Contingency awareness and interpersonal attraction

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The role of contingency awareness in research concerned with attitude similarity and interpersonal attraction was investigated by using both a traditional attitude questionnaire and a correlated attitude questionnaire procedure for manipulating attitude similarity. The results showed that the correlated questionnaire procedure led to fewer subjects who were judged to be contingency aware. Both of the procedures led to replications of the often reported finding that interpersonal attraction is directly related to the proportion of attitude similarity between two people. This effect was obtained both for subjects who were judged to be contingency aware and for subjects who were not so judged.

In his discussion of the classical conditioning of meaning, attitudes, and instigated aggression, Page (1969; Page & Scheidt, 1971) has stated that unintentional demand characteristics often account for the results of some conditioning experiments just as well as do the independent variables of the experiments. Page's conclusion, however, is not universally accepted (Berkowitz, 1971; McGinley & Layton, 1973; Staats, 1969). This lack of acceptance is related to problems that may be created when a postexperimental questionnaire is used to assess subjects' awareness of the critical contingencies of an experiment. It is possible that the postexperimental questionnaire may, itself, contain demands that lead subjects to respond to questionnaire items in such a way as to appear that they were aware of contingencies between experimental manipulations and measurements during the conditioning experiment when they may not have been aware. For example, in Page's (1969) study, he, after asking his subjects a series of questions about a verbal conditioning experiment in which they had participated, told the subjects about the critical contingencies of the experiment and then asked if they were aware of these contingencies. Many of the subjects who had responded as expected to the conditioning contingencies responded that they were aware of the contingencies (contingency aware) and had responded to the dependent measure in a manner that was in concert with these contingencies (demand aware). Page's assessment technique essentially challenged the astuteness of the subjects by implying that they should have been able to discern the intent of the experiment. It is not surprising that Page found that those subjects who responded to the experiment's dependent measure in a manner that suggested that conditioning had occurred also indicated that they were aware of the conditioning contingency.

While it may be that Page's (1969) type of awareness assessment is too suggestive, it is also quite possible that postexperimental questionnaires that have been

used by others may be insensitive to an assessment of the subjects' awareness of independent variable manipulations in an experiment. For instance, awareness questionnaires that have been used by Lamberth and Byrne (1971), by McGinley and Layton (1973), and by Staats and Staats (1958) all are quite brief and unstructured. Given the problems of the postexperimental awareness questionnaire, it seems that alternative approaches to the study of subject-awareness effects could either treat awareness as an independent variable or could more indirectly assess it by manipulating the ease with which subjects are able to detect critical contingencies. Both of these alternative approaches, along with the postexperimental questionnaire, have been used. The latter of these approaches was used by McGinley (Note 1) in the study of the verbal conditioning of meaning, while the former procedure was reported by Lamberth and Byrne (1971) in a series of studies concerned with subject-awareness effects in the conditioning of interpersonal attitudes (attraction). In these studies, no support was found for the contention that measured conditioning effects could be solely attributed to subjects' awareness of the critical contingencies of the experiments. This is not to say, however, that conditioning effects were independent of possible awareness effects.

The general purpose of the present study was to further investigate the relationship between contingency awareness and the outcome of a conditioning experiment. Because of the extensive interest in interpersonal attraction theory, the face content of the study was interpersonal attraction. It was thought, however, that the results of the experiment would be applicable to other explanatory models of behavior that rely on the conditioning of affect.

The specific purpose of the study was to attempt to reduce subject-awareness effects in a typical conditioning of interpersonal attitudes experiment by trying to create unobtrusive conditioning contingencies. The

general experimental procedure that was used is similar to that which has been used in many studies of interpersonal attraction where a subject peruses an attitude questionnaire that was supposedly completed by another person and then makes interpersonal judgments about the person. The outcome of these studies has commonly been that there is a direct relationship between the subject's attraction toward the stranger and the degree of attitude similarity between the two. From a reinforcement point of view, the affect that is associated with agreement of attitude is conditioned to the stimulus stranger, and when this conditioned affect is evoked by the presence or thought of the stranger, it mediates the subject's overt expression of attraction toward the stranger. Although this interpretation is most consistent with the attraction theory of Lott and Lott (1972), it is also in accord with Byrne's theory of interpersonal attraction (Byrne, 1971; Byrne & Clore, 1970).

The authors of the present study believe that an experimental procedure that reduces a subject's awareness that a stranger is similar in attitude (i.e., contingency awareness) would help to clarify the possible effect of a subject's awareness of an attitude-similarity contingency on interpersonal attraction.

