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W.D.B.

THE EFFECTS OF EXPERIMENTAL DECEPTION IN BEHAVIOR RESEARCH:
A REPLICATION OF THE ASCH CONFORMITY EXPERIMENT WITH
REFERENCE TO DEMAND CHARACTERISTICS

Presented To

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ABSTRACT

Recent studies in social psychology have given considerable attention to the methodological problems created by deception in psychological experiments. The validity of an experimental study rests on the ability of the experimenter to explain the variance in subject behavior on the basis of particular experimental variables. But the use of deception introduces a whole series of new variables that may influence the set of subjects in special ways and may produce variations unknown to the experimenter.

In the typical conformity experiment, subjects are deceived about the purpose of the experiment. Subjects are usually told that they are taking part in a study of perception. The present study was a replication of the Asch conformity experiment with reference to the demand characteristics of the experimental situation.

The study investigated whether the Asch theory of social influence, using the standard Asch material, would generalize to a group of subjects characterized by an anti-social lifestyle. It was reasoned that if responsiveness to the social environment is a measure of susceptibility to group influence, then it might be assumed that prison inmates would be less susceptible to group influence than normal subjects. Thus it was hypothesized that prison inmate subjects by comparison would exhibit less conforming behavior than the original Asch college sample. The findings of this study revealed that prison inmate subjects made substantially more conforming responses than the Asch group when confronted with a disagreeing majority, though not statistically significant.

However, the focus of this study on conformity was concerned not only

with the behavioral consequences of group pressure, but also with the demand characteristics of the experimental situation. The results of this study suggest that the effects of institutionalization are probably a major factor contributing to conforming behavior.

An additional methodological variation of the Asch situation was used to assess the effects of experimentally reinforced conformity. It was hypothesized that feedback to the subject of information concerning the correctness of his judgment would have an effect on the degree of conformity. Specifically, it was expected that the added weight of the experimenter's authoritative confirmation of the bogus group and hence the demand characteristics of E's expectation increases the probability of a conforming response. The findings that reinforcement for agreeing with the group leads to increased conformity and reinforcement for disagreeing to decreased conformity is evidenced by this study.

The results of the present study indicate that subject's performance in the experimental situation is motivated, in part at least, by a desire to respond to the experimenter's expectations. Prison inmate subjects are certainly a captive group within an institutional setting which reinforces compliance to authority. That these subjects perceive themselves as having no choice in the research situation, particularly since the experimenter is conducting his research with permission from the institutional authority on which the subject is dependent is self-evident. Reinforcement has the potential of providing cues regarding the experimental purpose and the subject's need for approval has been related to compliance with situational demand characteristics within the prison setting.

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A. INTRODUCTION

Recent studies in social psychology have given considerable attention to the methodological problems created by deception in psychological experiments (Kelman, 1967, 1972; Schultz, 1969; Seeman, 1969; Higbee and Wells, 1972; Weick, 1969). Kelman (1967, 1972) has stressed the ethical and methodological problems while Orne (1962) and Rosenthal (1966) have focused attention on the effects of the subject (S) and the experimenter (E) on the outcome of the experiment.

The investigation of social conformity has been a central concern within social psychology since the early studies of Sherif (1936) and Asch (1952). This research has been conducted in control experimental situations and has been concentrated on the effect of social influence upon perceptual judgments. Sherif investigated the effect of social pressures on autokinetic phenomena, and Asch was concerned with the consequences of group pressure on the judgment of lines.

In the typical conformity experiment, subjects are deceived about

¹This paper was presented to the Department of Psychology, Appalachian State University, on May 8, 1973, as partial fulfillment of the Master of Arts Thesis requirements.

the purpose of the experiment. Subjects are usually told that they are taking part in a study of perception. Recent conformity studies (Glinski et al, 1970; Strickler, et al, 1967; Willis and Willis, 1970) that have tried to assess the amount of suspicion present have reported that surprisingly large numbers of subjects are not deceived. Glinski et al, (1970) and Strickler et al (1970) found that deceived subjects were more conforming than suspicious subjects. However, Gallo et al (1970) in an investigation of distance perception using a modified Crutchfield conformity apparatus found that progressively disclosing information about the purpose of the experiment did not have an effect on the amount of conforming behavior. It was suggested that these results raise severe doubts about methodological assumptions commonly used in social psychological experiments, namely that the subject must not be aware of the nature of the experiment. It is interesting to note that in the full information condition in which subjects were told that they were in a conformity experiment, several subjects felt that the experiment was really a study of distance perception and that the information about being a conformity experiment was thrown in to confuse them. This seems to substantiate Argyris' (1968) comment that subjects now come into the laboratory fully expecting to be deceived.

The validity of an experimental study rests on the ability of the experimenter to explain the variance in subject behavior on the basis of particular experimental variables. But the use of deception introduces a whole series of new variables that may influence the set of subjects in special ways and produce variations unknown to the experimenter (Seeman, 1969). Seeman (1969) argued that the psychologist has sought to construct experimental controls by setting up fictional environments.

These fictional environments are designed to induce specified sets or expectancies in the subject and one of the distinguishing characteristics is that they typically involve the use of deception such as the creation of fictional social norms through the use of confederates and the use of false verbal instructions. Seeman (1969) urged that it is self-evident that the subject learned to distrust the experimenter, and perhaps by generalization to distrust any experimenter.

