheid and Walster have suggested, in fact, that females might be less likely than males to label any given emotional state as sexual attraction. To the extent that a double standard regarding sexual conduct still exists, a woman has comparatively more to lose by acting upon an emotional state she has labeled sexual attraction than a male in the same set of circumstances. Thus, females might choose a more socially acceptable label for their emotional arousal than sexual attraction.

Overall, the findings of this experiment would seem to be in more complete accord with the reinforcement-affect model of attraction than with Berscheid and Walster's two-factor theory. Among sexually aroused subjects, evaluations of the confederate, particularly along sexual dimensions, tended to be enhanced in contrast to those made by either negatively aroused or nonaroused control subjects. The obtained results for sexual arousal on evaluative responses to a physically present confederate have not been obtained in any previous study. In a similar experiment, Griffitt,

May, and Veitch (1974) failed to obtain such effects, but a number of differences between these two studies favored the present experiment. First, the arousal stimuli employed in this experiment depicted only conventional heterosexual activities, while Griffitt, et. al. used stimuli that included auto- and homosexual acts. It would seem logical that the affective response of subjects in the Griffitt, et. al. study would have been somewhat more negative than that of the subjects in this study. Second, the confederate evaluations in this study were more clearly relevant to sexual behaviors and/or perceptions of sexuality than those in the Griffitt, et. al. study. Finally, the time span between the arousal manipulation and the completion of the evaluative ratings of the confederate likely was longer in the Griffitt, et. al. study, since the subject administered a bogus intelligence test for several minutes following the presentation of the slides. Thus, by the time these subjects completed the confederate evaluations, they might no longer have been sexually aroused. There were no comparable intervening activities in the present study.

In relation to these findings, the results obtained by Brehm, et. al. (1970) and Dutton and Aron (1974) remain somewhat difficult to explain. It will be recalled that in these two studies subjects experiencing what should have been relatively intense negative arousal were found to be more attracted to an opposite-sex confederate than nonaroused control subjects, while in the present experiment, suggestive

support for such a relationship was obtained only at low levels of reported arousal. Two interpretations of these results seem possible. It might simply be true that, in terms of indicated arousal, subjects who were attracted to the confederate in the latter two studies were no more aroused than the low aroused subjects in the present experiment. Some support for this interpretation is offered by a measure of reported anxiety included in the Dutton and Aron study. On a five-point scale (where the mean equals three), subjects who anticipated receiving strong electric shock reported an overall mean anxiety rating of 3.12. If one can consider the "aroused" item from the first feelings scale in the present study to be a comparable measure, the response of both low sexually aroused and low negatively aroused subjects was not grossly different. On a seven-point scale, the mean responses of the individuals in these groups were 3.50 and 3.33, respectively. Thus, the responses of the subjects in the Dutton and Aron study were slightly above the midpoint on a scale of arousal, while the subjects in the present experiment were slightly below the midpoint on a scale of arousal. There was no reported measure of arousal in the Brehm, et. al. study. The second possibility is that the form of arousal induced in these two experiments (fear or anxiety) might represent a more diffuse arousal state than either sexual arousal or the particular form of negative arousal evoked by the sight of accident victims. As such, it might have been easier to misattribute this arousal state to attraction.

REFERENCE NOTES

1. Brehm, J. W., Gatz, M., Geothals, G., McCrommon, J.,
& Ward, L. Psychological arousal and interpersonal
attraction. Mimeo. Available from authors, 1970.
2. Griffitt, W., & Istvan, J. Sex experience and attrac-
tion. Manuscript in preparation, 1977.

REFERENCES

- Allgeier, A. R., & Byrne, D. Attraction toward the opposite sex as a determinant of physical proximity. Journal of Social Psychology, 1973, 90, 213-219.
- Aronson, E. Some antecedents of interpersonal attraction. In W. J. Arnold & D. Levine (Eds.), Nebraska symposium on motivation. Lincoln, Nebraska: University of Nebraska Press, 1969.
- Barclay, A. M. The effect of hostility on physiological and fantasy responses. Journal of Personality, 1969, 37, 651-667.
- Barclay, A. M. The effect of female aggressiveness on aggressive and sexual fantasies. Journal of Projective Techniques and Personality Assessment, 1970, 34, 19-26.
- Bentler, P. M. Heterosexual behavior assessment - Males. Behavior Research and Therapy, 1968, 6, 21-25.
- Berscheid, E., & Walster, E. Interpersonal attraction. Reading, Mass.: Addison-Wesley, 1969.
- Berscheid, E., & Walster, E. A little bit about love. In T. L. Huston (Ed.), Foundations of interpersonal attraction. New York: Academic Press, 1974.
- Byrne, D. The attraction paradigm. New York: Academic Press, 1971.