In the typical attraction study that uses an attitude questionnaire to manipulate attitude similarity, a subject receives knowledge of a stranger's responses to additional items to which the subject has responded also. It is quite possible that the likelihood of a subject being aware of a similarity of attitude between herself or himself and a stimulus stranger is directly related to the ease with which the subject is able to make a comparison between her or his responses and the stranger's responses to questionnaire items. For this reason, the attitude-similarity manipulations in the present study were made both with correlated attitude items and the same attitude items, in order to assess the relationship between the subject's awareness of similarity of attitude with a stranger and her or his attraction toward the stranger. It was thought that the correlated-item procedure for manipulating attitude similarity would result in fewer subjects becoming aware that the stranger was similar or dissimilar to them in attitude.

METHOD

Phase 1

The experiment was conducted in two phases. In the first phase, 633 students from introductory psychology classes completed a 75-item 8-interval/item questionnaire. Two weeks later, 100 of the students were retested. On the basis of correlational analyses of the questionnaire, four 10-item attitude questionnaires were developed; there were two matched forms for males and two for females. The correlations for the paired items on each of the two sets of questionnaires ranged from .34 to .75. The retest correlations of the items that were chosen for the questionnaires ranged from .55 to .94.

Phase 2

Procedure. During the following semester, 107 female and 115 male students from introductory psychology classes completed one of the correlated, 10-item attitude questionnaires. After the questionnaires were collected and scored, packets were developed for each student that consisted of either an attitude questionnaire that a same-sex stranger had completed that was the same form that the subject had completed earlier, or one that was the correlated form, a 5-item version of Byrne's (1971) interpersonal judgment scale (IJS), and an 11-item awareness questionnaire. The key items of the awareness questionnaire were: (1) "How do you think the experimenter expected you to rate the person whose attitude questionnaire you studied?" and (2) "Do you think the experimenter expected you to respond in a consistent direction (positively or negatively, for example) when you judged the person's intelligence, morality, etc.? If so, in what direction? Why?" The awareness questionnaire was similar to that used by Page (1969), but it did not actually tell the subject about the critical contingencies of the experiment.¹

The copy of the 10-item attitude questionnaire was purported to have been filled out by another student. The cover sheet of the questionnaire had been removed, ostensibly to protect the stranger's identity. The stranger's questionnaire was marked such that the stranger was either 90% or 10% similar in attitude with the subject.

The subjects' classes were revisited approximately 2 weeks after the collection of the original attitude questionnaires. The subjects were told that they would be given limited information about a stranger of the same sex and then they would be asked to make several interpersonal judgments about the stranger. They were told that the limited information would be in the form of an attitude questionnaire that the stranger had filled out. The packets were distributed, and the subjects were asked to peruse the stranger's questionnaire. After about 2.5 min, the subjects were asked to put the questionnaire back into the packet and to remove the IJS. The instructions for the IJS were read, and the subjects were given approximately 2 min to complete it. The last task was for the subjects to fill out the awareness questionnaire. Although no time was set for this task, most subjects took about 7 min to complete the questionnaire.

Scoring the material. Two of the items from the IJS (the "personal liking" and the "working together" items) were summed to a single score of interpersonal attraction. The awareness questionnaire was scored independently by two judges who were unknowledgeable of the experimental conditions of the subjects. The subjects were classified as not aware, maybe aware, and aware for contingency awareness. The judges disagreed on 11% of the subjects. When disagreement occurred, a third judge assessed the subject's awareness, and the consensus judgment was used as the subject's awareness score. When no consensus was achieved, the subject was classified as maybe aware.

RESULTS AND DISCUSSION

Judged Awareness

The number of subjects who were judged as unaware, maybe aware, or aware are listed in Table 1. As can be seen, the correlated-attitude questionnaire procedure led to fewer contingency-aware subjects. Since the maybe-aware subjects created an indeterminate category, their data were dropped from further analysis. Table 1 also lists the frequency of contingency-aware subjects for 90% and 10% attitude similarity and method of attitude manipulation. A total of 54% of the subjects

Table 1
Frequency of Judged Contingency Awareness

Awareness Judgment	Overall*		Attitude Similarity			
			90%†		10%††	
	S	C	S	C	S	C
Unaware	45	58	20	30	25	28
Maybe Aware	15	17				
Aware	53	34	24	12	29	22
Total	113	109	44	42	52	50

Note—S = same-questionnaire method of attitude manipulation; C = correlated-questionnaire method of attitude manipulation.

* $\chi^2(2) = 5.85, p < .06$.

