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The Good Subject Motive and the Apprehensive Subject Motive: An Investigation of Their Relative Strengths

James M. Michaud

Loyola University Chicago

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THE GOOD SUBJECT MOTIVE AND THE APPEHENSIVE SUBJECT MOTIVE: AN INVESTIGATION OF THEIR RELATIVE STRENGTHS

by
James M. Michaud

A Thesis Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Master of Arts

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VITA

James M. Michaud was born June 13, 1947 in Syracuse, New York. He attended high school at Syracuse Central Technical, junior college at the State University of New York Agricultural and Technical Institute, Canton, New York, and also attended the State University of New York College at Oswego. He graduated with a Bachelor of Arts Degree from the State University of New York College at Oswego in August, 1971.
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THE GOOD SUBJECT MOTIVE AND THE APPREHENSIVE SUBJECT MOTIVE:
AN INVESTIGATION OF THEIR RELATIVE STRENGTHS

All scientists, no matter what their field of endeavor, must be concerned with the accuracy of the data they collect and the inferences they draw. Psychologists who work with human subjects must be especially critical when evaluating their data, as the nature of the species allows for many rival interpretations of the causes of behavior. This paper examines some hypotheses regarding the motives of human subjects and their effects on experimental outcomes in the field of attitude research. Specifically, the relative strengths of various hypothesized motives are examined in the context of a study of attitudinal self-presentation.

Review of Related Literature

There seems to be a general lack, in the attitude change literature, of experimentally obtained information about the different subject motives which could confound causal inferences. There has been a great deal of hypothesizing by attitude change researchers and a great deal of generalizing of results obtained in other fields. For example, Kiesler, Collins and Miller (1969) state:

One solution is for the experimenter to try to conceal the aspects of the design which would give the subject cues about the intent of the experimental manipulation or the experimenter's hypothesis. Perhaps more effective is the creation of a cover story transparent enough so that all subjects are able to ascertain some "true purpose" of the experiment that is irrelevant to the one the experimenter has in mind (pp. 52-53).

In this case, these authors were talking about a way to handle Orne's (1962) "good subject motive." However, instead of basing their recommendations on
empirical evidence in their field, they were generalizing from anecdotal and
other evidence, which was collected in a very different task situation than
one would find in most attitude change research. Only Rosenberg (1965) and
Silverman and associates (1964, 1965, 1966, 1968a, 1968b) have investigated
the confounding effects of uncontrolled subject motives in attitude research.
Rosenberg (1965) presented and investigated his evaluation apprehension
hypothesis. Silverman investigated many motives he considered as threats to
the validity of attitude research. Unfortunately, neither operationally
distinguished the good subject motive from the apprehensive subject motive.
Weber and Cook (1972) concluded in a review of the subject motive literature,
that the evidence on subject motives was for the most part equivocal at best.
With scanty evidence in the psychological literature in general, and seeming­ly equivocal evidence in the attitude literature, one wonders if the methodo­logical recommendation of Kiesler et al. (1969) might not be premature.

A striking example of what results from failure to base methodolog­
ical recommendations on hard experimental evidence was given by Resnick and
Schwartz (1973). They noted that the APA was considering a revision of its
ethical standards for experimenters (Cook, Hicks, Kimble, McGuire, Schoggen
& Smith, 1972). They also noted that some of the recommendations made could
possibly have a profound effect on the results of human experimentation. In
their experiment, Resnick and Schwartz (1973) ran two groups of subjects on
a verbal conditioning task. One group of subjects was run under the old
ethical standards. The second group of subjects was run under the newly re­
vised set of standards. The first group, as is common in verbal conditioning
research, had no prior knowledge of the experimenter's attempt to condition
certain verbal responses. The group run under the new standards was com­
pletely informed of the experimenter's intentions and procedures. This
latter group responded in a manner opposite of that normally observed in a verbal conditioning study. Instead of exhibiting an increase, subjects in the informed group showed a decrease in the rate of use of the targeted verbal response in the reinforcement period in comparison to its rate during the free operant period. Resnick and Schwartz (1973) thus have shown how changes in procedure which affect subject motivation not only affect the results obtained in experiments of this sort but also the inferences and theoretical structure based on those results.

In light of the above example, the safest path for researchers interested in attitude change methodology would seem to be experimental evaluation of the effects of methodological variables on attitude research before suggesting paradigm limitations. And certainly, the recommendations of Kiesler et al. (1969) might be considered questionable until more facts are gathered, especially since there is a danger inherent in the blind limitation of paradigms. Failure to have a specific knowledge of suspected artifacts might allow unknown aspects of these artifacts to interact with paradigm-related treatment manipulations resulting in undetected modification of independent variable effects.