Weick (1969) described the Milgram obedience experiments as the "symbol of social psychology at its worst and most destructive." Kelman (1967) more forcefully illustrated the potentially harmful effects of deception by focusing attention also on the Milgram (1963, 1965) studies of obedience. He argued that both obedient and defiant subjects exhibited a great deal of stress in this situation. Kelman (1967) raised a similar question about the Asch (1952) experiments on group pressure, though the stressfulness was less intense in the Asch study. In all of these studies, the deception was explained to the subject at the end of the experiment. Kelman (1967), however, questioned whether such explanation removes the possibility of harmful effects.

The American Psychological Association has set forth the following guidelines on the problem of ethics in research. Principle 16, Research Precautions, "Ethical Standards of Psychologist," reads in part:

- A. Only when a problem is of scientific significance and it is not practicable to investigate it in any other way is the psychologist justified in exposing research subjects...to physical or emotional stress as part of the investigation.
- B. When a reasonable possibility of injurious aftereffects exists, research is conducted only when the subjects or their responsible agents are fully informed of this possibility and agree to participate nevertheless.
- C. The psychologist seriously considers the possibility of harmful aftereffects and avoids them, or removes them as soon as per-

mitted by the design of the experiment (American Psychological Association, 1963, pp. 59-60).

Brock and Becker (1966) have studied the effects that deception has on S's performance in subsequent psychological experiments. They reported that subjects became "desensitized" to experimental manipulation as a result of suspicion arising from their prior debriefing experience. Keisner (1971) suggested that desensitization probably occurs when suspicion causes subjects either to pay less attention to an experimenter's pressures for compliance or be motivated not to comply with perceived pressures. Fillenbaum (1966), however, found only slight and insignificant differences in performance between deceived Ss and their non-deceived controls. He reported that while a substantial proportion of Ss had suspicions about the experimental task, few Ss acted upon their suspicions. Asch (1952) reported that subjects do not "resent the temporary imposition practised upon them provided they understand the purpose of the investigation." A number of subjects in the Asch study felt that the experiment had been a worthwhile experience.

The use of deception in behavior research is intended to control the experimental environment. Thus the subject must remain naive as to the nature and purpose of the experiment. Kelman (1967) noted that subjects "may not know the exact purpose of the particular experiment in which they are participating, but at least they know, typically, that it is not what the experimenter says it is" (p. 6). Orne (1962) pointed out that the use of deception "on the part of the psychologist is so widely known in the college population that even if the psychologist is honest with the subject, more often than not he will be distrusted."

However, Orne (1962) suggested that most subjects (college students)

in psychological experiments have such a high regard for the aims of science that they

tend to share (with the experimenter) the hope and expectation that the study in which they are participating will in some way contribute to science Both subject and experimenter share the belief that whatever the experimental task is, it is important, and that as such no matter how much effort must be expected or how much discomfort must be endured, it is justified by the ultimate purpose (p. 778).

Orne (1962) has studied the outcomes of a number of experiments as functions of the demands of the experiment. The experimental task is influenced by a host of cues Orne (1962) called demand characteristics of the experimental situation. Demand characteristics are

the rumors or campus scuttlebutt about the research, the information conveyed during the original solicitation, the person of the experimenter, and the setting of the laboratory, as well as all explicit and implicit communications during the experiment proper (p. 779).

Orne (1962) has extensively researched the effects of demand characteristics on Ss experimental performance and concluded that Ss participating in an experiment are motivated in part by a desire to be a "good" S. As such, Orne contends that Ss try to assess the demand characteristics, or cues, relating to the purpose of the experiment so that their performance can be made more compatible to E's expectations, at least as Ss perceive them. Rosenthal (1963) has studied the role of the experimenter and has produced considerable evidence demonstrating that Es, at least inexperienced Es, are capable of subtly communicating their outcome expectations to Ss, thus biasing results in the direction of E's expectations.

"The existing science of human behavior is largely the science of the behavior of sophomores" (McNemar, 1946, p. 3). "Often ours seems to be a

science of just those sophomores who volunteer to participate in our research and who also keep their appointment with the investigator" (Rosenthal and Rosnow, 1969, p. 110).

Rosenthal (1966) found that certain situational variables tended to increase the likelihood of volunteering. These include

(a) having only a relatively less attractive alternative to volunteering; (b) increasing the intensity of the request to volunteer; (c) increasing the perception that others in a similar situation would volunteer; (d) increasing acquaintanceship with, the perceived prestige of, and liking for, the experimenter; (e) having greater intrinsic interest in the subject matter being investigated; and (f) increasing the subjective probability of subsequently being favorably evaluated or not favorably evaluated by the experimenter (Rosenthal, 1966, p. 403).

The research by Rosenthal (1966) suggested that volunteer Ss tend to have a greater need for social approval and that this need for approval promotes a greater desire to verify perceived expectations of E.

Orne (1962) stated that the demand characteristics perceived in any experiment will vary with the status, intelligence, personality, and previous experience of each experimental subject. To the extent that the demand characteristics of the experimenter are clear cut, they will be perceived uniformly by most experimental subjects. It is, of course, those demand characteristics which are perceived by the subject that will influence his behavior. Orne (1959) found that the experimental effect of demand characteristics was related to the subject's ability to verbalize the experimenter's hypothesis.