Byrne, D., & Clore, G. L. A reinforcement model of evaluative responses. Personality: An International Journal, 1970, 2, 103-128.

Byrne, D., Ervin, C. R., & Lamberth, J. Continuity between the experimental study of attraction and real-life computer dating. Journal of Personality and Social Psychology, 1970, 16, 157-165.

Byrne, D., & Griffitt, W. Interpersonal attraction. Annual Review of Psychology, 1973, 24, 317-336.

Cantor, J. R., Zillman, D., & Bryant, J. Enhancement of experienced sexual arousal in response to erotic stimuli through misattribution of unrelated residual excitation. Journal of Personality and Social Psychology, 1975, 32, 69-75.

Clore, G. L., & Byrne, D. A reinforcement-affect model of attraction. In T. L. Huston (Ed.), Foundations of interpersonal attraction, New York: Academic Press, 1974.

Dutton, D. G., & Aron, A. P. Some evidence for heightened sexual attraction under conditions of high anxiety. Journal of Personality and Social Psychology, 1974, 30, 510-517.

Epstein, S., & Smith, R. Thematic apperception, Rorschach content, and ratings of sexual attractiveness of women as measures of the sex drive. Journal of Consulting Psychology, 1957, 21, 473-478.

Fehr, F. S., & Stern, J. A. Peripheral physiological variables and emotion: The James-Lange theory revisited. Psychological Bulletin, 1970, 74, 411-424.

Gouaux, C. Induced affective states and interpersonal attraction. Journal of Personality and Social Psychology, 1971, 20, 37-43.

Griffitt, W. Enviornmental effects on interpersonal affective behavior: Ambient effective temperature and attraction. Journal of Personality and Social Psychology, 1970, 15, 240-244.

Griffitt, W. Sexual experience and sexual responsiveness: Sex differences. Archives of Sexual Behavior, 1975, 4, 529-539.

Griffitt, W., & Veitch, R. Hot and crowded: Influences of population density and temperature on interpersonal affective behavior. Journal of Personality and Social Psychology, 1971, 17, 92-98.

Griffitt, W., May, J., & Veitch, R. Sexual stimulation and interpersonal behavior: Heterosexual evaluative responses, visual behavior and physical peoximity. Journal of Personality and Social Psychology, 1974, 30, 367-377.

Hays, W. L. Statistics for psychologists. New York: Holt, Rinehart and Winston, 1973.

Huston, T. L. Foundations of interpersonal attraction.
New York: Academic Press, 1974.

Jacobs, L., Berscheid, E., & Walster, E. Self-esteem and attraction. Journal of Personality and Social Psychology, 1971, 17, 84-91.

Lott, A. J. & Lott, B. E. The power of liking: Consequences of interpersonal attitudes derived from a liberalized view of secondary reinforcement. In L. Berkowitz (Ed.), Advances in experimental social psychology: Vol. 6. New York: Academic Press, 1972.

Nisbett, R. E., & Schacter, S. Cognitive manipulation of pain. Journal of Experimental Social Psychology, 1966, 2, 227-236.

Schacter, S. The interaction of cognitive and physiological determinants of emotional state. In L. Berkowitz (Ed.), Advances in experimental social psychology, Vol. 1. New York: Academic Press, 1964.

Schacter, S., & Singer, J. E. Cognitive, social and physiological determinants of emotional state. Psychological Review, 1962, 69, 379-399.

Tannenbaum, P. T., & Zillman, D. Emotional arousal in the facilitation of aggression through communication. In L. Berkowitz (Ed.), Advances in experimental social psychology: Vol. 8. New York: Academic Press, 1975.

Zillman, D., Katcher, A. H., & Milavsky, B. Excitation transfer from physical exercise to subsequent aggressive behavior. Journal of Experimental Social Psychology, 1972, 8, 247-259.