Perhaps there should be no cause for concern since it appears that attitude researchers tend to use widely different research paradigms. Given their different points of view, contradictions in experimental results are certain to appear in the area that will eventually unmask any hidden artifacts. Because of this evolutionary corrective action, it is possible to turn the "artifact" into an independent variable. This, according to McGuire (1969), is a normal event in the life of an artifact that threatens experimental validity. However, it seems more logical to investigate suspected artifacts in their own right before they are incorporated into the research.
The Effect of Subject Artifacts

An artifact can affect research in three ways. It can affect internal, theoretical and external validity. Internal validity relates to the inferential power of an experiment; theoretical validity relates to the accuracy of the construct hypothesized to mediate the connection between the independent and dependent variables; external validity relates to the generalizability of the phenomenon the experiment explores. To affect internal validity, an artifact must interact differentially with the various manipulations of the independent variable within a specific experiment. In such a case, it is impossible to determine what causes observed differences, the independent variable or the artifact. To affect theoretical validity, an artifact must operate in conjunction with the various operations used to examine a hypothetical construct. In this case, a theory would predict the same results that an artifact might produce in a number of experiments. To affect external validity, an artifact acts equally in all experimental conditions, but is unique to the situation or subject sample used.

An investigation of a subject variable which was suspected of threatening all three types of validity in attitude research was McGuire's (1969) study of suspiciousness of an experimenter's persuasive intent and its effects on deception studies. He stated:

There is cause for concern that in at least eleven lines of research on attitude change there is reason to suspect that the experimental manipulation, in addition to varying whatever it is intended to vary, might also be affecting S's suspiciousness of persuasive intent (p. 22).

Since suspiciousness is a hypothetical construct, it can be inferred by answering two questions. First, to what extent do antecedent conditions of an experiment actually affect suspiciousness? Second, given that suspiciousness
is aroused, to what extent is the dependent variable affected? To answer the first question would require the operationalization of suspiciousness. Answering the second question results in the ability to use a correction mode of coping with the artifact. The suspiciousness artifact represents for McGuire a theoretical threat stemming from uncontrolled or unspecified mediating processes operating within the subject. It stems from lack of control of subject variables. It could threaten internal validity if it interacted with experimental manipulations (was not constant across conditions). It could threaten external validity if it were constant across the conditions of the experiment but its effects were limited to only that type of experimental context.

McGuire reviewed the literature looking for support for his idea by examining the research on experimental setting and context effects. First, he looked at research varying the subject's knowledge that he was a participant in an experiment. Will this knowledge lead to suspiciousness and thus reduce persuasibility? The data said no. Indeed, there was evidence that subjects can be repeatedly deceived and there are no apparent effects on persuasibility, hence no apparent effects on suspicion in McGuire's view.

In his last topic for review, McGuire looked at the effects of forewarning subjects of the experimenter's persuasive intent. Here the results were as contradictory as in other areas. Sometimes attitude change was reduced by forewarning and sometimes it was enhanced. It seemed that if suspicion was bypassed by direct knowledge, no clear-cut results emerged. After looking for support for an artifact implicating suspiciousness of intent to persuade in some attitude change studies, McGuire admitted that he had found little.

It is well to point out here some problems with McGuire's approach.
First, he quoted no experimental evidence which was gathered expressly to test his hypotheses. His analysis was \textit{post hoc}, although quite thorough and logically rigorous. Second, by his own admission, an artifact can only be damaging when it interacts with the total context of one experimental condition in one way and other conditions in other ways (internal validity threat). He made the point that the confusion which rules in the fields he reviewed might be just what one would expect if an uncontrolled artifact were operating. It would interact with different conditions in different ways in different experiments examining the same variable and the results would thus lack consistency. This is analogous to signal vs. noise situations where the noise would sometimes mask the signal. The artifact is the noise. McGuire realized that viewing the literature in this light was somewhat like trying to prove the null hypothesis. If the results did not come out reliably, your hypothesis was supported. However, he felt that further clarification of the theoretical status of the suspiciousness variable might lead to tighter predictions and a tighter fit with the data.

McGuire then attempted such a clarification. The first problem he ran into was the problem of defining suspiciousness. What is the subject suspicious of? Is suspicion like the awareness problem in the verbal conditioning literature? Suspicion has a different connotation than awareness. Awareness implies some confidence in the knowledge the subject has of the experimenter's intent. Suspicion implies a lack of confidence in the subject's knowledge. If the subject is suspicious of the experimenter's intent to persuade, might not that suspicion also arouse suspicion in some that the experimenter is really studying the subject's persuasibility? A distinction might be made between general persuasion studies and specific position persuasion studies since this distinction might interact with the subject's
arousal of suspicion of the experimenter's intent to persuade. In general persuasion studies, it might appear that the experimenter is studying a technique of persuasion, whereas in specific position studies, it might appear that the experimenter is observing the subject's persuasability. Finally, which situation is artificial: the deception study, where the subject's suspicion of the experimenter's intent is often lacking, or a situation where the subject knows that someone is trying to change his mind? (The latter, no doubt, is what happens in most advertising situations.)

A further vexing problem is the possible effects of differential awareness and how it might interact with suspicion. There could be numerous possible levels of awareness. There can be awareness that persuasion is being attempted. There can be awareness of the issue and position that the persuasive message will deal with. Then, there can be awareness that the subject's persuasibility is under study. Finally, there can be awareness of the experimenter's hypothesis.

McGuire listed nine possible mechanisms of the suspiciousness artifact's influence. Three of them inhibit attitude change. Four of them enhance attitude change; the remaining two can act in either manner. It is obvious that any result can be accounted for post hoc with such a theory. It would be very hard to prove it wrong.