A technique for determining the perceived demand characteristics of the experimental situation is the post-experimental inquiry. Even this procedure, however, has its own demand characteristics. Orne (1962) stated that the experimenter is often tempted, in, say, a replication

of the Asch group pressure experiment to ask the subject afterwards, "You didn't realize that the other fellows were confederates, did you?" Having obtained the required "No", the experimenter does not pursue the issue further. Asch (1952), himself, used a methodological procedure at the end of the experiment to assess the reactions of the subjects to the experimental situation and their knowledge of the nature of the experiment. This procedure is described in Asch, 1952, pp. 455-456.

How did the subjects in the Asch experiment react? Asch (1952) found that subjects resisted group influence on about two-thirds of the critical trials. There were strong individual differences; about one-fourth of the subjects made no error at all, and another one-third of the group agreed with the group on half or more of the trials. Asch (1952) found that subjects tended to adopt a psychological set early in the experiment and behaved consistently throughout the experiment. Those subjects who yielded to the majority early in the experiment continued to yield; those who resisted the majority continued to resist. Asch (1952) questioned his subjects about the sets they adopted and concluded that each subject had one of three responses to the situation: to be honest, to be accurate, or to be socially acceptable. Those who adopted the honesty set did not yield. They interpreted their task as reporting what they saw, whether correct or incorrect. A subject in this set might have been convinced that the group was correct, but he would nevertheless not conform. Those subjects who adopted the accuracy set believed that they should give the response which they believed to be correct. Such a subject had to weigh his belief in the accuracy of his own perception against his belief in the accuracy of the perception of other people. Those sub-

jects who adopted a social acceptance set were not concerned with whether they were accurate or not. They decided to give responses which would not make them stand out from the other members of the group. Thus conforming to the group pressure was due to fear of opinion or reactions of the other group members and not wanting the experimenter to direct his attention to them.

Wheeler (1971) criticized the Asch studies and made a distinction between public compliance and private acceptance of social influence. He stated that most of the effect obtained by Asch was public compliance, whereas Sherif, on the other hand, obtained public compliance and private acceptance; even when they were no longer in the presence of their partners, subjects continued to judge the autokinetic movement according to the frame of reference established with their partner. Wheeler (1971) further implied that private acceptance of social influence on perceptual judgment is limited to situations in which the stimulus conditions are ambiguous.

However, experimental research on conformity has flourished following Asch's demonstration of a unanimous group's influence on an individual's judgment of clearly discriminable, objective stimuli (Allen and Crutchfield, 1963). Crutchfield (1955) found that feedback to the subject of information concerning the correctness of his judgment had an effect on the degree of conformity. Crutchfield (1955) introduced the concept of agreement and disagreement with subjects as an important dimension in susceptibility to social influence and this was expanded and related to social learning theory by Endler (1966) and Endler and Hoy (1967). Endler and Hoy (1967) found that reinforcement for agreement

with group consensus led to increased conformity and conversely reinforcement for disagreeing led to decreased conformity. Endler and Marino (1972) reported that the focus of recent research on conformity has expanded to include not only the behavioral consequences of group pressure (i.e., conforming response) but also the processes (Hollander and Willis, 1967) affecting susceptibility to those pressures.

Orne (1962) stated that the extent to which the subjects' behavior is related to the demand characteristics rather than to the experimental variable will in a large measure determine both the extent to which the experiment can be replicated with minor modifications (i.e., modified demand characteristics) and the extent to which generalizations can be drawn about the effect of the experimental variables in non-experimental contexts - the problem of ecological validity (Brunswick, 1947).

The present study was a replication of the Asch conformity experiment with reference to the demand characteristics of the experimental setting. This research was designed to test the Asch theory of social influence, using the Asch standardization norms, on a group of subjects characterized by an anti-social lifestyle. Within the prison population there is a marked tendency toward social non-conformity as evidenced by a number of studies (Panton, 1961; Panton and Brisson, 1971; Panton, 1959; and Panton, 1958). The present research also hoped to draw implications from the Asch study in regard to conforming to authoritarian control and institutionalization within the prison setting by investigating the experimental effects of reinforcement on the degree of conformity.

According to Hoveland, Janis and Kelly (1953), persons who are highly motivated to maintain membership in a group tend to be more susceptible

to influence by members of the group than those whose motivation to maintain group membership is low. Ettinger et al (1971) found that subjects who perceive themselves as **more** competent than a group conform less than those who perceive themselves as less competent than a group.

If responsiveness to the social environment is a measure of susceptibility to group influence, then it might be assumed that prison inmate subjects would be less susceptible to group influence than normal subjects. Thus, it was expected that prison inmate subjects would exhibit less conforming behavior than that of the college students in the original Asch study.

An additional methodological variation of the Asch situation was used to assess the effects of experimentally reinforced conformity. It was hypothesized that feedback to the subject of information concerning the correctness of his judgments would have an effect on the degree of conformity. Specifically, it was expected that the added weight of the experimenter's authoritative confirmation of the bogus group and hence the demand characteristics of E's expectation increases the probability of a conforming response.

