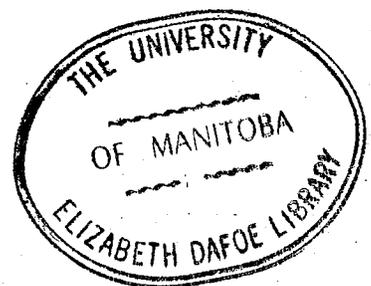


A Multi-Modal Investigation of the Similarity-Attraction
Relationship

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(Abstract)

The basic similarity-attraction paradigm proposed and used extensively by Donn Byrne was generalized with two modes of "stranger" presentation, by bogus questionnaire and by videotape, and with two types of attraction measurement. Instrumental looking behavior was recorded unobtrusively on videotape as one measure of attraction, and the other measure was Byrne's Interpersonal Judgement Scale. The analysis failed to replicate the usual Byrne effect of similarity on attraction, except with the looking measure and the stranger presented on paper ($r = .278, p = .01$). A predicted stronger relation between similarity and attraction when the stranger presentation and attraction measurement modes are similar rather than mixed was not supported. Subject awareness data was discussed.

Byrne and his associates have developed a theory of interpersonal attraction based upon attitude similarity, which has evolved to incorporate effects of other determinants, such as certain characteristics of the attitudes communicated. Byrne (1961) theorized that the perceived similarity and dissimilarity of attitudes in a dyad is a special case of reciprocal administration of positive and negative reinforcements. In our culture, he suggests that individuals have well established learned drives to "be logical and make a correct report of the environment". According to Byrne, interaction with a stranger who has similar attitudes offers validation of this report of the environment, and so is a positive reinforcement. Conversely, interaction with an individual who has demonstrated dissimilar attitudes acts as a negative reinforcement. In addition to this, strangers seen as dissimilar could be seen as the member of the dyad holding the incorrect attitudes and so, consequently, could be considered to some degree stupid, uninformed, immoral or insane. Byrne further speculated that other factors, such as importance of the issue on which attitudes are revealed may have a bearing on the reinforcement properties of the interaction.

Early experimental work on the relationship between attraction and similarity was based on a historic cultural belief that like attracts like and studies were conducted

comparing attitudes of husbands and wives, generally with some positive results (e.g. Schiller (1932), Schooley (1936)). One of the most notable works in the attraction - similarity area was a series of correlational studies by Newcomb (1961) where he provided rent-free housing for a group of students in exchange for their serving as experimental subjects. Some of his findings were that attraction is associated with perceived agreement, and that agreement on attitudes which are relatively unchanged during the acquaintance process becomes a significant determinant of attraction.

Byrne chose an experimental paradigm where he could attempt to manipulate a hypothesized cause - attitude similarity between strangers, and measure its effect - interpersonal attraction. In the original published report (Byrne, 1961) he hypothesized that:

- (1) a stranger who is known to have attitudes similar to those of the subject is better liked than a stranger with attitudes dissimilar to those of the subject, (2) a stranger who is known to have attitudes similar to those of the subject is judged to be more intelligent, better informed, more moral, and better adjusted than a stranger with attitudes dissimilar to those of the subject, and (3) a stranger who is known to have similar attitudes on issues important to the subject and dissimilar attitudes on unimportant issues is better liked and is evaluated more positively on the other four variables than a stranger for whom the reverse is true.

Byrne's subjects were told that they were to take part in a study of interpersonal judgement based on limited information. Early in the semester, the subjects were given an attitude and opinion scale on 26 issues which were chosen

in a pilot study as those most frequently discussed among acquaintances. Each issue (e.g. integration, God, political parties, premarital sex relations) was presented on a seven point scale. Two weeks later, the subjects were given completed questionnaires which had supposedly been completed by members of another class of students, each pair matched on the basis of sex, from which the subjects were to form their impression of the other person. The subjects were assigned to four groups, in which they either received a fake questionnaire filled out exactly as they had filled out their own, one filled out with exactly the opposite views expressed, one filled out with similar views on the most important issues and dissimilar on the least important issues (as indicated in the pilot study), or one filled out with similar views on the least important issues and dissimilar views on the most important issues. Interpersonal attraction and evaluation was measured by a rating scale administered immediately following the presentation of the bogus questionnaires, with four scales asking for evaluative judgements of the stranger on seven-point bipolar scales of intelligence, knowledge of current events, morality, and adjustment. The fifth and sixth scales were on how the subjects felt they would like this person and whether they believed they would like working with him or her in an experiment. The sum of scores on these two scales (possible

range 2 to 14) was the measure of attraction. The results showed highly significant support of the first hypothesis, that those who received scales like their own rated the stranger more positively. The second hypothesis regarding the four other evaluative scales was also supported. The third hypothesis concerning the influence of important versus unimportant issues was not clearly confirmed.