The first mechanism, suspicion of the experimenter's intent to persuade, acts to motivate a preparatory defense. If belief bolstering material is provided, attitude change will be inhibited. In the second instance, suspicion increases the probability that the subject will rehearse a defense of his own. This will work better with longer warning-attack intervals. (Freedman & Sears, 1965). It acts to inhibit attitude change. The third mechanism entails suspicion leading to the enhancement of one's personal commitment to
an opinion. It engages self-esteem and inhibits attitude change. The fourth mechanism increases attitude change if the subject is forewarned by informing him of the experimenter's hypothesis. Once forewarned the subject knows what is expected of him and changes accordingly. The fifth mechanism is like that of Orne's (1962). Here the subject is suspicious of the experimenter's intent to persuade and attempts to fulfill what he thinks the experimenter's hypothesis might be. This is different from the fourth mechanism in that the subject is not explicitly told what it is that the experimenter expects. The sixth mechanism involves interactions between suspiciousness, source attractiveness and power. It entails an exchange theory approach. If the experimenter is attractive or powerful, the subject will perform so as to gain the experimenter's favor. This is not unlike Rosenberg's evaluation apprehension hypothesis (1965). An "I scratch your back, you scratch mine," attitude rules the behavior. If the subject is suspicious of the experimenter's persuasive intent and wants to ingratiate himself to the experimenter, he will exhibit attitude change. The seventh mechanism is the production of attitude change due to interaction of suspiciousness and the communication that others do not believe as the subject does. The eighth mechanism uses suspicion as a generalized arouser and this establishes a preparatory set, which can facilitate either attitude change or resistance to change. The ninth mechanism involves suspicion as a cause for distraction. Here attitude change may be inhibited or the construction of a preparatory defense might be inhibited. Therefore, no predictions could be made if this mechanism were operative. These nine mechanisms were suggested by McGuire as potential meditational processes of attitude change. All of the mechanisms could work in a number of simultaneous combinations in a subject population and thus could pose threats to internal, external, and theoretical validity.
We see in McGuire's work an extensive examination of the methodological and theoretical ramifications of a possibly uncontrolled subject variable. If this variable interacts with the experimental manipulations, inference suffers. Subject variables pose a particularly vexing problem to attitude change research because they are so difficult to control. Indeed, both Rosenberg and Orne acknowledged the difficulty of controlling subject reactions to the experimental context. Both authors posited the potential operation of an artifact. Rosenberg (1965), dealing with a specific area of the attitude change literature, generated a hypothesis which appears to have great power and generality, not just in the attitude change literature, but in all human psychological experiments. Orne (1962) suggested that his theory of demand characteristics applied to the whole field of human experimentation.

The Apprehensive Subject

Rosenberg (1965) made a number of assumptions that served to limit his theoretical scope to a greater degree than that of McGuire (1969) in that it dealt with only one of the mechanisms McGuire suggested. Rosenberg's first assumption was that typical human subjects approach the average psychological experiment with the expectation that the psychologist will evaluate his emotional adequacy and/or his mental health or lack of it. Secondly, he assumed that the general public, including students in introductory psychology courses, attribute special abilities to psychologists along the above lines. Further, he assumed that this suspicion will either be confirmed or disconfirmed in the early stages of the experiment. When this suspicion is confirmed, evaluation apprehension results. Evaluation apprehension is an active, anxiety toned concern that the subject win a positive evaluation from the experimenter or
provide no grounds for a negative evaluation. Finally, it is possible that evaluation apprehension can develop differentially in the experimental conditions, thus damaging inference by confounding the effect of the independent variable. The above assumptions are relatively specific and lead to potentially researchable subject-generated threats to validity.

Rosenberg posited another response mechanism in addition to evaluation apprehension. The further threat to validity results from changed affect toward the experimenter. In many experiments, the experimenter must act differently toward the subjects in different experimental conditions. If during these actions the experimenter engenders differential cross-cell affect, then this may result in a confound. If the subject gets mad at the experimenter in one condition and not in another, he may respond to this experimental context as well as to the independent variable. For example, if the experimenter offers the subject a large reward for changing his expressed opinion on an issue, the subject may be angered and change his opinion in the opposite direction, thus producing a boomerang effect.

The Good Subject

"Demand characteristics" was the label Orne (1962) used to describe a mediational subject variable which he felt posed a threat to the internal validity of human experiments. As with Rosenberg's analysis, the social aspects of the experimental context are seen as an important potential source of differential subject responses to the experimental context which can mediate the subject's response on the dependent variable and contaminate the experimental results. However, according to Orne, subjects are concerned with perceiving and utilizing cues from the experimental setting which will allow them to deduce the experimenter's hypothesis and then attempt to live up to the prediction in an effort to be "good subjects." As partners in a dynamic
social interaction, the subject and the experimenter supposedly adopt well defined roles as soon as the subject commits himself to "be in an experiment."

Orne suggests there are three motives operative in subjects when taking part in an experiment. The first motive subjects have is a desire to obey authority. Secondly, they want to have the experiment come out successfully due to the high regard they hold for scientific endeavors and the potential they have for helping mankind. Thirdly, they are motivated to maintain their self-esteem. However, the subjects are more concerned with being good subjects than they are with maintaining their self-esteem. Here we see a difference between Orne's and Rosenberg's views of the motives of subjects. Rosenberg says subjects will try to receive a favorable evaluation from the experimenter. Orne says subjects will try to be good subjects.