APPENDIX A

Slide Evaluation Scales

Instructions (1)

You are going to be shown a series of slides depicting various objects. Each slide will be projected for a period of 20 seconds and then the screen will become blank. During the period in which the screen is blank please rate the slide which you have just seen on the corresponding scale which is numbered on the following pages. Look at each slide for the full period (20 sec.) of its exposure - then rate each during the blank screen period, (not while it is being shown).

Your ratings of each slide are to be made on the basis of the degree to which each is interesting to you. For example, if slide number 1 is "highly interesting to you", you should circle "5" on the scale corresponding to slide number 1. If it is "not at all interesting to you" you should circle "0" on the scale. The numbers "1", "2", "3", and "4" should be circled to indicate intermediate degrees of interest.

It is important that your ratings reflect how interesting each slide actually is to you personally and not how interesting you think most people would or should find each. Remember that your name will not appear on any of these materials. Only code numbers are used for book-keeping purposes. So, please be as honest as possible in making your ratings. Do you have any questions?

ITEM	Not Interesting					Highly Interesting
1.....	0	1	2	3	4	5
2.....	0	1	2	3	4	5
3.....	0	1	2	3	4	5
4.....	0	1	2	3	4	5
5.....	0	1	2	3	4	5
6.....	0	1	2	3	4	5
7.....	0	1	2	3	4	5
8.....	0	1	2	3	4	5
9.....	0	1	2	3	4	5
10.....	0	1	2	3	4	5
11.....	0	1	2	3	4	5
12.....	0	1	2	3	4	5
13.....	0	1	2	3	4	5
14.....	0	1	2	3	4	5
15.....	0	1	2	3	4	5
16.....	0	1	2	3	4	5
17.....	0	1	2	3	4	5
18.....	0	1	2	3	4	5
19.....	0	1	2	3	4	5

Age _____ Sex _____ Date _____ Number _____

Instructions (1)

You are going to be shown a series of slides depicting the victims of various physical injuries. Each slide will be projected for a period of 20 seconds and then the screen will become blank. During the period in which the screen is blank please rate the slide which you have just seen on the corresponding scale which is numbered on the following pages. Look at each slide for the full period (20 sec.) of its exposure--then rate each during the blank screen period (not while it is being shown).

Your ratings of each slide are to be made on the basis of the degree to which each is arousing to you. For example, if slide number 1 is "highly arousing to you", you should circle "5" on the scale corresponding to slide number 1. If it is "not at all arousing to you" you should circle "0" on the scale. The numbers "1", "2", "3", and "4" should be circled to indicate intermediate degrees of arousal.

It is important that your ratings reflect how arousing each slide actually is to you personally and not how arousing you think most people would or should find each. Remember that your name will not appear on any of these materials. Only code numbers are used for bookkeeping purposes. So, please be as honest as possible in making your ratings. Do you have any questions?

Instructions (1)

You are going to be shown a series of slides depicting various sexually explicit activities. Each slide will be projected for a period of 20 seconds and then the screen will become blank. During the period in which the screen is blank please rate the slide which you have just seen on the corresponding scale which is numbered on the following pages. Look at each slide for the full period (20 sec.) of its exposure- then rate each during the blank screen period (not while it is being shown).

Your ratings of each slide are to be made on the basis of the degree to which each is arousing to you. For example, if slide number 1 is "highly arousing to you", you should circle "5" on the scale corresponding to slide number 1. If it is "not at all arousing to you" you should circle "0" on the scale. The numbers "1", "2", "3", and "4" should be circled to indicate intermediate degrees of arousal.

It is important that your ratings reflect how arousing each slide actually is to you personally and not how arousing you think most people would or should find each. Remember that your name will not appear on any of these materials. Only code numbers are used for bookkeeping purposes. So, please be as honest as possible in making your ratings. Do you have any questions?

ITEM	Not Arousing					Highly Arousing
1	0	1	2	3	4	5
2.....	0	1	2	3	4	5
3.....	0	1	2	3	4	5
4.....	0	1	2	3	4	5
5.....	0	1	2	3	4	5
6.....	0	1	2	3	4	5
7.....	0	1	2	3	4	5
8.....	0	1	2	3	4	5
9.....	0	1	2	3	4	5
10.....	0	1	2	3	4	5
11.....	0	1	2	3	4	5
12.....	0	1	2	3	4	5
13.....	0	1	2	3	4	5
14.....	0	1	2	3	4	5
15.....	0	1	2	3	4	5
16.....	0	1	2	3	4	5
17.....	0	1	2	3	4	5
18.....	0	1	2	3	4	5
19.....	0	1	2	3	4	5

Age _____ Sex _____ Date _____ Number _____

FEELINGS

On each of the following scales please place a check mark in the space which most nearly describes your feelings at this time.