What effects regarding S's psychological disposition influence the experimental situation? Are prison inmate subjects motivated to do both the "right things" and be perceived by E as an ally in the pursuit of knowledge? It could also be anticipated that prison inmate Ss might react to the experimenter's research by responding in the "wrong" way, in a manner opposite to that which he thinks the experimenter wants - what has been commonly called the "screw you" effect. The present study will attempt to answer some of these questions, in part, but further research

beyond the scope of this paper is necessary to investigate the complex questions of S motivation and experimental behavior.

To what degree are experimental results influenced by the demand characteristics of the institutional setting? From a methodological standpoint, research involving deception and immediate debriefing is far more limited in a small prison setting than the large university campus where there is an established tradition for experimental research and where the rounding up of Ss is a routine and frequent practice.

B. RESEARCH METHOD

1. Subjects and Design

Forty male inmates were randomly drawn from a prison population at the Alamance unit, North Carolina Department of Correction. Since the experimental task involved perceptual discrimination, subjects were screened to detect individuals with visual defects. No attempt was made to control for crime classification, recidivism, or length of prison sentence. Six confederates were used as group members to exert the conforming influence on the subjects. The confederates were taken from the same environment as the experimental subjects.

Subjects were randomly assigned to four groups of ten each: three experimental conditions, 1. Group Pressure, 2. Reinforced Conformity, 3. Reinforced Independence; and a control condition. A randomized block design was used as a control procedure, thus order effects were distributed evenly throughout the data collection. This design was considered necessary also to offset the possibility of experimenter practice effects on the subsequent experimental sets.

2. Procedure

The experimental procedure in this study was a replication of the Asch study with an additional methodological variation to assess the effects of experimentally-reinforced conformity. With reference to the experiment itself, the procedures described by Asch (1952) were used. In the Asch situation, seven to nine individuals were brought together to take part in "an experiment in visual discrimination." They were instructed to match the length of a standard line with one of three comparison lines, and to announce publicly their judgments in the order in which they were seated. The single naive subject was seated in the next to last seat, and the other group members had been instructed previously to respond on certain trials with wrong judgments. Thus on every trial the subject was faced with a very clear perceptual judgment; it was apparent that comparison line 1, for example, was the same length as the standard line. But on some trials the first group member said that comparison line 3, for example, was the same as the standard. This was surprising to the subject because comparison line 3 was from $3/4$ to $1\ 3/4$ inches different in length from the standard line. The subject was even more puzzled when the second group member also said that line three was the correct judgment. When it was finally the subject's turn to make his own judgment, he had heard every single group member answering before him choose comparison line 3 as the correct answer. He had no reason to believe that all the other group members were blind or that they were not motivated to make the correct answer. Yet his visual impression was unmistakable - comparison line 1 was the correct answer. Regardless of what the subject decided to do, the other members of the group behaved impersonally and did

not indicate any surprise at any answer he gave. The experimenter also behaved in a formal and impersonal manner.

The standard Asch stimulus material and instructions were used in this study. The instructions to the experimental subjects were:

This is a task which involves the discrimination of lengths of lines. You see the pair of white cards in front. On the left is a single line, on the right are three differing in length; they are numbered 1,2, and 3 in order. One of the three lines at the right is equal to the standard line at the left - you will state your judgment in terms of the corresponding number. There will be twelve such comparisons. As the number of lines is few and the group small, I shall call upon each of you in turn to announce your judgment, which I shall record here on a prepared form. Please be accurate as possible. Suppose we start at the right and proceed to the left. (Asch, 1952, p. 452).

The methodological procedure described by Asch was strictly adhered to in the Group Pressure condition. The subjects in the Control condition responded in writing without group conformity pressure. However, in the additional experimental variation of the Asch situation, the experimenter provided authoritative confirmation of the group by informing the subject immediately after the judgment what the "correct" response was. This alleged "correct response" was arranged to agree with the group consensus in the Reinforced Conformity condition. In the Reinforced Independence condition, E's feedback to the subject corresponded with the correct response for the twelve sets of stimulus cards.

Upon completion of the Group Pressure experimental trials, a post-study inquiry was conducted by E to determine Ss awareness of the nature of the experiment. The following procedure was taken, in part, from Asch, 1952, pp. 455-456. E informally mentioned to the group that he had noticed disagreement on some of the comparisons and asked if there were any remarks. Though the question was not directed to anyone in particu-

lar, the critical subject usually responded and a discussion followed. The critical subject was asked to indicate, in his opinion, who was right - the group or himself. If the subject replied that his judgments were correct, he was asked: "Do you suppose that the entire group was wrong and that you alone were right?" "How confident of your judgments are you?" In the Reinforced Conformity and Reinforced Independence conditions, a post-experimental questionnaire was given to determine the extent of awareness of experimental deception. The following questions were asked: 1. "In your opinion, what was the purpose of the experiment?" 2. "What do you suppose the experimenter was trying to prove by this study?" 3. "How confident of your judgments are you?"

