Characteristics of premanipulation attitudes and self-perception: A test of Bem's theory.

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CHARACTERISTICS OF PREMANIPULATION ATTITUDES AND SELF-PERCEPTION: A TEST OF BEM'S THEORY

by

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May, 1968

A Thesis Submitted to the
Faculty of Graduate Studies through the
Department of Psychology in Partial Fulfillment
of the Requirements for the Degree of
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Windsor

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Supervisory Committee:

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The purpose of this study was to explore a major implication of Bem's "self-perception" explanation of cognitive dissonance phenomena and the ramifications of this implication for the "interpersonal simulation" technique employed to test self-perception theory. In a "forced compliance" paradigm experiment self-perception theory maintains that for the S perception of his counter-attitudinal behaviour and its immediate controlling conditions are the only salient factors eliciting dissonance-like phenomena. Accordingly, premanipulation attitude (the S's original attitude before engaging in counter-attitudinal behaviour) is non-salient to the experimental phenomenology. Consequently, Bem concludes that premanipulation attitude is irrelevant information for an external observer-subject in an "interpersonal simulation" of a "forced compliance" paradigm experiment.

The present study employs a partial replication of Bem and McConnell's (1970) original efforts to test the salience of premanipulation attitude position. Within a "forced-compliance framework S's were requested to recall their original attitude position on an issue after writing relevant counterattitudinal essays as a test of the salience of initial attitude position.
The S population was divided into two groups: those for whom the issue in question was of high importance (was highly relevant and Ss expressed strong commitment) and those for whom the issue was of low importance. Generalizing from cognitive dissonance theory, it was predicted that high importance Ss would produce greater recall error after counterattitudinal behaviour than low importance Ss.

A separate component experiment, utilizing a traditional attitude change measure as the outcome variable, was included to insure dissonance phenomena had occurred and provide phenomenological comparison with the recall experiment. Again, Ss were divided on the importance variables and predictions were based on cognitive dissonance theory.

The results show that dissonance phenomena did occur in both experiments since Ss writing counterattitudinal essays did make greater recall error and attitude change than control Ss who did not write relevant essays. The main hypotheses which predict interaction effects between the importance of attitude variables with high importance experimental Ss producing greater attitude change and recall error than low importance experimental Ss were not supported as stated. However, a statistically significant interaction effect, reverse to that predicted, did occur in the recall experiment. Thus, low importance experimental Ss made greater recall error in the direction of positions...
argued in the essays than high importance experimental or controls. In the experiment with change scores as the dependent variable, it was found that high importance experimental Ss tended to change their attitudes more than low importance experimental Ss as predicted, although this difference did not reach statistical significance. Moreover, when variance due to differences in initial attitude position as a co-variant were included in statistical analysis, the results show statistically significant differences in dissonance effect between the two experimental treatment groups (with high importance Ss demonstrating greater change than low importance Ss) when strength of commitment was the measure of importance.

These results were discussed in terms of their relevance to Bem's theory and his "interpersonal simulation" methodology. It was concluded that premanipulation attitude is a salient factor in producing dissonance-like effects in a "forced compliance" experiment for some individuals. Namely, those individuals for whom the attitude-issue of focus in the experiment is of high importance. Thus, the results tend to be non-supportive of Bem's position.
TO MY LOVING AND LOVELY WIFE

SANDY
ACKNOWLEDGEMENTS

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CHAPTER I
INTRODUCTION

Behaviourism as a school of psychology, defines its purpose as: the objective, systematic investigation of observable responsive activity in organisms without reference to consciousness (Watson, 1930). The behavioural school within this theoretical and methodological framework, has made exceptional progress towards the traditional goal of psychology as a science - the prediction and control of human behaviour.

The behavioural approach has had notable effects on many areas of psychology. Its influence on any given aspect of the study of the human organism generates constructive theoretical and research productivity, and appropriate controversy. Recently, even cognitive theory has tangled with the behavioural influence. For example, Festinger's cognitive dissonance theory (Festinger 1957, 1958, 1962, 1964) has had such an encounter through the theory and research generated by D. J. Bem's self-perception theory (Bem, 1965, 1967, 1967). Predictibly, Bem's alternative explanation of cognitive dissonance phenomena has generated a good deal of controversy. This paper is an attempt to provide data which is significant for one of
the major controversial aspects of Bem's theory and methodology, specifically his premise that a person has no knowledge of his attitudes (or beliefs) until he observes himself engaged in behaviours relevant to such attitudes - that premanipulation attitude ratings are not salient to post manipulation attitude ratings.
Cognitive dissonance theory (Festinger, 1957) is a particularly important example of a family of theories termed cognitive consistency or balance theories. The common element of these theories is that they postulate the human organism strives to maintain a consistency or balance among its cognitive elements.

The basic units of dissonance theory are cognitive elements. In Festinger's terms cognitive elements are "knowledges" about various objects, facts, circumstances, behaviours etc. Beliefs, attitudes, and opinions are included in the term "knowledges". Two cognitive elements may have relevant or irrelevant relation to one another. Relevant relations are of two types, dissonant and consonant. A consonant relation implies that one element follows from another. A dissonant relation (here, the opposite of consonant) implies an inconsistency between cognitive elements. According to Festinger, (1957), "two elements are in dissonant relation if, considering these two alone, the obverse of one element would follow from the other". For example, one's knowledge that he cowers from a fist fight is in dissonant relation to his belief that he is a brave man, since brave people are not afraid to defend themselves. The contemporaneous existence of two such opposite elements results in an uncomfortable drive-like state referred to as dissonance.
The Magnitude of Dissonance

The magnitude of dissonance between cognitive elements is dependent upon both the "importance" of the elements and the proportion of relevant elements that are dissonant. With respect to "importance" Festinger (1957) states:

"If two elements are dissonant with one another the magnitude of the dissonance will be a function of the importance of the elements. The more these elements are important to, or valued by, the person the greater will be the magnitude of dissonance."