† $\chi^2(1) = 4.94, p < .05$. †† $\chi^2(1) = .63, p > .25$.

in the same-attitude questionnaire procedure were classified as aware that the stranger was either similar or dissimilar to them in attitude, while 37% of the subjects in the correlated-attitude questionnaire condition were so classified. While there was virtually no difference in the percentage of aware subjects from the same-questionnaire condition who were either similar or dissimilar in attitude with the stranger (55% and 54%, respectively), there was an apparent difference in the effects of the correlated-questionnaire condition, in that 29% of the subjects who were attitudinally similar to the stranger were judged to be aware of this similarity, while 44% of the subjects who were dissimilar to the stranger were judged to be aware of their dissimilarity of attitudes. In other words, while there was a general trend for the correlated questionnaire to reduce the incidence of contingency awareness, the reduction was most evident when the subjects were similar to the stranger in attitude.

Interpersonal Attraction

The attraction data were analyzed by a 2 by 2 by 2 analysis of variance with unequal ns. The factors and their levels were: method of manipulation (same and correlated questionnaires), attitude similarity (90% and 10%), and judged contingency awareness (unaware and aware). The main effect for attitude similarity was significant [$F(1,182) = 87.20, p < .001$], as were the interactions between method of manipulation and attitude similarity [$F(1,182) = 5.24, p < .05$], and attitude similarity and contingency awareness [$F(1,182) = 13.29, p < .001$]. These interactions are broken down in Table 2. From the data listed in Table 2, it can be seen that, although there was an attitude-similarity effect on attraction in both the same- and the correlated-attitude questionnaire procedures, the same-questionnaire procedure resulted in greater attraction in the 90% condition, while there was no significant difference between the two procedures in the 10% attitude-similarity condition. The breakdown for the Attitude Similarity by Contingency Awareness inter-

action shows that aware subjects, as compared to unaware subjects, were more attracted to the similar stranger and less attracted to the dissimilar stranger. This difference in attraction toward the stranger was greater when the stranger was similar in attitude than when the stranger was dissimilar in attitude.

In general, the effect of attitude similarity on attraction was greater for subjects who were judged to be contingency aware than it was for subjects who were not so judged. In concert with the finding that the correlated-questionnaire manipulation of attitude similarity led to a weaker attraction effect is the finding that there were fewer cases of judged awareness for subjects who were in the correlated-questionnaire condition. Furthermore, when comparing data from subjects in the two questionnaire procedures, the greatest difference in the attitude-similarity/attraction effect was in the condition with the greatest difference in aware subjects, the 90% attitude-similarity condition.

The results support the following conclusions: (1) Contingency awareness is directly associated with the expression of interpersonal attraction. (2) The correlated-questionnaire procedure for manipulating attitude similarity results in fewer subjects who are judged to be contingency aware. (3) There is a significant, positive relationship between attitude similarity and interpersonal attraction that is not potentially accounted for by the contingency awareness of subjects. (4) The positive relationship between attitude similarity and interpersonal attraction is based on both cognitive and noncognitive components.

Also, since predictable evaluative responses occurred when subjects were not able to verbalize the contingencies on which the evaluations were based, it seems prudent to suggest that evaluative responses that are made toward strangers or other stimuli are more than just cognitively justified responses that are based on the evaluators' awareness of critical reinforcement contingencies.

Table 2
Attraction Means: Breakdown of Interactions

	Attitude Similarity			
	90%		10%	
	Mean	n	Mean	n
Method of Manipulation				
Same Questionnaire	9.98	44 ^a	6.22	54 ^c
Correlated Questionnaire	8.54	42 ^b	6.64	50 ^c
Awareness Judgment				
Unaware	8.60	50 ^a	6.95	53 ^c
Aware	10.19	36 ^b	5.90	51 ^d

Note—The higher the mean value, the greater the attraction. The attraction scores could theoretically range from 2 to 14. With a pooled standard error of the mean of .32, all values within an interaction breakdown that have a different superscript differ at $p < .01$.

REFERENCE NOTE

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NOTE

1. These were Items 7 and 8 of the awareness questionnaire. As might be noted by the reader, the content of the two items leads to the possible establishment of the subject's awareness of the relationship between her or his attraction ratings of the stranger and the attitude-similarity manipulation, that is, demand awareness. Given the authors' orientation that contingency awareness necessarily precursus demand awareness, the subject's responses to the two items were used to help assess contingency awareness. About 40% of the subjects who were judged to be contingency aware were so classified because of their answers to Items 7 and 8. Some readers may be of the opinion that the questions were too suggestive and may have led to false-positive judgments of contingency awareness. This does not seem to have been the case, as most of the subjects who were scored as contingency aware because of their answers to Questions 7 and 8 already had been scored as maybe aware on the basis of their answers to Items 1-6 of the questionnaire.

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