Sigall, Aronson and Van Hoose (1970) tested these contentions in an experiment which pitted evaluation apprehension against the demand characteristics of the experimental context. The hypothesis for this study was, "if a subject knows the experimenter's hypothesis he will not try to be consistent with those expectations if his cooperation will put him in a bad light." The study utilized a repeated measures design with a control group and three experimental treatment groups. The task variable was copying long lists of phone numbers and the dependent measure was the increase or decrease in the number of phone numbers copied between pretest and posttest. It was made clear to the subjects that the task was unrelated to intelligence and associated abilities. For the first measure all subjects were given blank, unlined sheets of paper and long lists of phone numbers. They were instructed to copy numbers as quickly and accurately as possible. They worked for seven minutes. At the end of the work period, the experimenter entered the room again and took the lists of numbers which were discreetly totaled for each subject. The
control group was then given lined and numbered paper and asked to copy again. They worked an additional seven minutes.

The experimental groups were separated by the demand characteristic motive and evaluation apprehension motive both of which were manipulated by the situational contexts the groups were assigned to. In the first condition, the experimenter told the subject that he expected X+20 phone numbers to be copied in the next period due to the lighting of the room. The value X was determined by totaling the subject's output on the previous task. Both the experimenter's hypothesis (which represented the demand characteristics) and the subject's evaluation apprehension would tend to motivate the subject to increase his performance. In the second condition, the experimenter told the subject that he expected X-20 numbers due to the lighting. Here evaluation apprehension would call for an increase in performance while the demand characteristics would call for a decrease. In this condition, the motives are discrepant. In the third condition, the experimenter told the subject that those subjects who were compelled to rush at boring and trivial tasks indicated that they had obsessive-compulsive traits. In this case, the demand motives and evaluation motives called for a decrease in performance.

The results confirmed the hypotheses. In the first condition, where the motives were congruent in calling for increased output, the output increased. In the second condition, where evaluation apprehension called for increased output and demand characteristics called for decreased output, the output increased significantly. This would favor an evaluation apprehension interpretation. In the final condition where both motives called for decreased output, decreased output was found. The conclusion for the task used was that evaluative motives were significantly stronger than good subject motives.
In a review article on subject motive research, Weber and Cook (1972) pointed out that there is little research on subject variables in the attitude literature. Of course, a great deal of research can be cited to support or threaten specific hypotheses. Yet, as stated earlier, besides the work of Rosenberg (1965) and Silverman and his associates (1964, 1965, 1966, 1968a, 1968b), little research specifically testing subject variable hypotheses exists in the attitude field. Further, there are no studies testing the relative strengths of the various subject motives. Rosenberg (1965) tested an evaluation apprehension hypothesis in attitude change but, like Silverman's many studies, failed to control for the plausible rival hypothesis of good subject motive reactions as Sigall et al. (1970) did in their performance study. This is the void in the research that the present study was designed to fill. It tested the relative strengths of evaluation apprehension motives and demand characteristic motives in a study of self-presentation on an attitude scale administered at one point in time. The differences of randomly assigned groups of subjects on an attitude measure were examined in the light of changes in the experimental context.

Procedure

Hypotheses and Overview

Rosenberg (1965) stated that Ss were motivated to make a good impression on E, or at least, make no bad impressions. He suggested that Ss have their evaluation suspicions confirmed early in an experiment. If it is perceived that E is capable of and intends to make an evaluation of the adequacy of S, then S's primary motive will be to obtain a good evaluation. In this study, early in the experiment it was either implied or nor that E would make an evaluation of S by his performance on an attitude scale. In one set
of conditions, it was stated that responses on a particular test reflect the above average emotionality or intelligence of college students. It was assumed that college students would prefer to appear intelligent rather than appear as emotional. Therefore, if it is implied by E that emotionality tends to inflate the test scores in one direction, the Ss should have inflated scores in the other direction while if it is implied that intelligence inflates scores in a particular direction, then the college students should have inflated scores in that direction. Further, in keeping with Silverman (1968b), this effect of evaluation apprehension should be magnified if S has to put his name on such a test. If he does, S should have a perception of greater negative evaluation potential since E would have a ready way to identify S at a later date. Therefore, the attitude scores which are indicative of the operation of evaluation apprehension should be greater when S is requested to put his name on the test.

Orne (1962) suggested that S's primary motive was to be a good subject and confirm E's hypothesis. He further suggested that given a choice of appearing in a good light and disconfirming E's hypothesis or appearing in a bad light and confirming E's hypothesis, S would take the latter. As Sigall et al. (1970) pointed out, this is contrary to the predictions of Rosenberg (1965). In the present study, S was either made aware of E's hypothesis or not made aware of it. In the aware condition, it was mentioned that, due to certain factors, Ss were expected to test out in certain ways on the particular test used. In the control condition, no such mention was made. These manipulations were included in an attempt to elicit the good subject motive but in keeping with the Sigall et al. (1970) results, no effects were expected from differential awareness alone.