Thus, for example, if a person watches a television program of which he has previously expressed a dislike, the magnitude of dissonance is rather weak since neither of the two elements involved is very consequential to the person. On the other hand, if a student does not study for a very important examination knowing that his fund of knowledge is inadequate to pass, the magnitude of dissonance is much greater since the elements that are dissonant are much more important to the person.

The magnitude of dissonance also increases with an increase in the proportion of cognitive elements in dissonant relation. For example, the more reasons known to a smoker to stop smoking, the greater the dissonance created by continued smoking (Festinger, 1957).

The magnitude of dissonance is greater the less the justification as, for example, the amount of positive or negative inducement used to get a person to engage in dissonant behaviour (Festinger and Carlsmith, 1959). Thus, a person will experience less dissonance if he is paid $50 to argue
against his beliefs than if he is given $.50. Moreover, the magnitude of dissonance also increases the more the person perceives he had a real choice in committing the discrepant behaviour (Brehm and Cohen, 1962). Thus, if a person is allowed to choose whether or not he will co-operate in a behaviour discrepant with an attitude he will experience greater dissonance when performing the task than if he had been forced to perform the task.

Dissonance Reduction

Since the existence of dissonance enduces psychological tension or discomfort it will "motivate" (Festinger, 1958) the person to reduce the dissonance and achieve consonance. Moreover, the strengths of the pressures to reduce dissonance functions directly with respect to the magnitude of dissonance. Dissonance reduction can be achieved in any of these ways: changing a behavioural cognitive element, changing an environmental cognitive element, or adding new cognitive elements (Festinger, 1957). When the smoker stops smoking due to increased information about the deleterious effects of smoking he is changing a behavioural cognitive element to reduce dissonance. The individual who distorts the perceived political orientation of candidate in order to justify voting for him is changing an environmental cognitive element. Finally, the individual adds cognitive elements to reduce dissonance when, as an example, the smoker reads material critical of the research linking cancer to smoking.
The Forced-Compliance Paradigm

There are essentially two experimental paradigms designed to test dissonance theory, the "free-choice" paradigm and the "forced-compliance" paradigm. Since this study is directly concerned only with the latter paradigm it alone will be discussed here.

The most frequently cited evidence supporting cognitive dissonance theory comes from an experimental procedure termed the "forced-compliance" paradigm. The paradigm tests the theoretical proposition that one of the major ways of reducing dissonance is to change beliefs or attitudes so that they are no longer inconsistent with behaviour. Within this paradigm Ss are typically requested to engage in a task they would not ordinarily perform such as writing an essay with a theme contradictory to their initial attitude. The S is usually offered either a large or a small reward for participating (e.g., Festinger and Carlsmith, 1959) or is given relative freedom of choice to comply (e.g., Brehm and Cohen, 1959). As noted above, cognitive dissonance theory predicts that the task or issue involved is evaluated in a more dissonance-reducing direction the smaller the reward or the less "coerced" the S is to perform the act (e.g., Aronson and Carlsmith, 1963; Brehm and Cohen, 1959; Freedman, 1965). Thus, in the counterattitudinal essay task the S can reduce dissonance by changing his original attitude to conform more closely to the expressed attitude in the essay. Greater attitude change is predicted to occur as a function of the amount of inducement and/or freedom of choice.
to comply. Such predictions have frequently been supported in terms of group data.

Furthermore, Festinger, (1957) predicts that degree of dissonance reducing behaviour in the forced compliance paradigm (e.g. as reflected in attitude change) is a function of the "importance", for the $S$ of the issue or attitude of focus in the experiment. He is quite explicit on this point:

"... the more important the opinions or behaviour involved, the greater will be the magnitude of dissonance accompanying forced-compliance. . . . The greater the importance of the opinions involved the greater is the magnitude or reward or punishment necessary to elicit forced compliance and the greater is the magnitude of the dissonance that is created."

These predictions are frequently supported in terms of group data (e.g. Brehm, 1956; Cohen, 1962).

Recently, Bem (1964) has offered an alternative explanation of dissonance phenomena within a strict behavioural framework. His theory (self-perception theory) utilizes concepts derived from Skinner, (1953, 1957). He assumes the dissonance results to be valid but offers a radically different explanation for these effects.

**Self-Perception Theory**

Bem's theory eschews any underlying processes (such as cognitive dissonance) and attempts to analyze in stimulus-response terms behaviour characterized as beliefs and attitudes. The major thesis of his theory is that:

"The functional properties of self-knowledge (e.g. beliefs and attitudes) do not differ in any way from the knowledge-of-others and that the ontogeny
of self-knowledge similarly has its roots in social interaction." (cf. Mead, 1934; Ryle, 1949; Skinner, 1953).