The dependent variable in this study was the measure of conformity behavior. Conformity was measured by the number of responses which the subjects made to the twelve sets of cards on which the group members gave an erroneous response. Since there were seven critical trials, the maximum number of yielding responses was seven. In the Asch study, any subject response which was not a correct response according to the stimulus material was termed a "critical error." A subject has three alternatives in responding to the stimulus material: he may respond with a correct response, he may respond with a conforming response, or he may respond with an error response. That is, the third alternative is neither correct nor is it conforming; therefore, if the group answer differed from the correct answer and the subject expressed the third alternative, the scoring was the same as if the subject had responded with the group. Thus conformity was measured in three ways: error responses, conforming responses, and a combination of error and conforming responses called critical error

responses. In the current study, this same concept of critical error which was used in the Asch study, was used also; however, the data were reported as conforming response, error response, and critical error response.

C. ANALYSIS OF RESULTS

It was expected that prison inmate subjects would exhibit less conforming behavior than the college students in the original Asch study. In order to test this hypothesis, a group of ten prison inmates were introduced to the Asch situation, Group Pressure condition. Conformity was measured by the number of responses which subjects yielded to the opinion of the majority, i.e., "critical error" response. The results indicated that rather than exhibiting less conforming behavior than prison inmate subjects (N=10) by comparison made substantially more conforming responses than the Asch group (N=31) when confronted with a disagreeing majority. The mean number of conforming responses made by prison inmates was 3.5 as compared with 2.3 in the Asch experimental group. When tested in an environment free of conforming pressure, the mean error for prison inmate subjects (N=10) was 0.6 which compared rather well with the mean error of 0.5 reported by the Asch control group (N=25). A t test was made to determine the difference between mean conformity scores for the two experimental groups: Group Pressure condition (N=10) and the Asch group (N=31). The obtained t of 1.02 was not significant at the .05 level, t of 2.02 (df=39) required. Thus the hypothesis that prison inmate subjects would exhibit less conforming behavior than the Asch group was strongly rejected.

In order to test the hypothesis that feedback to the subject of information concerning the correctness of his judgment had an effect on the degree of conformity, a one-way analysis of variance was carried out on the mean conformity scores for the three experimental conditions.

Table 1 shows the mean conformity scores for the three experimental conditions. Scores are reported as conforming response, error response, and critical error response.

Table 1
Ranked Mean Conformity Scores

| Condition | Type of Response | | |
|-------------------------|------------------|-------|----------------|
| | Conforming | Error | Critical Error |
| Reinforced Conformity | 5.4 | 0.6 | 6.0 |
| Group Pressure | 3.3 | 0.2 | 3.5 |
| Reinforced Independence | 1.5 | 0.4 | 1.9 |
| Control | - | 0.6 | 0.6 |

The responses of the experimental subjects were divided into three categories: error response, conforming response, and critical error response. A one-way analysis of variance was carried out on each of the three types of responses. Analysis of variance results for the error responses is shown in Table 2.

Table 2
Analysis of Variance: Error Response

| Source | df | SS | MS | F |
|---------|----|-------|------|------|
| Between | 3 | 1.10 | 0.37 | 0.43 |
| Within | 36 | 30.80 | 0.86 | |
| Total | 39 | 31.90 | | |

It takes an F of 2.86 to be significant at the .05 level and 4.38 to be significant at the .01 level, when the df is 3 and 36. The obtained F of 0.43 is less than that required for significance at the .05 level. Thus the null hypothesis was accepted: no significant difference between mean error responses.

Mean conformity scores for the three experimental conditions are represented in an analysis of variance table, Table 3.

Table 3

Analysis of Variance: Conformity Response

| Source | df | SS | MS | F |
|---------|----|--------|-------|-------|
| Between | 2 | 76.20 | 38.10 | 7.09* |
| Within | 27 | 145.00 | 5.37 | |
| Total | 29 | 221.20 | | |

* $p < .01$.

It takes an F of 3.35 to be significant at the .05 level and 5.49 to be significant at the .01 level, when the df is 2 and 27. The analysis yielded an F of 7.09 which is significant at the .01 level. In order to determine the nature of this effect, a multiple t test for the three means was carried out. It takes a t value of 2.05 to be significant at the .05 level and 2.77 to be significant at the .01 level, when the df is 27. The difference between means for the Group Pressure condition and the Reinforced Conformity condition yielded a t value of 2.02 which failed to be significant at the .05 level. No significant difference was found between the Group Pressure condition and the Reinforced Independence condition, t value of 1.60. The mean conformity score for the Reinforced Conformity condition was significantly greater than the mean score for the Reinforced

Independence condition at the .01 level, and beyond, yielding a t value of 4.11.

Analysis of variance results for the critical error responses appear in Table 4.

Table 4

Analysis of Variance: Critical Error Response

| Source | df | SS | MS | F |
|---------|----|--------|-------|--------|
| Between | 3 | 162.20 | 54.07 | 17.10* |
| Within | 36 | 113.80 | 3.16 | |
| Total | 39 | 276.00 | | |

* $p < .01$.