In a subsequent study (Byrne, 1962) a problem which arose in the earlier experimental design was studied. Byrne had found that with the 26 item attitude scale, subjects answered too many of the questions relatively homogeneously. This meant that in the "dissimilar attitudes" condition there was a strong chance that the stranger would not only be seen as differing from the subject, but would also be seen as a deviant from cultural norms. With this in mind, Byrne chose seven items from the scale which had the most response diversity. With these fewer items, Byrne introduced intermediate amounts of agreement and disagreement between the two extremes. With the same basic design as the 1961 study, there were now eight groups: A group whose stranger was similar on all seven items, another group with a stranger the same on six items and dissimilar on one (the one varied randomly across subjects), and so on. The results again showed a significant relationship between the experimental manipulation and the attraction ratings. In addition

it was seen that the similarity and attraction variables were associated in some continuous function.

The next problem in defining a functional relationship between the variables was to attempt to identify whether the crucial factor was the number of similar attitudes, the number of dissimilar attitudes, or the proportion relating one to the other. Experimentally, in a design comparable to the previous designs, four levels of proportion and three levels of the number of similar attitudes were employed. In a factorial design, the number of similar attitudes was either 4, 8, or 16, and the proportion arranged to be one third, one half, two thirds, or total agreement. The results indicated that attraction was significantly affected only by proportion. (Byrne and Nelson, 1965)

In the same report, Byrne proposes a tentative law of attraction. Data from this procedure were now available from six published studies and two unpublished studies. In each instance attraction was the dependent variable and various proportions of similar attitudes were the independent variable. The data represented a total of 790 subjects, and 11 different values of the proportion of similar attitudes held by the stranger. A plot of the mean attraction scores for these 11 proportions was fitted to a straight line by the least squares method. The associated formula was $Y = 5.44X + 6.62$. The tentative law of attraction in

general terms was written $A_x = mPR_x + k$, or attraction toward X is a positive linear function of the proportion of positive reinforcements received from X. The use of the term "law" at this stage implies that specific attraction responses can be predicted within this type of experimental situation (Byrne, 1969).

A further problem with the agree-disagree paradigm was investigated by Nelson and reported by Byrne (1969). The earlier studies had represented agreement as an identical response, and disagreement as a mirror-image response on the opposite end of the scale. Nelson suggested that the degree of response discrepancy could be a factor in determining attraction. Nelson used a moderate discrepancy pattern in which a dissimilar response was represented as from 2 to 4 scale points away from the subject's response in a fixed arrangement, and a similar response was always one point away. This was intended to reduce subjects' awareness of the relationship between their responses and those of the bogus stranger, and to avoid the use of extreme responses (scale points 1 and 6) by the stranger. Analysis of variance in Nelson's experiment showed significant effects of both the similarity-dissimilarity variable and the response discrepancy variable. This led Nelson to hypothesize that if discrepancy were held constant, attraction would not vary as a function of similarity-dissimilarity. Byrne, Clore and Griffitt (1967).

tested this hypothesis. They prepared the attitude scales of the bogus strangers so that there was either a .34 similarity or a 1.00 similarity, and also controlled the mean discrepancy per item to be almost identical for both conditions. They still obtained significantly different attraction responses between groups, so they rejected Nelson's hypothesis and concluded that subjects respond jointly to agreement and response discrepancy.

Other experiments in this series were concerned with extending the generality of the similarity-attraction relationship. Some of these extensions, reviewed by Byrne (1969) are the effects of topic importance, different populations (female clerical workers, children, job corpsmen, and hospital patients), economic similarity-dissimilarity, defence mechanisms, self-concept, race, and stimulus modes. The latter extension is particularly related to the present experiment and is discussed briefly.