According to Bem's theory beliefs and attitudes constitute covert and overt statements involving self-knowledge and knowledge-of-others about self and other-self knowledge. The process involved in knowledge of other's beliefs and attitudes has been effectively taught by the community. Any inferences the individual makes about another's beliefs or attitudes are influenced by or inferred from observed behaviour (verbal or otherwise) and the apparent rationale for the behaviour. No other effective means of inference is possible. For instance, the anti-war demonstrator is believed to harbour a belief system and attitudes that are contrary to participation in war because of his observed behaviour (i.e. he demonstrates and shouts anti-war slogans). The significant aspect of Bem's position is that self-perception of one's own beliefs and attitudes functions under the same controlling conditions as the inference statements made about other's beliefs and attitudes. Thus, the anti-war demonstrator labels his own attitude as "anti-war" by reference to his overt behaviour in the same way an observer of his actions labels his attitude "anti-war". Furthermore, this self-perception process used to infer private attitudes is a consequence of the socializing communities' training in perception and description of extra-self events and behaviours.

Thus, although it appears that covert and overt self-descriptive statements are exclusively under "private" stimulus control "they may in fact remain under the discriminative
control of the same public events which members of the community
must use in 'inferring' the individuals inner states" (Bem, 1965).

According to Bem's theory mere observation of a behaviour
is not sufficient for the observer to make statements or
inferences as to the behaviour's implications. In order to
make accurate judgements about a unit of behaviour and its
belief-attitude implications, knowledge of the controlling
conditions of a given behaviour is essential.

Beliefs and Attitudes and Their Operant Qualities

Beliefs and attitudes can be classed as social operants
because they "operate" on the environment in a functionally
equivalent way. Operants exist within a "three term relation:
discriminative stimulus, operant response, reinforcing stimulus"
(Bem, 1964). Therefore, the social operant is open to the
influence of two basic kinds of controlling conditions. Its
nature and strength is dependent upon the invoking discriminative
cues and consequent reinforcement contingencies.

There are essentially two types of social operant defined
in terms of the nature of controlling stimuli; "mands and
tacts" (Skinner, 1957). A social operant which is primarily
under the functional control of relevant, specific reinforcing
stimuli is termed a mand. The response "please close the door"
is such an operant since only door closing behaviour will serve
as a reinforcer for it. Mands represent requests for specific
reinforcement. Thus commands, demands, pleas and some questions
are mand-type operants. It should be noted that it is the functional properties of an operant, rather than its formal properties which determines its classification (Bem, 1964) as a mand or tact.

Thus, "My it is noisy in the hallway" may be a mand specifying door closing behaviour as reinforcement, even though the statement's formal properties are not mandlike.

A "tact" on the other hand as defined by Bem, (1965, following Skinner, 1957) is "a social operant which is under discriminative stimulus control and only generalized or non-specific reinforcement control." Thus, specific discriminative stimuli predominate to control the evoking of a tact. This operant is relatively independent of its specific reinforcing consequence. The deprivation state of the individual for a particular reinforcement is not crucially determinant of a tact's occurrence. General conversation is often consisted of a predominance of verbal tacts which through their naming, referring or describing function provide contact with environmental stimuli (as the discriminative cues). The response "My it is noisy in the hallway" made in the hallway to others in the hallway becomes a tact. In this case, the most relevant controlling stimuli of the response is the discriminative stimulus, noise.

Assessing the verity of behaviour in terms of its belief-attitude elements involves an analysis of the controlling stimuli of the behaviour. The individual makes "mand-tact discriminations" in deciding whether to accept the behavioural
communication as representative of true belief. As an example, consider the differential implications of the statement, "this medicine is good" proclaimed on the one hand, by a child joyfully downing a spoonful of medicinal syrup and on the other, by a television-ad drug salesman. Which of these overtly identical statements is to be accepted as a tact? For the child, "this medicine is good!" is a verbal-tact operant since it is clearly under the predominant control of the discriminative stimulus tasty medicine. It may be inferred that the salesman is specifying reinforcement (Buy my medicine!) with his statement rather than responding to discriminative stimulus control of the "goodness" of the medicine. Consequently, the tacting statement of the child is more acceptable as representative of his true belief. The child's behaviour would more likely be interpreted by an observer as indicative of true belief than the manding statement of the salesman.

In accordance with his central thesis such mand-tact discriminations based on observable behaviour (public or once public) and their controlling conditions are employed in the same way for both interpersonal and intrapersonal derivations of belief and attitude statements.
Self-Perception Theory and the "Forced-Compliance" Paradigm

Bem originally employed the "interpersonal replication" (also termed "interpersonal simulation") experiment as a means of explaining cognitive dissonance results through his theory. A derivation of the self-perception hypothesis is that outside observers to a cognitive dissonance experiment should be able to duplicate the participating subject's ratings. An "interpersonal replication" experiment simply consists of providing "observer subjects" (OS) with a description of a cognitive dissonance experiment. The "observer subject" is requested to make his own estimate of what he feels the "participating-subjects'" (PS) ratings would have been. Bem (1964, 1965, 1967b, 1967c) found he was able to duplicate cognitive-dissonance results in the "interpersonal replication" experiment. Moreover, the majority of Bem's evidence to support his theory has been based on "interpersonal replications" of cognitive dissonance experiments.

The procedures involved in "forced compliance" tests of dissonance theory have already been described. Results of such studies have been generally consistent with an interpretation based on cognitive dissonance theory. For example, Festinger and Carlsmith, (1959) in the best known study employing the forced compliance paradigm divided 60 Ss into three experimental conditions and requested all Ss but the control group to tell a waiting S that the tasks they had just completed were very enjoyable. The tasks were in fact quite dull. Ss in one
experimental group were paid $20.00 for complying whereas S's in another group received only $1.00. The control S received no payment. Consistent with cognitive dissonance theory S's in the $1.00 group engaged in more dissonance reducing behaviour (personally evaluated the tasks as more enjoyable) than did the S's paid $20.00. The $20.00 S's did not express attitudes significantly different from controls.