The analysis yielded an F of 17.10 ($df=3/36$) which is highly significant at the .01 level of confidence, F value with 3 and 36 degrees of freedom requires a value of 2.86 and 4.38 at the .05 level and .01 level respectively. A multiple t test between sets of means revealed several highly significant differences between the three experimental conditions. It takes a t value of 2.03 at the .05 level and 2.72 at the .01 level, with 36 degrees of freedom. The control condition differed significantly from the Group Pressure and Reinforced Conformity conditions at the .01 level, t value of 3.43 and 14.54 respectively. No significant difference was found between the control condition and the Reinforced Independence condition, t value of 1.83. The Group Pressure condition was significantly different from the Reinforced Conformity condition at the .01 level, t of 2.87, but did not differ significantly from the Reinforced Independence condition at the .05 level, t of 1.50. In addition, the mean critical error score for the Reinforced Conformity condition was

significantly higher than the Reinforced Independence condition at the .01 level, t of 5.56.

D. DISCUSSION

The hypothesis for the present experiment, that prison inmate subjects would exhibit less conforming behavior than the college students in the original Asch situation was strongly rejected. The findings of this study revealed that prison inmate subjects made substantially more conforming responses than the Asch group when confronted with a disagreeing majority; however, this difference was not significant at the .05 level of confidence. The mean number of conforming responses in the prison population was 3.5 as compared with 2.3 in the Asch experimental group. That the experimental procedure described here was effective as a means of achieving group pressure effects is evidenced by the mean conformity scores. However, the focus of this study on conformity was concerned not only with the behavioral consequences of group pressure, but also with the demand characteristics of the experimental situation.

It was anticipated that prison inmate subjects characterized by an anti-social lifestyle would be less susceptible to group influence than normal subjects by reason of their lesser degree of responsiveness to the social environment. The results of this study suggest that the effects of institutionalization are probably a major factor contributing to conforming behavior. In a similar study, Culp (1971) reported that institutionalized schizophrenic subjects exhibited greater conformity behavior than normal subjects when introduced to the Asch situation.

The present study hoped to draw implications from the Asch study in regard to conforming to authoritarian control and institutionalization within the prison setting.

To answer this question, an additional methodological variation of the Asch situation was used to assess the effects of experimentally reinforced conformity. Thus three experimental conditions, 1. Group Pressure, 2. Reinforced Conformity, 3. Reinforced Independence and a control condition were generated. The dependent variable was the degree of conforming behavior, i.e., the number of times S agreed with the group consensus on the seven critical trials. It was hypothesized that feedback to the subject of information concerning the correctness of his judgment would have an effect on the degree of conformity. Specifically, it was expected that the added weight of the experimenter's authoritative confirmation of the bogus group and hence the demand characteristics of E's expectation increases the probability of a conforming response.

The findings that reinforcement for agreement with the group leads to increased conformity and reinforcement for disagreement to decreased conformity is evidenced by the results of this study. The role of the experimenter as a source of reinforcement produced significantly more conforming behavior. The greatest amount of conformity occurred when Ss were reinforced for agreeing, giving added weight that E's authority is a more potent force than group pressure alone. Since there were seven critical trials, the maximum number of yielding responses was seven. The mean conformity score for the Group Pressure subjects was 3.5, for the Reinforced Conformity subjects, 6.0, and for the Reinforced Independence subjects, 1.9.

The behavioral results of this study further suggest that it is possible that increased responsiveness resulted from the situational variable within the prison setting which may have tended to emphasize outward conformity. The role of the experimenter may have a confounding effect on studies of conformity. When E is perceived as an authority figure, the probability of a conforming response is increased. This may be related to the demand characteristics already operating within the institutional setting which reinforces compliance to authority.

Schulman (1967) in several variation studies on the classic Asch conformity situation concluded that behavior in the Asch situation was a function of three types of influences: informational conformity, normative conformity to the group, and normative conformity to the experimenter. Schulman suggested that his findings re-emphasize the need for considering the effect of the subject-experimenter relationship in the experimental design and urged the need for re-interpreting the large number of studies that have sought to relate variables such as status and personality to conforming to the group, using the rate of conformity responses in the Asch situation as the dependent measure.

In the Asch situation, the subject knows the unanimous, incorrect judgments of the other members of the group before he makes his own response. Thus he may give the same answer as the others because he takes their answers as evidence about reality (informational conformity to the group). The subject gives his response publicly, hence his response may be a function of concern with the evaluation of his behavior by the group (normative conformity to the group) and/or by the experimenter (normative conformity to the experimenter). Schulman (1967) predicted

that the rate of conformity responses would be raised by informational influence and by normative conformity to the group, while it would be decreased by normative conformity to the experimenter.

The prediction of a decrease in conformity responses due to the experimenter effect assumes that subjects expect the experimenter's evaluation of them to be based primarily on whether they gave correct or incorrect answers. The results of the present study indicate that Ss performance in the experimental situation is motivated, in part at least, by a desire to respond to E's expectations, regardless of the perceived correct judgment. The subject finds himself operating in a situation in which the "right" answer or "right" behavior is defined by the experimenter (Riecken, 1962). Thus the experimenter is a powerful figure to the subject.

Can the obtained results be explained in terms of what Kelman (1972) has called the subject "power deficiency"? Kelman argued that the power deficiency within the subject in the research situation derives from the structure of the situation itself. Prison inmates are certainly a captive group within an institutional setting which reinforces compliance to authority. That these subjects perceive themselves as having no choice, particularly since the experimenter is conducting his research with permission from the institutional authority on which the subject is dependent, seems to be self-evident. Reinforcement has the potential of providing cues regarding the experimental purpose and the subjects' need for approval has been related to compliance with situational demand characteristics (Sherman, 1967).