In conclusion, there were three independent variables in the present
study. One was whether or not $S$ was evaluatively aroused. The second was whether or not $S$ was requested to sign his name. The third was whether or not the good subject manipulations were part of $S'$s environment.

In an attempt to provide for as much control of the independent variable as possible, the instructions for the experiment were written, with the manipulations consisting of minimal changes in either the order of the wording or the inclusion of wording.

The dependent measure was scores on Kerlinger's (1963) Social Attitude Scale which measures liberalism-conservatism. A further dependent variable consisted of responses to a mock election for President of the United States in which a choice was made between Sen. Barry Goldwater and Sen. George McGovern. By coding ballots for each condition, estimates of liberalism and conservatism in voting were obtained for each experimental condition. These estimates of social attitude were then to be compared to the Kerlinger scale scores for each condition to see if they agreed.

It was hypothesized that variations in the questionnaire responses among the groups would be entirely a function of differential elicitation of the apprehensive subject motive. Although a serious attempt was made to elicit the good subject motive in accordance with the conditions put forward by the major theorist in the area (Orne, 1962), responses were not predicted to be affected by these conditions. Thus, it was hypothesized that the difference observed between the experimental groups and the control groups would be of equal magnitude, but different directions. When the apprehensive subject and good subject motives were simultaneously manipulated, and were congruent in their directive pressures the differences in scores on the attitude scale between these groups and the control groups would be equal to those obtained when the good subject and apprehensive subject motives were simultaneously
manipulated, and were discrepant in their directive pressures. In the first case both motives called for a conservative response. In the second case the apprehensive subject motive called for a liberal response. Therefore, in the first case experimental groups would be more conservative than controls. In the second case they would be more liberal than controls. There would be an interaction between evaluation apprehension and lack of anonymity with those Ss who were in the evaluation apprehension condition where their name was required having higher scores than Ss in an evaluation condition where they remained anonymous. The inclusion of mock election data would provide an opportunity to explore the effects of biased self-presentation influences in questionnaire responses on related behavior under anonymous conditions.

Subjects

The sample consisted of 96 male and female undergraduates from Loyola University of Chicago. They were captive volunteers who chose to participate in this study from among a number of studies. They volunteered not knowing what the experiment was about but participated in order to fulfill course requirements for an introductory psychology course.

Method

Copies of Kerlinger's (1963) scale were employed. Each copy had an instruction sheet attached which contained the manipulation. The mock election was conducted using plain white printed ballots, which E placed in a ballot box. The box was emptied after each group was run so that group scores could be computed. All Ss were run in groups of 4-6. There were 12 Ss in total run in each condition. As Ss arrived they were told to wait until the group was completed. When all were together, E said that the experiment was a testing study and then passed out the questionnaires. On each questionnaire
was a set of directions. The E instructed Ss to read these directions and proceed at their own pace.

The Ss read the instructions and completed the questionnaire and raised their hands. The questionnaire was collected and E passed out the material for the mock elections. Again, written instructions were used. The Ss completed the ballots and deposited them in the ballot box. At this time, E inquired what Ss thought the experiment was about. He explained the procedure, passed out a written description of the study, and requested secrecy. The Ss were then dismissed.

The experiment had eight conditions. It was not a complete factorial design, as it seemed impossible to devise a situation where evaluation apprehension could be manipulated in the absence of demand characteristics. However, it was possible to have demand characteristic manipulations without evaluation apprehension as a confound.

The Ss were run in discrete groups over a five-day period. Initially, there were plans for four conditions to be run each day for four consecutive days. The name-no name conditions were run on alternate days in counterbalanced order with a coin flip determining which condition went first. Within days the four conditions were: control (C), the good subject motive condition (Good S), the good subject apprehensive subject convergent condition (Good S-App S-Conv), and the good subject apprehensive subject divergent condition (Good S-App S-Divg). The order of running these groups on the four days was determined by a latin square randomized assignment procedure. Some Ss failed to make their appointments which necessitated a fifth day of running Ss in all eight conditions ordered randomly.

Because it was assumed that college students as a group tend to be rather liberal in their social attitudes, the induction of the expectancy
manipulation in the Good S conditions was in the direction of conservative response. In the Good S-App S-Conv conditions, both manipulations were intended to motivate a conservative response. In the Good S-App S-Divg condition, the Good S motive dictated a conservative response and the App S motive dictated a liberal response. (See Appendix I for the directions given to Ss.)

The Kerlinger (1963) scale factors into four main components. One is a liberal factor, the second is a conservative factor, the third is a naysayer factor (Ss respond in a general negative fashion) and the fourth is an aysayer factor. There are both liberal and conservative items and although not advised by Kerlinger, the scoring on the conservative factor can be reversed to get a unidimensional scale. An analysis of variance was planned for both the liberal and conservative items separately and for the composite index. Planned orthogonal comparisons were also used since a complex interaction between the apprehensive subject motive and the anonymity condition was predicted.

The design of the study is depicted in Table 1.
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<sup>1</sup>The letters in each cell identify the points on Figure 1.
Results

A two dimension plot of the mean group responses showed that, as assumed, all $E_\$ groups tended to respond on the liberal end of the scale. In fact, as can be seen in Figure 1, all group mean scores fell in one quadrant of the graph, that being the pro-liberal anti-conservative sector.