As stated, Bem rejects the dissonance "drive" theory and explains such "dissonance phenomena" on the basis of his behavioural self-perception. He would explain the Festinger-Carlsmith, (1959) study by suggesting that if a S were to observe the study he, as an observer would judge S's in the $20.00 condition as having participated primarily to receive the reinforcement. Thus the $20.00 communicator was "manding" reinforcement rather than engaging in behaviour consistent with discriminative stimuli for that behaviour. On the other hand, the $1.00 communicator would be judged by an observer as having actually liked the tasks since he related this communication to waiting subjects for so little money. The verbal operant behaviour (telling the waiting S's) is judged a tact. Therefore, Bem would say that both the participating S's and the observer S's make their eventual judgements based upon the same observed behaviour and consequently make equivalent attitude ratings based on the behaviour. The typical forced compliance results are not unexpected in Bem's theory. The unique expectation of Bem's position is that equivalent dissonance phenomena occur in an interpersonal replication of a forced-compliance study.
Bem, (1967b) performed such an interpersonal replication of the Festinger Carlsmith, (1959) experiment. Seventy-five college undergraduates were divided into three groups: the $1.00, $20.00 or control condition.

All Ss listened to a tape recording which described a college sophomore who had participated in an experiment involving two motor tasks. The tasks were described in detail but non-evaluatively. At this point, control Ss were asked to evaluate the sophomore's attitudes toward the tasks. The experimental Ss were given the information that he had accepted $1.00 ($20.00) to relate to a waiting S that the tasks were enjoyable. Ss then listened to a purported recording of the conversation between the sophomore and the waiting S. The situation attempted to duplicate the condition actually experienced by Festinger and Carlsmith's Ss.

All Ss were then required to rate the tasks as they estimated the sophomore would have rated them. Results indicated support for Bem's self perception hypothesis since in both studies the $1.00 condition produced significantly more favourable ratings toward the tasks than did the $20.00 condition. In neither study was the $20.00 condition significantly different from the control condition. Jones, (1966) in a replication of this study (the Bem interpersonal replication) reports similar results.

Bem, (1965) reports a successful interpersonal replication of the Cohen, (Brehm and Cohen, 1962) study in which undergraduates were offered varying amounts ($50.00, $1.00, $5.00,
to write an essay against their initial opinions on an issue. Cohen's results essentially duplicate the Festinger-Carlsmith findings in that the higher the paid inducement the less post-essay attitude rating coincided with the view advocated in the essay. Bem's, (1965) interpersonal replication study employed 60 undergraduates placed in $.50, $1.00 and control conditions. Again Bem's observer S's when told the behaviour of the participant S's and apparent controlling circumstances made almost identical ratings of the participant S's post essay attitude rating.

Many other interpersonal replication tests of dissonance phenomena have been reported by Bem, (1964, 1965, 1966, 1967b, 1967c) and are supportive of his theory.

The interpersonal replication paradigm while offering the most convincing support of the self-perception hypothesis is not the only experimental strategy which has been used to test Bem. Bem reports several studies (e.g. 1964, 1966) which are entirely "intrapersonal" in nature, yet designed to test his theory. Moreover, these studies add a further control to the stimulus operations which have been interpreted as controlling mand-tact discriminations in that the "manding" and "tacting" stimuli are "raised from birth" in the laboratory. One such study will be described here along with an attempted interpersonal replication of it (Woodyard, 1968).

Bem, (1966) in an experiment termed the "false confession" study, predicted on the basis of the self-perception hypothesis that more errors of recall would occur after a S had made
lower "false confessions" under conditions previously associated with telling the truth (tacting). He also predicted that stimuli previously associated with lying (manding) would create self-disbelief in true confessions, thus produces more errors in recall. The tact and mand stimuli were lights to which the S had been trained to respond truthfully (the tact light) or falsely (the mand light). As Bem, (1964) points out with reference to this procedure, "the answering of questions has both mand and tact properties; we are using the terms tact and mand respectively to indicate discriminative control or absence thereof over the form of the response".

Previous to the "stimulus raising" procedure Ss were required to participate in a word crossing-out task. Meaning (tell the truth or lie) was then given to the lights. The E, telling the Ss that he was interested in hearing the quality of their voices for a lie detection experiment, indicated to the S whether he should respond into a microphone correctly or incorrectly about his "crossing-out" behaviour. The S was told the two lights would continue to flash on in random order as an indication of when to speak into the microphone. After each response the S indicated what he recalled as his actual cross-out behaviour.

In accordance with Bem's prediction, more errors of recall were made when "true" statements were uttered in the presence of the "lie" light and when "false" statements were uttered in the presence of the "truth" light than in the other conditions. Moreover, the S's ratings of confidence in recall were lower in the conditions with more recall errors.
Thus, in Bem's terms previously learned discriminative cue value of the lights influenced the confidence (self-credibility) S's had in their own judgement of recall.

Woodyard, (1968) noting that the false confession study "was an experiment whose dependent variable was self-descriptive statements", concluded an interpersonal simulation of the study should produce the same judgements of recall. Woodyard reasoned on the basis of the self-perception hypothesis, in an "interpersonal simulation" of Bem's experiment, 0-Ss should be able to make equivalent judgements of credibility on the basis of the same mand-tact discriminations available to the original participants. Woodyard's "interpersonal simulation" was able to duplicate the "errors in recall" variable except that there was no significant difference in recall errors comparing control to true confession lie light condition. It completely failed to duplicate the "confidence in recall" variable. With additional analysis Woodyard demonstrated a demand characteristics hypothesis (Orne, 1963) was a plausible alternative explanation to the results of the false-confession studies.