Aroused

Very _____ Not at all

Pleasant

Very _____ Not at all

Nervous

Very _____ Not at all

Excited

Very _____ Not at all

Angry

Very _____ Not at all

Tense

Very _____ Not at all

Disgusted

Very _____ Not at all

Calm

Very _____ Not at all

Bored

Very _____ Not at all

Defensive

Very _____ Not at all

Embarrassed

Very _____ Not at all

Sad

Very _____ Not at all

- 53 -
Affectionate

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Emotional

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Sexually Aroused

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Warm

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Bad

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Nauseated

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Afraid

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Curious

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Depressed

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Entertained

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

Anxious

Very _____ : _____ : _____ : _____ : _____ : _____ : _____ Not at all

APPENDIX B

Ratings of Co-Participant &
Sex Experience Scale

INSTRUCTIONS(2)

In the course of some of our previous research, we have discovered that what kind of impressions an individual has of his co-participant(s) in an experiment often has some effect on his (or her) reactions in the experiment. We have reason to suspect this might be particularly true when the participants are of mixed sexes. To assist us in assessing this effect, we would appreciate your completion of the following questionnaires. Of course, the other subject(s) in the experiment will never see your responses to these questionnaires.

INTERPERSONAL JUDGMENT SCALE

1. Intelligence (check one)

- ☐ I believe that this person is very much above average in intelligence.
- ☐ I believe that this person is above average in intelligence.
- ☐ I believe that this person is slightly above average in intelligence.
- ☐ I believe that this person is average in intelligence.
- ☐ I believe that this person is slightly below average in intelligence.
- ☐ I believe that this person is below average in intelligence.
- ☐ I believe that this person is very much below average in intelligence.

2. Morality (check one)

- ☐ This person impresses me as being extremely moral.
- ☐ This person impresses me as being moral.
- ☐ This person impresses me as being moral to a slight degree.
- ☐ This person impresses me as being neither particularly moral nor particularly immoral.
- ☐ This person impresses me as being immoral to a slight degree.
- ☐ This person impresses me as being immoral.
- ☐ This person impresses me as being extremely immoral.

3. Adjustment (check one)

- ☐ I believe that this person is extremely maladjusted.
- ☐ I believe that this person is maladjusted.
- ☐ I believe that this person is maladjusted to a slight degree.
- ☐ I believe that this person is neither particularly maladjusted nor particularly well adjusted.
- ☐ I believe that this person is well adjusted to a slight degree.
- ☐ I believe that this person is well adjusted.
- ☐ I believe that this person is extremely well adjusted.

ILLEGIBLE DOCUMENT

**THE FOLLOWING
DOCUMENT(S) IS OF
POOR LEGIBILITY IN
THE ORIGINAL**

**THIS IS THE BEST
COPY AVAILABLE**

INTERPERSONAL JUDGMENT SCALE

4. Personal Feelings (check one)

- ☐ I feel that I would probably like this person very much.
- ☐ I feel that I would probably like this person.
- ☐ I feel that I would probably like this person to a slight degree.
- ☐ I feel that I would probably neither particularly like nor particularly dislike this person.
- ☐ I feel that I would probably dislike this person to a slight degree.
- ☐ I feel that I would probably dislike this person.
- ☐ I feel that I would probably dislike this person very much.

5. Working together (check one)

- ☐ I believe that I would very much dislike working with this person.
- ☐ I believe that I would dislike working with this person.
- ☐ I believe that I would dislike working with this person to a slight degree.
- ☐ I believe that I would neither particularly dislike nor particularly enjoy working with this person.
- ☐ I believe that I would enjoy working with this person to a slight degree.
- ☐ I believe that I would enjoy working with this person.
- ☐ I believe that I would very much enjoy working with this person.

6. Dating - If you were looking for a date and you knew this person, how desirable as a date would this person be to you?
(Check one)

- ☐ This person would be very desirable as a date to me.
- ☐ This person would be desirable as a date to me.
- ☐ This person would be slightly desirable as a date to me.
- ☐ This person would be neither desirable nor undesirable as a date to me.
- ☐ This person would be slightly undesirable as a date to me.
- ☐ This person would be undesirable as a date to me.
- ☐ This person would be very undesirable as a date to me.