Stimulus Modes

Various stimulus modes had been used in several experiments but they had not been compared systematically. Byrne and Clore (1966) administered the usual survey of attitudes to a group of 120 introductory psychology students (this survey had 12 items). Two strangers each responded with one of two standard patterns of responses in order to control for the possible effects of specific content (it had been found

that responses to two standard patterns fell in a usefully broad distribution of proportions of similar attitudes). The stranger either expressed his opinions of the 12 topics on a sound movie film, expressed them on a tape which was identical to the sound track of the film, or they were represented in the usual bogus questionnaire. Subjects were asked to evaluate the stranger on the usual six scales. In all three stimulus modes, attraction was found to be a function of proportion of similar attitudes, with no significant differences attributable to conditions. A straight line fitted to the data from all three conditions taken together has the formula $Y = 6.74X + 5.06$. A goodness of fit analysis showed this line significantly different from the Byrne and Nelson (1965) line. This was attributed by the authors to the much shorter time interval between the subjects' response to the attitude scale and exposure to the stranger's attitude scale in this study, as opposed to the procedure in the studies contributing to the former line.

General Extensions

Griffitt and Guay (1969) extended the paradigm in a more general sense, with reference to its underlying reinforcement explanation. In place of the positive reinforcement implied in the agreeing attitudes of a stranger, they substituted a stranger administering reinforcement in terms of direct evaluation of the subject, and a second stranger who

was merely present. Proportion of positive reinforcement was related to the subject's positive evaluation of both the first and second strangers. In a second experiment they found a relation between proportion of positive reinforcement and positive evaluation of the experiment and apparatus as well. McGinley (1970) extended this further by conducting a similar experiment in which he recorded evaluative responses from the observer (i.e. second stranger). The observer's responses were found to be directly related to the proportion of positive reinforcements administered to a task subject.

Purpose

The present experiment has attempted to extend the earlier paradigm in a different way, by investigating the effect of two measures of subjects' evaluation of the stranger; one of which is that used by Byrne, the second is a looking time measure. The results of the experiment will be considered in terms of further expanding the generality of the similarity-attraction relationship, and as a test of the possibility that the usual finding of a positive relationship is, at least partially, an artifact of the typical Byrne et al experimental design involved in the interaction between the two measurement devices and the method of stranger presentation.

Measurement Artifact

Campbell (1969) points out that every measuring device

is complex with many theoretically irrelevant components and the measured effects of treatment could be due to one of these irrelevancies. He suggests experimental control of these problems by the use of multiple measures differing in vehicular or method components. On the other hand, Campbell suggests that more of this type of control may be done than is reported, since multiple measures generate the jeopardy of discrepant results which are "a great embarrassment to write up". In the Byrne series of experiments, the extreme similarity between the premeasure, the manipulation, and the postmeasure seem to make the incidence of this type of irrelevant component particularly possible.

Looking as a Measure of the Reward Value of Stimuli

Nunnally has used a number of dependent measures in a series of studies associating neutral objects with rewards in children (e.g. Nunnally, Duchnowski, and Parker, 1965, Nunnally, Stevens, and Hall, 1965, and Parker and Nunnally, 1966) including measures of reward expectancy, verbal evaluation, and selective attention. Each of these measures was shown, in a series of studies, to distinguish rewarding from frustrating stimuli. In the case of selective attention, he assumed that given a choice, subjects would tend to look at rewarding objects more frequently than at frustrating objects. Nunnally used the "looking box" where children could press one of six buttons to see different stimuli light up in

windows for a brief interval. The number of presses on each button was recorded (Nunnally et al, 1965a). Another measure of selective attention (Nunnally et al, 1965b) involved photographing the right eye of a subject who was seated in front of a display of stimuli with a 16 mm movie camera. A judge later scored the mean number of frames looking at each stimulus. As supporting evidence that eye movements are affected by reward-value they cite Webb, Matheny and Larson (1963), who found similar results with the same type of apparatus, and with pictures prejudged to have positive, negative or neutral value.

Subject Awareness

Subject awareness of the experimenter's hypothesis was tested, and discussed in a descriptive way. As a possibility we have already seen how the experiment concerned with stimulus modes (Byrne and Clore, 1966) resulted in a linear function with a steeper slope and lower Y-intercept than in the line originally constructed on the basis of 790 subjects. Another experiment which resulted in a line deviating in the same way was reported by Byrne and Griffitt (1966). On a highly speculative level, Byrne and Clore's (1966) point that this is related to the decrease in interval between the premeasure and the manipulation, could be considered suggestive of awareness. It should be kept in mind

that no relationship whatever would be represented by a horizontal line, so a steeper slope represents a greater experimental effect.