SOME CRITICISM OF BEM'S THEORY AND RESEARCH

Recently Jones, Linder, Kiesler, Zanna and Brehm, (1968) have criticized Bem's interpersonal replication experiments and have proposed an alternative explanation of his results.

"Our alternative explanation of Bem's results proposes that an artifact in his descriptions of experimental conditions allowed a judgmental process quite different from that postulated by him. The descriptions used by Bem suggest that a typical subject would be quite unwilling to comply with the experimenter's request in the first place. However, the hypothetical subject
in the description does perform the requested behaviour. Observers should therefore infer that their subject was atypical and that he was initially more willing to comply than most subjects. Further, a subject who complied for a small incentive would be seen as more atypical than a subject who complied for a large incentive. Our alternative explanation asserts that Bem's observer-subjects were not behaving according to his hypothesis of self-perception, but rather that they merely judged differential hypothetical subject self-selection."

Jones et. al. performed a series of experiments to test their hypothesis that Bem's observers were in effect "psychologizing" about the initial attitudes of participant-subjects. They were able to replicate Bem's results using his procedures. However, when O-Ss were given information about involved Ss' initial attitudes (their pretest scores), Bem's effect did not hold. Observers who were aware of pretest scores predicted a positive relationship between incentives and attitude change.

Thus a significant controversy has developed over Bem's analysis and supporting simulations which essentially centers around the information that the O-S should receive concerning the original situation (Bem, 1967a, 1968; Elms, 1967; Jones, Linder, Kiesler, Hanna and Brehm, 1968; Mills, 1967). The predominant criticism objects specifically to Bem's procedure of not telling observer-subjects the original subject's pre-manipulation attitude.

Bem's Reply

Bem (Bem and McConnell, 1970) has suggested in reply to much of the discussion concerning the salience of premanipulation attitudes, that much of the criticism has been based upon a misunderstanding of his interpersonal simulation (replicat-
ion) methodology. Using a computer-simulation analogy he states that his self-perception theory asserts that an individual's attitude statements and the observer's judgements about the individual's attitudes are "output statements" from the same "internal program". Testing this theory demands an accurate assessment of the relevant "input statements" from the situation being simulated. Thus through "theoretically guided assumptions" certain "input statements" must be eliminated as irrelevant to the model. If both the observer and participant subjects are using a self-selection rule in this way: "What must my (this person's) attitude be if I am (he is) willing to behave in this fashion in this situation" as the self-perception theory implies, then Bem, (1970) maintains that any conflicting initial attitude must be irrelevant for both S's in arriving at their final "outcome statement" (attitude rating). Bem makes a point of stressing that P-Ss are not forced to participate. Therefore, the P-S concludes that his postmanipulation attitude is, in fact, the same attitude which motivated compliance in the first place. In the theory O-S's draw the same conclusion, "What must his real attitude have been if he was willing to participate."

A Test of Bem's Contention about the Non-Collinearity of Premanipulation Attitude

The following study by Bem & McConnell (1970) bears direct relevance to the study that is the object of this paper.
and therefore it is described in some depth.

To empirically answer his critics (i.e. Jones, Linder et al., 1963) Bem with McConnell (1970) designed a study to assess the "salience of premanipulation attitude" in the forced compliance procedure. Their experimental design involved two component experiments. An attitude change experiment and an attitude recall experiment. Both experiments utilized the forced-compliance paradigm in which subjects wrote counterattitudinal essays under varying conditions of freedom of choice to write against their initial positions on a current issue. The attitude-change experiment is identical to the usual forced-compliance experiment except for the justification manipulation and was included to insure replication of the usual dissonance paradigm Bem's model seeks to explain. The attitude recall experiment was designed to directly examine the "salience" of the initial attitudes for forced-compliance S just after engaging in counterattitudinal behaviour. The "salience" of initial attitude is interpreted in terms of the Ss error in recall of his initial attitude. Thus, both experiments are identical with the exception of outcome measure. The outcome measure of the change experiment was attitude change whereas the outcome measure of the recall-experiment was attitude recall.

Ss in the experiment were 93 male undergraduate engineering students. The Ss received course credit points for their participation. Separate Ss were employed in the two experiments to avoid the confounding effects of obtaining the two outcome
measures from the same Ss. All Ss were run in group sessions.

In the first session an attitude questionnaire on various campus issues was administered. This questionnaire elicited one issue on which 90% of the students held consensual opinions: "How much control should students have over the kinds of courses offered by the University?" The attitude position responses were obtained from a "61-point horizontal scale labeled at 10-point intervals from 'No Control' to 'Complete Control'". In order to facilitate counterattitudinal essay productions in the second session all Ss who fell below the midpoint of the scale "Some-Control" were eliminated from further consideration.

At the second session, one week later, experimental Ss were randomly assigned to the two component experiments and consequently to one of two "freedom of choice" conditions were instructed in writing that the psychology department was continuing its research into campus attitudes and was "collecting arguments for and against the various positions expressed". The No Choice condition Ss were simply requested to write essays against student control of courses. The Choice condition Ss were instructed that they could argue either for or against the student control of courses issue and that the choice was up to them. But, an addendum instruction was given to Choice condition Ss in which it was explained that the experimenters (Es) already had enough pro-student control arguments and now required anti-control arguments. The Es then requested of the Choice condition Ss that "as many as
possible" write anti-control essays.