To what extent are subjects' responses determined by their knowledge

of the experiment? In the experimental situation where confederates are giving erroneous answers which are consistently at variance with S's own perceptual judgment, there is a distinct possibility of S becoming aware of the deception, thus altering his behavior.

Brock and Becker (1966) reported that college students frequently debrief one another as they compare notes in violation of the customary request not to talk about the experiment. The present design was not able to control for the possibility of de-briefing by fellow inmate subjects.

In the present study, upon completion of the experimental trials, a post-study inquiry was conducted by E to determine Ss awareness of the nature of the experiment, i.e., whether Ss were aware that the experiment dealt with conformity and that the responses of the other subjects had been rigged. Three Ss in the Group Pressure condition indicated awareness that the experiment involved group consensus. Of these, one S was completely independent in his judgments and can be classified as independent with confidence. A second S conformed on five of the seven critical trials; thus his suspicions had no effect on his responses. This individual declared that he was very confident in his judgments, but did not seem to realize that he had gone along with the group on most of the trials. Yet, he still believed he was right and the rest of the group was wrong. The third S conformed on six of the seven trials and his reactions were similar to those of the second subject.

Only one subject in the Reinforced Conformity condition indicated awareness of the experimental purpose. Although he unequivocally was confident in his judgments, he yielded to group pressure on six of the seven

critical trials. A second subject in this experimental condition was observed as obviously trying to sabotage the experiment ("screw you" effect). This subject was very unco-operative during the post-experimental interview and the experimenter could not ascertain his awareness of the experimental deception, though it was suspected that his behavior during the experimental situation reflected at least some knowledge that the experiment was not what it was supposed to be, i.e., visual perception. While the reasons for his behavior are not known, it is interesting to note that he conformed on one of the critical trials while giving error responses on the other six critical trials.

Three Ss in the Reinforced Independence condition indicated awareness of experimental deception. Of these, one S was completely independent in his judgments, but without confidence. A second S in this condition was independent in all of his judgments but gave one error response in an attempt to "throw a monkey wrench into the works." The third S was partially aware of the purpose of the experiment and yielded to group consensus on four of the seven critical trials. The most striking finding in the Reinforced Independence condition was that feedback as to correctness of the response did not have an effect on at least one subject who nonetheless conformed to the group on all seven critical trials. The important point is that some form of compliance response was maximized while the independent response was minimized by a lack of attention, disbelief, or distrust for the experimenter.

Although this study was mostly concerned with the effects of experimental deception in behavior research, many crucial questions still remain regarding the effects of S's motivational sets on experimental results.

E. SUMMARY

A replication of the Asch situation was conducted in an attempt to determine the implications of the Asch theory of social influence on a group of subjects characterized by an anti-social lifestyle. It was reasoned that if responsiveness to the social environment is a measure of susceptibility to group influence, then it might be assumed that prison inmates would be less susceptible to group influence than normal subjects. Thus it was hypothesized that prison inmate subjects by comparison would exhibit less conforming behavior than the original Asch college sample. The findings of this study revealed that prison inmate subjects made substantially more conforming responses than the Asch group when confronted with a disagreeing majority, though not statistically significant.

However, the focus of this study on conformity was concerned not only with the behavioral consequences of group pressure, but also with the demand characteristics of the experimental situation.

An additional methodological variation of the Asch situation was used to assess the effects of experimentally reinforced conformity. It was hypothesized that feedback to the subject of information concerning the correctness of his judgment would have an effect on the degree of conformity. Specifically, it was expected that the added weight of the experimenter's authoritative confirmation of the bogus group and hence the demand characteristics of E's expectation increases the probability of a conforming response. The findings that reinforcement for agreeing with the group leads to increased conformity and reinforcement for disagreeing to decreased conformity is evidenced by this study.

Reinforcement has the potential of providing cues regarding the experimental purpose and the subject's need for approval has been related to compliance with situational demand characteristics within the prison setting.

REFERENCES

1. Allen, V.L. & Crutchfield, R. Generalization of experimentally reinforced conformity. J. Abnorm. & Soc. Psychol., 1963, 67(4), 326-333.
2. American Psychological Association. Ethical standards of psychologist. Amer. Psychologist, 1963, 18, 56-60.
3. Argyris, C. Some unintended consequences of rigorous research. Psychol. Bull., 1968, 70, 185-197.
4. Asch, S. Opinions and social pressure. Scientific American, 1955, 193(5), 31-35.
5. Asch, S. Social Psychology. New York: Prentice Hall, 1952.
6. Asch, S. Studies of independence and conformity: a majority of one against a unanimous majority. Psychol. Monog., 1956, 70, No. 416.
7. Brock, T. & Becker, L. Debriefing and susceptibility to subsequent manipulations. J. Exper. & Soc. Psychol., 1966, 2, 314-323.
8. Brunswick, E. Systematic and representative design of psychological experiments with results in physical and social perception. (Syllabus Series, No. 304) Berkley: Univer. Calif. Press, 1947.
9. Crutchfield, R. Conformity and character. Amer. Psychologist, 1955, 10, 191-198.
10. Cull, J. Conformity behavior in schizophrenics. J. Soc. Psychol., 1971, 84, 45-49.
11. Endler, N. Conformity as a function of different reinforcement schedules. J. Personal. & Soc. Psychol., 1966, 4, 175-180.
12. Endler, N. & Hoy, E. Conformity as related to reinforcement and social pressure. J. Personal. & Soc. Psychol., 1967, 7, 197-202.
13. Endler, N. & Marino, C. The effects of source and type of prior experience on subsequent conforming behavior. J. Soc. Psychol., 1972, 88, 21-29.