Typically awareness has been measured in studies of attitude change and the evidence of its effect has not been very strong. Cowan and Komorita (1968) ran half of their subjects in a traditional attitude change study, consisting of a pretest, a message two weeks later, a posttest, and finally a measure of awareness. The remaining subjects had a pretest, a message after two weeks, an awareness measure, and then a posttest. Only in the pretested treatment group given the awareness measures first was there a significant relation between awareness and posttest scores - probably the effect of the awareness measure. Comparison to groups with no pretest showed no sensitization effect of giving a pretest. Lana (1969), in a review of pretest sensitization literature finds a pervasive lack of the effect of awareness on the posttest results when a pretest is used to measure existing attitudes.

Byrne and Griffitt (1969) tested whether awareness is a necessary concomitant of the similarity-attraction effect. The "awareness" they were concerned with is not awareness of the experimenter's hypothesis, but awareness of the reinforcement which is hypothesized to determine attraction, and the general question of whether learning can take place (in humans).

without awareness. After the usual experimental procedure, subjects were asked to estimate the proportion of items to which the stranger had responded exactly as they had. A second measure required the subject to fill out a blank form in the same way he believed the stranger had done. The two measures of awareness of similarity were each influenced by actual similarity created in the experiment. By a partial correlation technique, it was shown that awareness of stimulus conditions contributes to the usual similarity-attraction relationship, but that awareness is not a necessary component of that relationship.

Hypotheses

The present study is based on the usual Byrne paradigm, with two modes of stranger presentation - paper and pencil and video tape, and two types of attraction measure - the Byrne Interpersonal Judgement Scale and an instrumental looking time measure. It was hypothesized that the positive function between attitude similarity and attraction would be found with all combinations of presentation and measurement modes. This is an extension of the similarity-attraction paradigm. It was further predicted that, due to the artifactual component inherent in the uniformity of presentation and measurement modes in the earlier paradigm, there would be a stronger relation between similarity and attraction when the presentation and measurement modes were similar, i.e.

both paper and pencil, or audio and visual presentation with visual measurement, than when the presentation and measurement were mixed across modes. No hypotheses were made about the effect of subject awareness of the intent of the experiment, although data bearing on this question was collected.

Method

In the basic Byrne similarity-attraction design, the original pretest of attitudes as used by Byrne was used here for both groups. Byrne and Clore (1966) had presented the manipulation in three stimulus modes and found no significant differences between them. Due to the hypothesized interactions with another change in Byrne's design (a second dependent measure), the stranger was again presented in two modes: for one group in a bogus questionnaire, and for the other group the same attitude responses were presented, read by a stooge in a videotape recording. The bogus questionnaires were paired with a photo of the televised stranger for the purpose of connecting the paper presentation condition to the dependent measure of looking. Still photos attached to questionnaires were used by Byrne and McGraw (1964).

There were two standard forms of bogus questionnaire, each presented to half the subjects, since it was anticipated that the variability of attitudes in the sample would cause subjects' proportion of similarity with both of the fixed sets of attitudes to be distributed approximately normally.

over the range of 0/8 to 8/8 similarity. There were two standard forms in order to control for the possibility that some specific set of attitudes might have attached some unintended value to a stranger. A different stooge read each set of standard attitudes on videotape, and a picture of the same stooge appeared with the appropriate set of attitudes on the paper questionnaire.

All experimental subjects received both postmeasures. The first was a behavioral one of looking time, the second, Byrne's Interpersonal Judgement Scale.

In sum, the design involved randomly assigning subjects to two groups, the paper stranger presentation condition and the video stranger presentation condition. Within each of these groups, subjects fell by chance in one of nine possible levels of proportion of similarity. The design was repeated with each subject receiving two dependent measures of attraction, with the looking measure always recorded first.

Subjects

Experimental subjects were women students enrolled in a summer introductory course in Psychology at the University of Manitoba. They were participating as part of the course requirement. The majority of these were school teachers upgrading their professional qualifications, and their mean age was older than that of regular session students.

although individual ages were not recorded.

Apparatus

Looking time was measured by having the subject sit facing the centre of a six foot wide one-way mirror which was partially covered by curtains. On a table at each end of the mirror were 8" x 10" photographs of the two stimulus persons, one at one end of the table and the second at the opposite end of the table. The pictures were standing in full view of the subject, but required the subject to turn his head about 60 degrees in order to look from one picture to the other. The mirror curtains which were behind the pictures were pulled back about six inches away from each end of the mirror. Behind the mirror were two video cameras with zoom lenses which, at eye level, were focused on the subject who was seated in a chair. By means of a video splitter (Viscount Model 2V19K) each view of the subject was independently recorded on the same video tape. The scoring apparatus for the looking measurement consisted of a pair of push-buttons which were used by each of two judges simultaneously, who were visually and audibly separated from each other by a partition and padded headphones. When a judge appeared to be looked at out of the left side of the screen (the subject is looking at the right photo) he held down the left button, which activated a clock - scaled in hundredths of seconds - labelled "right". When he was looked at from the right side of the screen he held down the right button.