The treatment conditions were the same in both component experiments. However, postmanipulation, the change experiment Ss were asked to express their present attitude on the issue. Recall experiment Ss were asked to recall their former expressed position. After collecting the main measures the experimental Ss were asked for the other outcome measure. Again the same 61-point scales were used. All experimental Ss were asked to indicate (on a similar scale) how much freedom of choice they felt they had in terms of complying to the experimental instructions.

Control condition Ss in both experiments were merely asked to rate their current or recalled positions. They did not engage in any essay writing.

The results of their study are summarized in three tables of Appendix E. Table one shows the usual forced-compliance results were obtained in the change experiment with Choice condition Ss apparently demonstrating greater dissonance effects than No Choice or Controls. Table 1 also indicates the perception of choice manipulation was successful. Table 2 presents comparable data for the recall experiment. Here the results appear in effect to duplicate the results of the change experiment in that Ss in the more dissonant condition (Choice condition) make greater recall error than the No Choice or Control conditions. Table 3 presents inter-correlation data on the measures for the recall experiment. The data indicates that high dissonance Ss show a significantly greater
difference when comparing the correlation of recall versus final (the second measure obtained) to recall versus initial position.

Bem and McConnell, (1970) interpret these results as supportive of their position that premanipulation attitude effects are non-salient to the forced-compliance procedure since it appears that the higher the apparent dissonance the greater is the forgetting effect. Thus, writing counterattitudinal essays, under conditions of freedom of choice to comply, effectively "wipes out" initial attitude. Moreover, they suggest their results indicate that Ss actually perceive their postmanipulation attitude to be identical to their premanipulation attitude.
The theoretical ramifications of the "importance" factor (as specified by Festinger, 1957) of an attitude element and its effects on dissonance phenomena have already been depicted in connection with the discussion of cognitive dissonance theory. To reiterate, Festinger proposes that magnitude of dissonance and consequent degree of dissonance reducing behaviour varies directly as the importance, for the person, of the elements in dissonant relation. As Kiesler, (1963) points out, what is precisely meant by importance is never really made very clear in the theoretical expositions. However, importance seems to be (at least) a two-pronged variable. On the one hand the concept can refer to the relative importance of an attitude element for the individual. Thus, the attitude, "I am against the war in Indo-China", may be far more important to an involved soldier than to a housewife whose only contact with the war is through the newspapers. Secondly, importance can refer to the consensual importance of the element itself. Thus an attitude to the war in Indo-China is, by consensus more important, than an attitude towards a particular brand of razor blades, for example. This discussion and the central focus of this study concerns itself with the implications of the former (importance for the individual) definition.

The experimental literature concerned with manipulations of (subjective) importance of attitude elements and the effects
of varied importance on dissonance phenomena, has been largely confined to investigations based on "free-choice" and "exposure to counterattitudinal information" paradigms.

Several studies have experimentally varied level of importance within the context of the "free-choice" paradigm. For example, Brehm, (1956); Cohen, Brehm and Latane, (1959); Mills, Aronson and Robinson, (1959); Rosen, (1961); Cohen, (1962) all produce evidence supportive of the predicted differential effects of varied importance of cognitive elements.

"Free choice" paradigm experiments involve a choice between attractive or potentially attractive alternatives which differ along the dimension of attractiveness (importance for the subject). A "free-choice" experiment reported by Deutsch, Krauss and Rosenau, (1962) is specifically directed toward the manipulation of importance through the manipulation of the person's self-involvement. In their experiment female Ss rated six different kinds of jam on nine-point bipolar rating scales in terms of overall taste and flavor. After the Ss had made their ratings, the E selected for each S a pair of samples that on the first scale had received equivalent ratings, at the centre of the scale. The E then announced that, "The company that's sponsoring the research would like to give you a sample jar of either brand, whichever you want." At this point a female experimenter was introduced as, "an expert in the field of food selection factors", who was going to conduct a panel interview in which she would "probe for some of the reasons behind your food preferences". Half of
the Ss were given a high self-involvement manipulation, half were given a low self-involvement manipulation. The high self-involvement condition made the choice relevant to valued attributes of the self by stressing the relationship between people's ability to judge subtle differences in the quality of foods and their judgemental ability in other areas, such as leadership aptitude, executive potential, and artistic judgement. The low self-involvement condition was given no such self-esteem involving message. Ss were then asked to select one or the other jam. After selection the Ss rerated all six of the samples. The data show that whether or not the choice involves the self (is important to the self), is of consequence. In the high self-involvement conditions, the chosen alternatives increase in value, and the unchosen alternatives decrease in value more than in the low self-involvement condition.

Studies employing the "exposure to counterattitudinal information" technique have produced data relevant to differential importance of premanipulation attitude effects. The "exposure" paradigm utilizes a procedure wherein Ss are merely exposed to persuasive counterattitudinal information. Thus, Ss do not, themselves, produce counterattitudinal behaviour but merely receive it. Cohen, (1962) has labelled the results of such procedures the "boomerang effect" in order to explain them in terms of dissonance theory. In the "exposure" situation resultant dissonance can be reduced in a number of ways. One of these ways, and apparently the one most often utilized is
for the $S$ to bolster his original position and thus change negatively in terms of the counterattitudinal information.

While this phenomena may be understood in terms of dissonance theory, Festinger's theory was not specifically designed with "boomerang effects" in mind. In fact, it may be argued that Festinger's actual position would contra-indicate "boomerang effects" and that such results refute the theory.