14. Ettinger, R., Marino, C. Endler, N., Geller, S., & Natzink, T. The effects of agreement and correctness on relative competence and conformity. J. Personal. & Soc. Psychol., 19, 204-212.
15. Fillenbaum, S. Prior deception and subsequent experimental performance. J. Personal. & Soc. Psychol., 1966, 4, 532-537.
16. Gallo, P., Smith, S. & Mumford, S. Effects of deceiving subjects upon experimental results. J. Soc. Psychol., 1973, 89, 99-107.
17. Glinski, R., Glinski, B. & Slatin, G. Non-naivety contamination in conformity experiments: sources, effects, and implications for control. J. Personal. & Soc. Psychol., 1970, 16, 478-485.
18. Higbee, K. & Wells, M. Some research trends in social psychology during the 1960's. Amer. Psychologist, 1972, 27(10), 963-966.
19. Hollander, E. & Willis, P. Some current issues in the psychology of conformity and nonconformity. Psychol. Bull., 1967, 68, 62-76.
20. Hovland, C., Janis, I. & Kelly, H. Communication and Persuasion. New Haven, Conn.: Yale Univ. Press, 1953.
21. Keisner, R. Debriefing and responsiveness to overt experimenter expectancy cues. J. Soc. Psychol., 1971, 84, 65-71.
22. Kelman, H. The human use of subjects: the problems of deception in social psychological experiments. Psychol. Bull., 1967, 67, 1-11.
23. Kelman, H. The rights of the subject in social research: an analysis in terms of relative power and legitimacy. Amer. Psychologist, Nov., 1972, 989-1016.
24. McNemar, Q. Opinion-attitude methodology. Psychol. Bull., 1946, 43, 289-374.
25. Milgram, S. Behavioral study of obedience. J. Abnor. & Soc. Psychol., 1963, 67, 371-378.
26. Orne, M. On the social psychology of the psychology experiment: with particular reference to demand characteristics and their implications. Amer. Psychologist, 1962, 19, 776-783.
27. Orne, M. The nature of hypnosis: artifact and essence. J. Abnor. & Soc. Psychol., 1959, 58, 277-299.
28. Panton, J. Characteristics associated with alcoholism among a state prison population. Tri-State Med. J., 1961, 9, 6-8.
29. Panton, J. & Brisson, R. Characteristics associated with drug abuse within a state prison population. Correct. Psychiat. & J. Soc. Therapy, 1971, 17, 1-32.

30. Panton, J. Inmate personality differences related to recidivism, age and race as measured by the MMPI. J. Correct. Psychol., 1959, 4, 28-35.
31. Panton, J. MMPI profile characteristics of physically disabled prison inmates. Psychol. Reports, 1958, 4, 529-530.
32. Riecken, H. A program for research on experiments in social psychology. in Decisions, Values, and Groups. Vol. II. New York: Macmillan, 1962, 25-41.
33. Rosenthal, R. Experimenter Effects in Behavior Research. New York: Appleton-Century-Crofts, 1966.
34. Rosenthal, R. On the social psychology of the psychological experimenter: the experimenter's hypothesis as unintended determinant of experimental results. Amer. Scientist, 1963, 51, 268-283.
35. Rosenthal, R. & Rosnow, R. Artifact in Behavior Research. New York: Academic Press, 1969.
36. Schulman, G. Asch conformity studies: conformity to the experimenter and/or to the group. Sociometry, 1967, 30, 26-40.
37. Schulz, D. The human subject in psychological research. Psychol. Bull., 1969, 72(3), 214-228.
38. Seeman, J. Deception in psychological research. Amer. Psychologist, 1969, 24(11), 1025-1028.
39. Sherif, M. The Psychology of Social Norms. New York: Harpers, 1936.
40. Sherman, S. Demand characteristics in an experiment on attitude change. Sociometry, 1967, 30, 246-261.
41. Strickler, L., Messick, S. & Jackson, D. Suspicion of deception: implications for conformity research. J. Personal. & Soc. Psychol., 1967, 5, 379-389.
42. Strickler, L., Messick, S. & Jackson, D. Conformity, anti-conformity, and independence; their dimensionality and generality. J. Personal. & Soc. Psychol., 1970, 16, 494-507.
43. Weick, K. Social psychology in an era of social change. Amer. Psychologist, 1969, 24(11), 990-998.
44. Wheeler, L. Interpersonal Influence. Boston: Allyn & Bacon, Inc., 1971.
45. Willis, R. & Willis, Y. Role playing versus deception: an experimental comparison. J. Personal. & Soc. Psychol., 1970, 16, 472-477.