The information obtained on the mock election showed insufficient variability or mean group differences to discriminate between the groups and for this reason, was dropped from further consideration.$^1$

An analysis of variance of the liberal scores of the Kerlinger scale showed no main effects for either name or motive conditions but a significant $(p<.05)$ interaction between the name and motive factors was obtained $(F=2.99, \ df \ 3/88)$. An analysis of variance of the conservative scores on the Kerlinger scale showed no significant differences.

An analysis of variance of the combined index scores (presented in Table 2) again showed only a significant $(p<.05)$ name by motive interaction.

$^1$ It seemed that a majority of $S$s, when asked, were unsure of Sen. Goldwater's political stance. It escaped $E$, when planning this study, that many $S$s would have been approximately 10 years old when Sen. Goldwater was a candidate.
Figure Captions

FIGURE 1

Bivariate Distribution of Scores on Social Attitude Scale

A= Name-Control
B= No Name-Control
C= Name-Good S
D= No Name-Good S
E= Name-Good S-App S-Conv
F= No Name-Good S-App S-Conv
G= Name-Good S-App S-Divg
H= No Name-Good S-App S-Divg
In Table 3, the cell means of the combined scores are presented. In the multiple comparisons of these scores, only one comparison was significant ($p < .01$) and that was the comparison between the Name-Good S-App S-Conv and Divg conditions and the No Name-Good S-App S-Conv and Divg conditions ($F = 8.899$, df 1/88). As can be noted in Table 2, the means for these conditions show a classic interaction pattern. The No Name-Good S-App S-Conv value is by far the highest value in the index. Further, the No Name-Good S-App S-Divg value is the lowest. Since a high score on this index indicates a liberal response, the No Name-Good S-App S-Conv group is the most liberal whereas the No Name-Good S-App S-Divg group is the most conservative (least liberal). It will be recalled that the convergent motive conditions are under evaluative pressure to be conservative and the divergent motive conditions are under evaluative pressure to be more liberal. The results in the dual motive Name conditions follow this pattern. The Name-Good S-App S-Conv group is the second most conservative and the Name-Good S-App S-Divg group is the second most liberal. This is just the reverse of what was found in the No Name conditions.

The No Name conditions show a rather marked boomerang effect in the dual motive groups. There is also a clear effect of potential evaluation in the Name condition, this in spite of the boomerang. It will be noted that the mean scores for the evaluative groups are more extreme than those of both the Control groups and the Good S groups. Not only was the Good S manipulation unsuccessful but in the anonymous condition Ss would appear to be bad subjects. Since the Good S motive seemed inoperative, showing neither main effects nor interactive effects, it merited no further consideration.
Table 2

Analysis of Variance of Composite Scores on Social Attitude Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymity (A)</td>
<td>1</td>
<td>240.66</td>
<td>1.118</td>
</tr>
<tr>
<td>Motivation (B)</td>
<td>3</td>
<td>255.01</td>
<td>1.179</td>
</tr>
<tr>
<td>A x B</td>
<td>3</td>
<td>655.63</td>
<td>3.030*</td>
</tr>
<tr>
<td>Error</td>
<td>88</td>
<td>216.33</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05
Table 3
Mean Composite Scores on the Social Attitude Scale

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Good S</th>
<th>App S</th>
<th>Good S</th>
<th>App S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>12.33</td>
<td>13.75</td>
<td>11.66</td>
<td>17.80</td>
<td></td>
</tr>
<tr>
<td>No Name</td>
<td>13.66</td>
<td>16.25</td>
<td>28.75</td>
<td>9.35</td>
<td></td>
</tr>
</tbody>
</table>

1 Higher scores indicate a more liberal response
Discussion

The predicted interaction between name and evaluation was achieved in the results. Indeed, it appears that the evaluative effect may be overcoming a rather strong boomerang tendency. There is no question that the boomerang effect is the most striking result of this research. It was stated earlier that Resnick and Schwartz (1973) had also noted a boomerang effect when they informed Ss what E expected. The theory of reactance by Brehm (1966) seems the logical choice to account for this effect. If it can be assumed that Ss felt it was important to exercise their freedom, and if the pressure to adopt a particular attitude was greater in the evaluative conditions than in the others, then Brehm's theory would predict the obtained boomerang effects in the convergent conditions. However, it is important to note that the apprehensive motivation of non-anonymous Ss counteracted this reactance. The anonymity dimension is empirically seen as important to both Brehm's theory and Rosenberg's hypothesis.

It must be realized that the above research although supportive of Brehm's theory of reactance was not an a priori test of that theory. There is no question that a study which pits the reactive S against the apprehensive S in perhaps another setting is called for. Then, operations can be derived from each approach and put to an empirical test.

One marked failure to account for the results is Orne's (1969) "bend over backward" hypothesis. He stated that in a clear unambiguous demand situation "where E's hypothesis is blatantly obvious," Ss will bend over backwards to be honest. In the above situation, S not only knew E's hypothesis but some of the rationale behind it. Instead of bending over backwards to be honest (and appearing like the control Ss) they, in effect, responded in a way that would tend to disconfirm E's hypothesis even if it meant distorting their
position. All in all, Orne's theory fares very poorly.