Recently Sherif, Sherif and Hebergall, (1965) in their "social judgement-involvement approach" have dealt extensively with the issue of relative "ego-involvement" and its effects on attitude change produced by exposure to counterattitudinal information. Their formulation is designed to explain the "boomerang effect". Here the "importance" variable of dissonance theory is equated with the "ego-involvement" variable.

Ego-involved attitudes are described by Sherif and Cantril, (1947) as "attitudes that have been learned, largely as social values, that the individual identifies with himself; and that have affective properties of varying degrees of intensity." This view of ego-involvement has been retained by Sherif in his more recent work in the area (Sherif and Hovland, 1961; Sherif, Sherif and Hebergall, 1965).

Various investigators, operationally defining levels of "involvement" in terms of initial attitude to an issue have indicated that degree of initial attitude involvement effects postmanipulation attitude change when $S$s are exposed to
counterattitudinal persuasion. The effect has been that high involved Ss produce less change than low involved Ss (e.g. Sherif and Hovland, 1961; Hovland, Harvey and Sherif, 1957; Cohen, 1962a).

On the other hand, Zimbardo (1960) experimentally manipulated involvement by telling Ss that their attitude-judgements about a juvenile delinquency case did or did not provide "a good indication of their basic social values, their personalities and their outlook on life problems". He found more change occurred in the direction of the counterattitudinal position under high involvement after exposure to attitude discrepant information. It is interesting to note that Zimbardo formulates his hypothesis in terms of dissonance theory. Cohen, (1962) producing the opposite results, also analyzes his data in terms of their support for the dissonance position.

In summary, the available literature indicates that the relative degree of importance of the attitude for the individual does effect the nature of attitude change that occurs when dissonance is aroused. When Ss are exposed to information counter to their attitude, the usual finding (e.g. Cohen 1962) is that Ss for whom the attitude-issue is highly important seem to reduce dissonance (hypothetically) by strengthening their original attitude position "booming-effect", although at least one investigator (Zimbardo, 1960) found that high importance Ss weaken their original position after exposure.

When individuals are placed in a "free-choice" between alternatives situation and their initial attitudes to these
alternatives are the same, experimentally induced high 
importance of one alternative creates greater dissonance 
(hypothetically) when the choice is made. Thus, high imp-
ortance Ss make greater attitude change with respect to the 
chosen alternative (they evaluate it more favourably) than 
Ss for whom the chosen alternative is not so important 
(e.g. Deutsch, Krauss and Rosenau, 1962).

To the author's knowledge, no study has examined the 
effect of the importance of the attitude-issue for the S 
within the "forced-compliance" paradigm. That is, no study 
has manipulated degree of subjective importance of an att-
titude and attempted to assess its effects on attitude change 
after "forced-compliance" to counter-attitudinal behaviour 
relevant to the given attitude element.

The present effort is an attempt to examine the possible 
differential effects of the importance variable within the 
context of a "forced-compliance" paradigm.

The Independent Variables of the Present Study

The two independent variables of the present study are 
designed to reflect the subjective "importance" or "involve-
ment" dimensions of an attitude-issue. The two variables 
"relevance of attitude" and "strength of commitment to attitude" 
are dimensions measured before any experimental manipulation 
had an opportunity to effect the Ss attitude on the issue in 
question (student control of courses at their school). The 
variables were measured through self-report on a Likert-type, 
(1932) scale.
Operational definitions of these two variables are perhaps best presented in terms of the scale descriptions for the Ss.

Strength of Attitude Commitment

... we are interested here in how much your position means to you. For instance, if you do not feel committed at all to your position you will mark the scale close to the "No Commitment at all" position on the scale. Individuals who are not committed to a position are those who could easily be swayed to another position. They are relatively open-minded about the issue while still holding an opinion. They would not likely participate in any form of activity in support of their opinion. At the middle range of the Strength of Commitment Scale would be less easily swayed from their position. They would be willing to support their position in an argument or debate perhaps.

At the other end of the scale would be individuals who feel strongly or "Completely" committed to their position. Such individuals would see themselves as being very staunch in their position and not at all able to be swayed. They would be willing to support their position quite actively and if given the chance engage in a demonstration on its behalf or openly campaign for it.

Attitude Relevance

... Here, we are interested in how often the issue comes into your thoughts or conversation or how often it touches your life — has implications for your daily living. For instance, if this is a constant concern you would mark the scale toward the high relevance end of the scale. If you never think about it, mark the scale at the low relevance end of the scale.

Since one requirement of the "forced-compliance" paradigm is that all Ss take a counterattitudinal position, the present study assumed that polarity of attitude position is not completely related to polarity of subjective attitude importance. Thus, Ss in the experiment while maintaining consensual position on the issue should be differentiable in terms of the independent
variables. Research by Ward, (1965, 1966) has indicated the viability of such an assumption. Ward, (1965) reports a study in which involvement (subjective importance) was varied while extremity of position was similar in all S's. The study shows clearly that extremeness of stand and involvement in that stand are not perfectly correlated.

Problem

The present study attempts to provide further data in resolution of a crucial question involving both Bem's self-perception theory and his methodology employed to test this theory, the interpersonal-simulation experiment. The issue is, whether or not the S's behaviour in a forced compliance experiment (e.g. writing counterattitudinal essays) becomes so very salient that it overwhelms his memory about his original position. Bem's and his critic's positions on this issue have already been discussed. Bem's empirical answer to his critics through his study with McConnell, (1970) has also been described in some length.