Scoring commenced when the experimenter left the room in which the recorded subject was sitting and pulled the door shut behind him. After scoring each subject, the judges, working simultaneously, recorded the times on the other judge's two clocks, and so reduced feedback from their own performance.

Procedure

The "Survey of Attitudes" scale was derived from 56 items used by Byrne and Nelson (1964) by removing the U.S.A. content items, and pretesting the scale on a sample from the experimental population. The eight items with the greatest variability (to reduce the likelihood of suspicion) and mean nearest the scale midpoint were used as the attitude premeasure (see Appendix A).

Premeasure and Manipulation

The subjects met in small groups, with a maximum of five per group. After the administration of the attitude premeasure, subjects were told that the experiment was concerned with the study of interpersonal perception of strangers based on limited information. They were then presented with the attitudes of a stranger in the form of responses to the Survey of Attitudes which they had just completed. These were bogus questionnaires whose responses had been chosen with the criterion that those topics which the stranger felt most strongly about were those which had

the largest variance on the pretest (i.e. items on which students commonly disagree). There were two forms, A and B, each given to half the subjects. Form B was the exact opposite to A. In the pencil and paper condition, the subject received a copy of a questionnaire which "a former subject has filled out and permitted us to use" with the photograph of the appropriate stooge (black and white, wallet size) stapled to it. The place where the name should have been was cut out with scissors. In the video condition, subjects saw a pre-taped video presentation of a stranger reading a set of attitude responses from questionnaire A or B. The video presentations were seen on a T.V. set with a 23 inch screen.

Postmeasures

The subjects were then taken one by one, by another experimenter to a second room to be seated in front of the two 8" x 10" photos, one of each of the standard strangers (only one of which any particular subject had seen before). The experimenter left the room to get the Interpersonal Judgement Scale questionnaire and returned after 60 seconds had elapsed. During this time the subject's direction of vision was recorded on videotape. The subject completed the questionnaire (Byrne, 1966, Pp.41-43; see Appendix B) and was then led to a third room to await the next phase of the experiment. Meanwhile the remaining subjects in the first room were not permitted to talk to each other about the experiment, and were still in the presence of the first

experimenter.

Awareness Questionnaire

When all the subjects were together in the third room, they were given a Post-Experimental Questionnaire as a measure for the subjects' awareness of the experimenter's hypothesis. The subjects were asked if they were a friend or acquaintance of either stooge (in which case they were excluded from the analysis). The questionnaire was a shortened form of that used by Adair (1970), (see Appendix C). Each question was printed on a separate half-sheet of paper and subjects were instructed that when they had completed any question they were not to turn back to it. Subjects were finally debriefed and were given an opportunity to self-address an envelope if they wished to receive a later and fuller account of the experiment.

Post-Experimental Questionnaires were scored for awareness independently by two judges. In the case of disagreement, a third judge scored the questionnaire, and the majority opinion was used. The criterion for awareness was some statement by the subject that the judgement of the stranger was influenced by the similarity or difference between the subject's attitudes and the stranger's attitudes.

Groups were run consecutively for eight hours each day until all the data had been collected in order to reduce the discussion of the experiment by subjects and

future subjects. The incidence of discussion outside of the experiment was questioned in the awareness measure.

The analysis looked at Pearson correlation coefficients between proportion of similarity and each of the attraction measures in turn, separately for the two groups (paper, and video stranger presentation). The difference between coefficients comparing the two presentation modes and the two measures was tested. In addition, a comparable regression analysis was carried out.

Results

A total of 166 subjects took part in the experiment. Of these, eight were excluded from the analysis because they reported being an acquaintance or friend of one of the strangers; two subjects failed to respond to all questions on the survey of attitudes; and one subject refused to respond to the Interpersonal Judgement Scale on the grounds of moral conviction. Due to technical problems encountered in the operation of the television apparatus (a faulty camera, allowing the tape to run out, etc.) the looking behavior record for 16 subjects was either incomplete or nonexistent. These subjects were also excluded leaving a total sample of 139 subjects, 69 in the paper stranger condition and 70 in the video stranger condition.