The results obtained are in accord with those of Sigall et al. (1970), which means that now two studies in radically different task areas have experimentally tested the Good S motive and failed to find support for it. Weber and Cook (1972) had concluded that there was some evidence (Sigall et al., 1970) which supported the apprehensive subject hypothesis. Again, this study is in agreement with that conclusion. One possible approach for further research would be to study the effects of evaluation manipulations on learning and performance. If evaluation apprehension is an active anxiety toned state as Rosenberg suggested, perhaps, in accordance with learning theory, it can facilitate performance and inhibit learning. It would appear that evaluation apprehension is closely related to such constructs as social desirability (Crowne & Marlowe, 1964) and social facilitation (Zajonc, 1965). In any event the importance of subject variables is clearly recognized. Orne's recommendations for the social psychological analysis of the psychological experiment are clearly valid.

In retrospect, the recommendations of Kiesler et al. (1969) are clearly premature. If reactance and apprehension are valid constructs, then E is in an indefensible situation if he concocts a "transparent cover story." Subjects might react with a boomerang response to such a manipulation or an evaluative response depending on the setting. The interface between these two competing responses must be explored fully.

As indicated earlier, there is a clear danger in generalizing from research in one field to another. Context effects and paradigm differences are likely to play as important a role in construct validation as the manipulation of independent variables.
References


Appendix I
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<table>
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</thead>
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<td>Mock Election Instructions</td>
<td>40</td>
</tr>
<tr>
<td>Explanation Given to Subjects</td>
<td>43</td>
</tr>
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</table>

| Explanation Given to Subjects                  | 44   |
Directions
(No Name-Control)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure.

All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions

(Name-Control)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure.

We may want to check back with you later, so place your name in the upper right-hand corner of the answer sheet. All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions

(No Name-Good $)  

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure. It is our suspicion that on this particular test, college students will tend to appear more conservative than they usually appear on other tests.

All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions

(Name-Good S)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure. It is our suspicion that on this particular test, college students will tend to appear more conservative than they usually appear on other tests.

We may want to check back with you later so place your name in the upper right-hand corner of the answer sheet. All of the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions
(No Name-Good S-App S-Conv)

The test you are about to take is supposed to measure social atti-
tudes. This is a relatively new test and we are not quite sure how valid it
is. We would like your cooperation in order to determine if this test measures
what it is supposed to measure. It is our suspicion that on this particular
test, college students will tend to appear more conservative than they usually
appear on other tests. This is because conservative responses on this par-
ticular test seem to reflect a higher level of intelligence among college
students relative to other groups on certain issues. The conservative-intell-
gence link on this test is in contrast to the more usual relationship, among
college students, between their high level of emotionalism and their endorse-
ment of liberal responses.

All the answers you give will be confidential so feel free to state
your true attitudes. Mark the answers that you feel are most representative
of your own opinions on the answer sheet. Please complete it at your own
pace and raise your hand when you are finished. The experimenter will then
come around and pick up your answer sheet.
Directions

(Name-Good S-App S-Conv)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure. It is our suspicion that on this particular test, college students will tend to appear more conservative than they usually appear on other tests. This is because conservative responses on this particular test seem to reflect a high level of intelligence among college students relative to other groups on certain issues. The conservative-intelligence link on this test is in contrast to the more usual relationship, among college students, between their high level of emotionalism and their endorsement of liberal responses.

We may want to check back with you later so place your name in the upper right-hand corner of the answer sheet. All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions

(No Name-Good S-App S-Divg)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure. It is our suspicion that on this particular test, college students will tend to appear more conservative than they usually appear on other tests. This is because conservative responses on this particular test seem to reflect a higher level of emotionalism among college students relative to other groups on certain issues. The conservative-emotionalism link on this test is in contrast to the more usual relationship, among college students, between their high level of intelligence and their endorsement of liberal responses.

All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Directions

(Name-Good S-App S-Divg)

The test you are about to take is supposed to measure social attitudes. This is a relatively new test and we are not quite sure how valid it is. We would like your cooperation in order to determine if this test measures what it is supposed to measure. It is our suspicion that on this particular test college students will tend to appear more conservative than they usually appear on other tests. This is because conservative responses on this particular test seem to reflect a higher level of emotionalism among college students relative to other groups on certain issues. The conservative-emotionalism link on this test is in contrast to the more usual relationship, among college students, between their high level of intelligence and their endorsement of liberal responses.

We may want to check back with you later so place your name in the upper right hand-corner of the answer sheet. All the answers you give will be confidential so feel free to state your true attitudes. Mark the answers that you feel are most representative of your own opinions on the answer sheet. Please complete it at your own pace and raise your hand when you are finished. The experimenter will then come around and pick up your answer sheet.
Given below are statements on various social problems about which we all have beliefs, opinion, and attitudes. We all think differently about each matter, and this scale is an attempt to let you express your beliefs and opinions. There are no right or wrong answers. Please respond to each of the items as follows:

<table>
<thead>
<tr>
<th>Agree very strongly</th>
<th>+3</th>
<th>Disagree very strongly</th>
<th>-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree strongly</td>
<td>+2</td>
<td>Disagree strongly</td>
<td>-2</td>
</tr>
<tr>
<td>Agree</td>
<td>+1</td>
<td>Disagree</td>
<td>-1</td>
</tr>
</tbody>
</table>

For example, if you agree very strongly with a statement, you would write +3 next to the appropriate number on your answer sheet, but if you should happen to disagree with it, you would put -1 next to the number. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on. Don’t go back once you have responded to a statement.