Personality Impression Scale

On the next page you will be asked to make a series of judgments concerning your impressions of your co-participant in this experiment. The following instructions show you how to use the scales:

Instructions

If your impressions are very closely described by one end of the scale, you should place your check-mark as follows:

Strong X : : : : : Weak

or

Strong : : : : : X Weak

If your impressions are quite closely described by one or the other end of the scale (but not extremely), you should place your check-mark as follows:

Strong : X : : : : : Weak

or

Strong : : : : X : Weak

If your impressions are only slightly described by one side as opposed to the other side (but not really neutral), then you should check as follows:

Strong : : X : : : : Weak

or

Strong : : : : X : Weak

The direction toward which you check, of course, depends upon which of the two ends of the scale seems more characteristic of your impressions.

If you consider your impressions to be neutral on the scale, both sides of the scale equally descriptive of your impressions or if the scale is completely irrelevant, unrelated to your impressions, then you should place your check-mark in the middle space:

Strong : : : X : : : Weak

Place your check-marks only between the vertical marks and not on the vertical marks.

**THIS BOOK
CONTAINS
NUMEROUS
PAGES THAT ARE
CUT OFF**

**THIS IS AS
RECEIVED FROM
THE CUSTOMER**

	Friendly	:	:	:	:	:	Unfriendly
	Negative	:	:	:	:	:	Positive
1	Careful	:	:	:	:	:	Careless
	Attractive	:	:	:	:	:	Unattractive
	Uninteresting	:	:	:	:	:	Interesting
1	Dull	:	:	:	:	:	Exciting
1	Stimulating	:	:	:	:	:	Unstimulating
1	Active	:	:	:	:	:	Passive
1	Modest	:	:	:	:	:	Immodest
1	Tense	:	:	:	:	:	Relaxed
1	Sexy	:	:	:	:	:	Not sexy
1	Retiring	:	:	:	:	:	Outgoing
2	Happy	:	:	:	:	:	Sad
	Threatening	:	:	:	:	:	Nonthreatening
2	Unpleasant	:	:	:	:	:	Pleasant
	Complex	:	:	:	:	:	Simple
	Popular	:	:	:	:	:	Unpopular
1	Willing	:	:	:	:	:	Unwilling
2	Dislikeable	:	:	:	:	:	Likeable
	Rough	:	:	:	:	:	Smooth
	Warm	:	:	:	:	:	Cold
	Sexually Desirable	:	:	:	:	:	Sexually Undesirable
2	Adjusted	:	:	:	:	:	Maladjusted
2	Unworthy	:	:	:	:	:	Worthy
2	Nice	:	:	:	:	:	Nasty
1	Liberal	:	:	:	:	:	Conservative
	Low	:	:	:	:	:	High
2	Weak	:	:	:	:	:	Strong
	Amorous	:	:	:	:	:	Nonamorous
	Nonaffectionate	:	:	:	:	:	Affectionate
	Moral	:	:	:	:	:	Immoral
	Masculine	:	:	:	:	:	Feminine
1	Inhibited	:	:	:	:	:	Uninhibited
1	Seductive	:	:	:	:	:	Nonseductive
2	Intelligent	:	:	:	:	:	Unintelligent
1	Sexually Responsive	:	:	:	:	:	Sexually Unresponsive

As part of a survey program conducted here at Kansas State for the past several semesters, we have been questioning students concerning their sexual attitudes and experiences with various types of sexual activities. Because of the sensitive nature of this information, we have taken every step possible to insure that the individuals volunteering this information remain anonymous. In the following questionnaire, you will be asked to indicate your experience with various sexual activities. You will not be asked to put your name on this questionnaire, and, in fact, we request you explicitly not to do so. The identification number on the questionnaire is for bookkeeping purposes only, and can in no way serve to identify you. If you feel any reluctance to complete this questionnaire, you are free to terminate your participation at any time.

Heterosexual Behavior Inventory

Attached is a list of sexual activities in which you may or may not have engaged. Please indicate whether or not you have engaged in each activity by drawing a circle around either "yes" or "no" in the margin next to each activity.