The two judges' ratings of looking behavior were expressed as a ratio of looking time at the attraction-

conditioned portrait to the total looking time at both the attraction-conditioned and neutral stimulus portraits. Since the looking direction of a number of the subjects was at neither of the portraits for a large portion of the 60 second measurement interval, it was decided against using a simple score of looking duration at the attraction-conditioned portrait. The Pearson r , used as an estimate of inter-judge reliability, was .94.

Relation Between Similarity and Attraction

For the paper stranger presentation condition and the video stranger presentation condition, the dependent measures representing attraction were both correlated with the proportion of similar attitudes (see Table 1). The only correlation which is significantly different from zero is the one relating the looking measure to similarity in the paper stranger presentation condition. This supports one part of the first hypothesis - one of the four possible functions was obtained. The remaining relationships were not significant, notably including the one which would have been closest to a replication of the Byrne experiments: the paper stranger presentation condition in conjunction with the Judgement Scale as postmeasure.

Differences Between the Correlation Coefficients

The difference between r_1 and r_2 and the difference between r_1 and r_3 approached significance, while the compar-

Table 1

Correlation of Looking and Questionnaire Measures of Attraction with Similarity for Questionnaire and Video Stranger Presentation Conditions and Selected Differences

Attraction Measure	Condition	Sample Size	Correlation	Probability
Looking	Paper Stranger	69	$r_1 = .278$	$p = .01$
	Video Stranger	70	$r_2 = .075$	ns
Judgement Scale	Paper Stranger	69	$r_3 = .029$	ns
	Video Stranger	70	$r_4 = .012$	ns

Difference between r_1 and r_2 has $p < .11$.

Difference between r_3 and r_4 is not significant.

Difference between r_1 and r_3 has $p < .07$.

Difference between r_2 and r_4 is not significant.

Probabilities are one-tailed.

isons of r_2 versus r_4 and r_3 versus r_4 did not suggest differences.

Regression

A simple regression analysis was performed on the same data, and again the only regression coefficient which was significantly different from zero was for the regression of the looking measure of attraction on similarity, in the paper stranger presentation condition (see Table 2). Corresponding to slight evidence in the correlation analysis for a difference between r_1 and r_2 , the difference between correlation coefficients in the two conditions, using the looking measure of attraction, was highly significant. The two comparisons of differences which were shown for correlation analysis but not for regression analysis would not have been meaningful in the latter case, since the values on the ordinate would have been in different units.

The second hypothesis, which predicted a stronger relationship between an attraction measure and similarity when the presentation and measurement modes were similar, anticipated that r_2 and r_3 would be greater than r_1 and r_4 . The result that neither r_2 nor r_3 were significantly greater than zero indicates that there is no evidence to support this hypothesis (see Table 1). The absence of the basic Byrne effect (paper stranger presentation and paper and pencil measure of attraction) limited the meaningfulness of the data to be examined in the interaction.

Table 2

Regression of Looking and Questionnaire Measures of Attraction on Similarity
for Questionnaire and Video Stranger Presentation Conditions and Selected
Differences

Attraction Measure	Condition	Regression Coefficient	F	df	Probability
Looking	Paper Stranger	.32*	5.63	1/67	p<.025
	Video Stranger	.08	.38	1/68	ns
Judgement Scale	Paper Stranger	.32*	.06	1/67	ns
	Video Stranger	.16	.01	1/68	ns

Difference between conditions on the Judgement Scale is not significant.

Difference between conditions on the looking measure has p .0001.

*A slope of .32 is in effect much greater with the looking measure when the possible range of Y is 0 to 1, than it is with the Judgement Scale where the possible range of Y is 2 to 14.

Awareness

An analysis of the Post-Experimental awareness questionnaire, as assessed by the judges, found 21 subjects aware of the experimental hypothesis (the relationship between similarity and attraction). The correlation between similarity and the measures of attraction for both conditions was computed separately for unaware and aware subjects (see Table 3). The same pattern of results occurred for unaware subjects and for aware subjects as for all subjects together. In each case there was the same one significant correlation. Each correlation coefficient computed with aware subjects only, however, was greater than the corresponding correlation coefficient with the unaware subjects.