1. Individuals who are against churches and religious should not be allowed to teach in college.
2. Large fortunes should be taxed fairly heavily over and above income taxes.
3. Both public and private universities and colleges should get generous aid from both state and federal governments.
4. Science and society would both be better off if scientists took no part in politics.
5. Society should be quicker to throw out old ideas and traditions and to adopt new thinking and customs.
6. To ensure adequate care of the sick, we need to change radically the present system of privately controlled medical care.
7. If civilization is to survive, there must be a turning back to religion.
8. A first consideration in any society is the protection of property rights.
9. Government ownership and management of utilities leads to bureaucracy and inefficiency.
10. If the United States takes part in any sort of world organization, we should be sure that we lose none of our power and influence.
11. Funds for school construction should come from state and federal government loans at no interest or very low interest.
12. Inherited racial characteristics play more of a part in the achievement of individuals and groups than is generally known.
13 Federal Government aid for the construction of schools is long overdue, and should be instituted as a permanent policy.

14 Our present economic system should be reformed so that profits are replaced by reimbursement for useful work.

15 Public enterprises like railroads should not make profits; they are entitled to fares sufficient to enable them to pay only a fair interest on the actual cash capital they have invested.

16 Government laws and regulations should be such as first to ensure the prosperity of business since the prosperity of all depends on the prosperity of business.

17 All individuals who are intellectually capable of benefiting from it should get college education, at public expense if necessary.

18 The well-being of a nation depends mainly on its industry and business.

19 True democracy is limited in the United States because of the special privileges enjoyed by business and industry.

20 The gradual social ownership of industry needs to be encouraged if we are ever to cure some of the ills of our society.

21 There are too many professors in our colleges and universities who are radical in their social and political beliefs.

22 There should be no government interference with business and trade.

23 Some sort of religious education should be given in public schools.

24 Unemployment insurance is an inalienable right of the working man.

25 Individuals with the ability and foresight to earn and accumulate wealth should have the right to enjoy that wealth without government interference and regulations.

26 The United Nations should be whole-heartedly supported by all of us.
SOCIAL ATTITUDE SCALE ANSWER SHEET PLEASE ANSWER ALL QUESTIONS

<p>| | | | |</p>
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<tr>
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<td>1.</td>
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<tr>
<td>2.</td>
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<tr>
<td>13.</td>
<td>___</td>
<td>26.</td>
<td>___</td>
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</table>
Directions

This is a mock election for the president of the United States. You have been given an unmarked ballot. Indicate your preference for the president from the two candidates provided. Don't write in any other names. If you dislike both candidates, pick the one you dislike least. It is important that you choose between these men. When you have made your choice, raise your hand and the experimenter will bring around a sealed ballot box.
ELECTION BALLOT

CHECK ONLY ONE CANDIDATE

BARRY GOLDWATER

GEORGE MC GOVERN
Explanation Given To Subjects at End of Experiment

The experiment you have just finished was an attempt to study the effects of different subject motives on responding behavior to a standard questionnaire. The design of the study required that different groups of subjects be given different sets of directions for the social attitude scale. You, as a subject, were part of one of the eight groups that received different sets of instructions. These directions were written so that they would elicit different motives in the subjects of different groups. We will examine the scores to see if there are differences in the response patterns of the eight groups. If there are differences, then they will be attributed to the differences in the directions, since all other aspects of the experimental situation were held constant.

Some psychologists have hypothesized that subjects feel some apprehension when taking part in psychological experiments. Their theory is that the research subject is worried about what the experimenter might think of his performance or behavior. We have attempted, through different instructions in different conditions to elicit and vary this motive. In some conditions we tried to link conservative responses with above average intelligence. In other conditions we tried to link these same conservative responses with above average emotionalism. Our hypothesis was that in the different conditions we would see a tendency for the subjects to respond more conservatively when such responses were linked to intelligence and less conservatively when such responses were linked to emotionalism.

We also varied whether the subject put his or her name on the paper. We hypothesized that subjects who put their names on the paper would be more apprehensive than subjects who didn't, and this would magnify the differences in responding hypothesized earlier.

We also varied whether the directions told the subjects what type of responses were expected. Some psychologists feel that subjects are motivated to fulfill the experimenter's expectations. We tried to vary this motive in conjunction with the apprehensive subject motive so that in some cases the directions of the motivated behavior were congruent and in other cases they were discrepant. We expected that this latter motive would not have any noticeable effect on either convergent condition or discrepant condition response patterns.
APPROVAL SHEET

The Thesis submitted by James M. Michaud has been read and approved by members of the Department of Psychology.

The final copies have been examined by the director of the Thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the Thesis is now given final approval with reference to content and form.

The Thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

5/21/73

Marilyn B. Brewer

Date

Signature of Advisor