Your age _____

Number _____

Heterosexual Behavior Inventory

- | | | |
|-----|----|---|
| Yes | No | 1. One minute continuous lip kissing with female. |
| Yes | No | 2. Manual manipulation of clothed female breasts. |
| Yes | No | 3. Manual manipulation of nude female breasts. |
| Yes | No | 4. Manual manipulation of clothed female genitals. |
| Yes | No | 5. Oral contact with nude female breasts. |
| Yes | No | 6. Manual manipulation of nude female genitals. |
| Yes | No | 7. Manual manipulation of your clothed genitals by female. |
| Yes | No | 8. Mutual manual manipulation of clothed genitals with female. |
| Yes | No | 9. Manual manipulation of your nude genitals by female. |
| Yes | No | 10. Manual manipulation of nude female genitals to massive female genital secretions. |
| Yes | No | 11. Manual manipulations of your nude genitals to ejaculation, by female. |
| Yes | No | 12. Oral contact with nude female genitals. |
| Yes | No | 13. Oral contact with your nude genitals by female. |
| Yes | No | 14. Sexual intercourse, face to face. |
| Yes | No | 15. Oral <u>manipulation</u> of nude female genitals. |
| Yes | No | 16. Oral <u>manipulation</u> of your nude genitals by female. |
| Yes | No | 17. Mutual oral-genital manipulation with female. |
| Yes | No | 18. Mutual manual manipulation of nude genitals with female to mutual orgasm. |
| Yes | No | 19. Sexual intercourse, rear entry. |
| Yes | No | 20. Oral manipulation of your nude genitals to ejaculation, by female. |
| Yes | No | 21. Mutual oral manipulation of genitals with female to mutual orgasm. |

1. Please place a check mark in the space next to the item that most accurately describes your current heterosexual involvement(s).

☐ A. Married
☐ B. Engaged
☐ C. Dating only one individual (i.e., "going steady")
☐ D. Dating more than one individual
☐ E. Not currently dating anyone

2. If you marked alternative (D) on Question 1, please check the item on the scale below that best describes your current dating frequency.

☐ A. One date a month
☐ B. 2-5 dates a month
☐ C. 5-10 dates a month
☐ D. More than 10 dates a month

EMOTIONAL AROUSAL AND SEXUAL ATTRACTION

by

JOSEPH A. ISTVAN

B.S., Ohio University, 1972

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Psychology

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1977

The present experiment examined the impact of positive and negative emotional arousal on attraction toward a member of the opposite sex. Berscheid and Walster have claimed that emotional arousal will, in general, facilitate heterosexual attraction if an individual is led to attribute the source of his arousal state to a member of the opposite sex. This contradicts reinforcement-affect notions of attraction that assume that, regardless of attributions, individuals associated with positive arousal states will tend to be liked while those associated with negative arousal states will be disliked. In a test of these contrasting conceptualizations, the present study attempted to manipulate both the positive or negative quality of arousal and subjects' attributions regarding the source of their arousal.

Sixty male undergraduates were either shown slides of sexually explicit activities (positive arousal), accident victims (negative arousal), or geometric objects (a non-aroused control condition) in the presence of an attractive female confederate. In an attempt to manipulate subjects' attributions regarding the source of their arousal, half of the subjects were told that they could expect the arousal produced by the slides to linger (arousal-informed), while the other half was not informed regarding any possible persisting arousal (arousal-uninformed). All subjects were subsequently asked to evaluate the confederate's dating

desirability, likability, and sexuality. All confederate ratings were analyzed in a 3(arousal condition) x 2(informed-uninformed) analysis of variance.

Contrary to the original experimental hypotheses, it was found that arousal- uninformed subjects were no more attracted to the confederate than arousal-informed subjects. There was some indication, however, that the informed-uninformed manipulation was unsuccessful. Subjects in the positive arousal condition were found to generally evaluate the confederate more favorably than nonaroused and negatively aroused subjects. In a subsequent breakdown of positively and negatively aroused subjects into high and low arousal groups, it was found that all comparisons between the low-positive and low-negative arousal groups were nonsignificant, while high-positive arousal subjects felt the confederate was a more desirable dating partner and more sexual than high-negative arousal subjects. Additionally, nonparametric analyses revealed that both low-positive and low-negative arousal subjects perceived the confederate as more sexual and likable than nonaroused control subjects.

It was felt the findings of this experiment offered stronger support for reinforcement-affect theory than Berscheid and Walster's notions concerning the antecedents of heterosexual attraction. There was some indication, however, that at low levels of both positive and negative arousal emotional arousal may serve to generally facilitate attraction toward a member of the opposite sex.