Discussion

When the experiment was conducted, one of the primary expectations was that the basic Byrne effect with similarity predicting attraction would be replicated. This was not the case. One of the changes made from the usual design, in taking for granted the robustness of the effect, was the administration of both types of postmeasure to all subjects, with the Judgement Scale following the looking measurement in time sequence. The awareness of the subjects about the looking measure was apparently low, since no mention of it was made by them in the Post-Experimental awareness questionnaire or in the short debriefing discussion. Another

Table 3

Correlation of Looking and Questionnaire Measures of Attraction with Similarity for Questionnaire and Video Stranger Presentation Conditions with Aware and Unaware Subjects

Attraction Measure	Condition	Correlation	Probability
Aware Subjects Only			
Looking	Paper Stranger	.609	p<.05
	Video Stranger	.605	ns
Judgement Scale	Paper Stranger	.115	ns
	Video Stranger	.234	ns
Unaware Subjects Only			
Looking	Paper Stranger	.235	p<.04
	Video Stranger	.007	ns
Judgement Scale	Paper Stranger	.005	ns
	Video Stranger	-.025	ns

N for Aware with Paper Stranger was 13, with Video Stranger was 8. N for Unaware with Paper Stranger was 56, with Video Stranger was 62.

possible effect of administering the two measures in sequence was the resulting increase in time lag between the presentation of the bogus stranger and the evaluation of her. An even greater time lag, however, was involved in another unique aspect of this study; that of submitting each small group of subjects to the attraction measures individually, and in sequence. This meant that the last subject in a group had to wait until all others in the group had been tested before being administered the attraction measures. With the possibility in mind that this may have been an important difference, the correlation analysis was again carried out, this time with only those subjects who had gone first or second from their group into the room to complete the attraction measures. Again the same basic results were found as with all subjects. There was no evidence of any significant correlation of the Interpersonal Judgement Scale with similarity for either condition.

A further clarification of the differences between the paradigm as it was modified here, and the ways in which it has been formerly conducted seems necessary. The direct correlation between the looking measure and the Judgement Scale measure of attraction in the paper stranger presentation condition was $-.006$ and in the video stranger presentation condition the correlation was $-.111$. The looking measure of attraction, which was significantly related to similarity

in the paper stranger condition, was not related to similarity in the video stranger condition. In order to follow up the questions presented in the hypotheses of this experiment, it seems necessary to attempt to replicate the data obtained in the present study, in which a frequently occurring relationship failed to appear.

The McGinley (1970) study, in which a mere observer in a situation similar to the experimental task used in the previously cited Griffitt and Guay study exhibited a significant relationship between degree of positive reinforcement and attraction, suggests that the Byrne type of paradigm may elicit something not so specific as attraction; perhaps more a state of affect, no less legitimate under the reinforcement model. Griffitt (1970) draws support for an affective model of evaluative behavior from his study manipulating the level of personal comfort. He found a positive relation between attraction to the stranger and positiveness of subjective feelings (in a corollary finding, disregarding the experimental conditions). In a design, a feature introducing extraneous affect could conceivably obscure the hypothesized attraction effects.

The method of looking measurement, from a technical point of view, was successful in that the correlation between judges' results was high, and the apparent awareness was low. Although one aspect of the hypothesis involving the

looking measure was confirmed, the results of this experiment were not adequately clear to contribute very much in the way of theoretical validation to the procedure.

The function relating proportion of looking to proportion of attitude similarity has certain intuitive theoretical appeal, in that attraction takes on a value near mid-scale when the similarity is .5, whereas the attraction questionnaire score scale always takes a value clearly in the upper half of its range of 2 to 14, when the similarity is .5.

The potential implications of these results, if replicated, on the Byrne attraction area include the suggestion that the basic research paradigm is not entirely robust, and that the measures may indicate an entity which is somewhat removed from a useful and generalizable construct of "attraction". The fact that aware subjects tended to perform more in accordance with the hypothesized similarity-attraction relationship, suggests that the question of subject awareness of the experiment's intent may be a fruitful area for further investigation in this area.

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Appendix A

SURVEY OF ATTITUDES

NAME: _____
(PLEASE PRINT)

1. Drinking (check one)

- _____ In general, I am very much in favor of college students drinking alcoholic beverages.
- _____ In general, I am in favor of college students drinking alcoholic beverages.
- _____ In general, I am mildly in favor of college students drinking alcoholic beverages.
- _____ In general, I am mildly opposed to college students drinking alcoholic beverages.
- _____ In general, I am opposed to college students drinking alcoholic beverages.
- _____ In general, I am very much opposed to college students drinking alcoholic beverages.

2. Welfare Legislation (check one)

- _____ I am very much opposed to increased welfare legislation.
- _____ I am opposed to increased welfare legislation.
- _____ I am mildly opposed to increased welfare legislation.
- _____ I am mildly in favor of increased welfare legislation.
- _____ I am in favor of increased welfare legislation.
- _____ I am very much in favor of increased welfare legislation.

3. Dating (check one)

- _____ I strongly believe that girls should be allowed to date before they are in high school.
- _____ I believe that girls should be allowed to date before they are in high school.
- _____ I feel that perhaps girls should be allowed to date before they are in high school.
- _____ I feel that perhaps girls should not be allowed to date until they are in high school.
- _____ I believe that girls should not be allowed to date until they are in high school.
- _____ I strongly believe that girls should not be allowed to date until they are in high school.

4. Red China and the U.N. (check one)

- I strongly believe that Red China should not be admitted to the U.N.
- I believe that Red China should not be admitted to the U.N.
- I feel that perhaps Red China should not be admitted to the U.N.
- I feel that perhaps Red China should be admitted to the U.N.
- I believe that Red China should be admitted to the U.N.
- I strongly believe that Red China should be admitted to the U.N.

5. War (check one)

- I strongly feel that war is sometimes necessary to solve world problems.
- I feel that war is sometimes necessary to solve world problems.
- I feel that perhaps war is sometimes necessary to solve world problems.
- I feel that perhaps war is never necessary to solve world problems.
- I feel that war is never necessary to solve world problems.
- I strongly feel that war is never necessary to solve world problems.

6. Tipping (check one)

- I am very much opposed to the custom of tipping.
- I am opposed to the custom of tipping.
- I am mildly opposed to the custom of tipping.
- I am mildly in favor of the custom of tipping.
- I am in favor of the custom of tipping.
- I am very much in favor of the custom of tipping.

7. College Education (check one)

- I strongly believe it is very important for a person to have a college education in order to be successful.
- I believe it is very important for a person to have a college education in order to be successful.
- I believe that perhaps it is very important for a person to have a college education in order to be successful.
- I believe that perhaps it is not very important for a person to have a college education in order to be successful.
- I believe that it is not very important for a person to have a college education in order to be successful.
- I strongly believe that it is not very important for a person to have a college education in order to be successful.

8. Divorce (check one)

- I am very much opposed to divorce.
 I am opposed to divorce.
 I am mildly opposed to divorce.
 I am mildly in favor of divorce.
 I am in favor of divorce.
 I am very much in favor of divorce.

Appendix B

NAME _____

(please print)

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. Knowledge of Current Events (check one)

- I believe that this person is very much below average in his (her) knowledge of current events.
- I believe that this person is below average in his (her) knowledge of current events.
- I believe that this person is slightly below average in his (her) knowledge of current events.
- I believe that this person is average in his (her) knowledge of current events.
- I believe that this person is slightly above average in his (her) knowledge of current events.
- I believe that this person is above average in his (her) knowledge of current events.
- I believe that this person is very much above average in his (her) knowledge of current events.

3. 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.

4. 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.

5. 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.

6. Working Together in an Experiment (check one)

I believe that I would very much dislike working with this person in an experiment.

I believe that I would dislike working with this person in an experiment.

I believe that I would dislike working with this person in an experiment to a slight degree.

I believe that I would neither particularly dislike nor particularly enjoy working with this person in an experiment.

I believe that I would enjoy working with this person in an experiment to a slight degree.

I believe that I would enjoy working with this person in an experiment.

I believe that I would very much enjoy working with this person in an experiment.

Appendix C

NAME _____

(please print)

POST-EXPERIMENTAL QUESTIONNAIRE

The results of an experiment are more meaningful to us if we know what your ideas, thoughts and understandings of the experiment just completed were. Please answer each of the following questions frankly and honestly.

1. The experimenter usually conducts a study expecting certain results. This is referred to as the hypothesis.

a. What did you think the hypothesis for this experiment was?

b. Exactly how did you think you were expected to respond?

2. Every psychological experiment is designed to measure some variable or variables. What do you think this experiment was designed to measure?

3. When and where did you get this idea of what the purpose and hypothesis of the experiment was? (please rank each of those which had an influence on your understanding of the hypothesis, e.g., put a 1 for the one which influenced you the most, a 2 for the next, etc. You do not have to put a number by every one).

_____ from the survey of attitudes you completed
_____ from the experimenter's description of the experiment
_____ from the presentation of the other student's attitudes
_____ from the interpersonal judgement questionnaire
_____ from this questionnaire
_____ from other students who told me about the experiment before I came

4. Did you respond to give the experimenter the results you thought he wanted? The results opposite to what he wanted? Or did you not respond in any particular manner?

5. Is either of the faces you were shown an acquaintance or a friend of yours?

_____ Yes

_____ No.