This paper represents a partial replication of the Bem and McConnell, (1970) experiments. It employs similar procedures to assess the salience of premanipulation attitude to counterattitudinal behaviour and resultant attitude. In a sense, it predicts the same outcome as Bem and McConnell's work when results of the present experiment are analyzed with undifferentiated group data. This replication should produce data which will indicate that counterattitudinal essay writing engaged in freely, will induce a dissonance - type
distortion in attitude recall of initial position which is essentially similar to the attitude change phenomenon after counterattitudinal behaviour. However, generalizing from cognitive dissonance theory assumptions, regarding forced compliance, this project predicts differential recall and change effects when subjects are partitioned into high and low attitude "importance" groups in terms of the attitude to be manipulated. Festinger is quite clear on a point relevant here. His theory predicts dissonance increases as "importance" for the individual of conflicting attitude elements increases. Moreover, amount of dissonance reducing behaviour increases concomitantly as "importance" of the attitude increases. Thus, differential attitude change effects after the "forced-compliance" procedure should result when "importance" for the individual of the attitude of focus in the essays is varied. Moreover, attitude recall of a previously expressed position should be distorted differentially in terms of the "importance" variable. It would be predicted then that high importance Ss would exhibit more attitude change and greater recall error than low importance Ss.

The study operationally defines "importance" in two ways. Since Bem questions the salience of premanipulation attitude one indicant of subjective importance which is especially pertinent to the issue concerns the functional salience of an attitude for the S in everyday life. That is, how predominant is the issue-attitude for the individual? How often does he think about it, talk about it? How often is it relevant for
him? This indicant of importance is termed "attitude relevance".

The second indicant of importance which is varied in the experiment is defined as the "strength of commitment" the S has to the premanipulation attitude. Strength of commitment, as measured reflects the extent to which the S reports he would support his position on an issue.

Briefly then, the problem of the present study focusses upon the viability of Bem's apparent claim that for all individuals and groups of individuals, initial attitudes are non-salient to counterattitudinal behaviour and attitudinal outcome of that behaviour.

**Experimental Hypotheses**

Cognitive dissonance theory predicts differential dissonance effects when the importance of the attitudinal elements in dissonant relation are varied for Ss. Various experiments particularly within the context of "free-choice" and "exposure" experimental paradigms has supported this prediction of dissonance theory. The following hypotheses are derivations from dissonance theory. In this case the predictions are related to the "forced-compliance" paradigm. Bem's self-perception theory also predicts dissonance-type results after counterattitudinal manipulations. However, Bem's theory eschews any reference to the characteristics of premanipulation attitudes of the Ss in its explanation of dissonance phenomena. According to Bem's theory, initial position and differences in premanipulation importance of attitude elements is non-
salient in the production of dissonance phenomenon. Thus, if
the following hypothesis which predict differential effects
in terms of initial attitude importance (operationally def-
ined in terms of premanipulation "attitude relevance" and
"strength of commitment" are supported, they will counter-
indicate derivations of Bem's theory.

Change Experiment

**Hypothesis 1.** Experimental subjects writing counterattitudinal
essays will demonstrate greater attitude change in the dir-
rection of positions argued in the essays than Control Subjects.
(This prediction is supportive of both Bem and Festinger's
positions).

**Hypothesis 2.** There will be a significant interaction effect
between attitude relevance level and the treatment conditions
with experimental high relevance subjects making greater post-
treatment attitude change in the direction of positions argued
in the essays, than experimental low relevance subjects and
control subjects.
(If this prediction is supported it will tend to
counterindicate some implications of self-perception
theory and be supportive of cognitive dissonance theory).

**Hypothesis 3.** There will be a significant interaction effect
between attitude strength of commitment level and the treat-
ment conditions with experimental high strength of commitment
subjects demonstrating greater postmanipulation attitude
change in the direction of positions argued in the essays,
than experimental low strength of commitment subjects and
controls.

(If this prediction is supported the result will tend to counterindicate some implications of self-perception theory and be supportive of cognitive dissonance theory).

**Attitude Recall Experiment**

Cognitive dissonance theory does not make specific predictions in terms of recall of a previously expressed position after counterattitudinal behaviour. However, a derivation of the theory would suggest that postmanipulation recall measure will demonstrate dissonance-type effects. Es engaged in counterattitudinal behaviour are in a state of dissonance. One way they can reduce this dissonance is to distort their original attitude position. The distortion to be effective, should take place in the direction of the counterattitudinal behaviour. Again, dissonance theory predicts results for the recall measure after manipulation which are similar to the change measure when importance of attitude is varied. Thus, recall error will vary as level of importance varies. However, similar to self-perception's position on attitude change after treatment, Dem's theory predicts no differential effects for the recall measure when differences in initial importance of attitude are varied.

**Hypothesis 4.** Experimental subjects writing counterattitudinal essays will demonstrate greater recall of initial attitude error in the direction of positions argued in the essays, than control subjects.

(This prediction is supportive of both Dem's and Festinger's positions).
Hypothesis 5. There will be a significant interaction effect between attitude relevance level and the treatment conditions with recall error as the dependent variable. Experimental high relevance subjects will make greater recall error in the direction of positions argued in the essays than experimental low relevance subjects.

(If this prediction is supported, results will tend to countraindicate some implications of self-perception theory and be supportive of dissonance theory).

Hypothesis 6. There will be a significant interaction effect between attitude strength of commitment level and the treatment conditions with recall error as the dependent variable. Experimental high strength of commitment subjects will make greater recall error in the direction of positions argued in the essays than experimental low relevance subjects.

(If this prediction is supported, the result will tend to counterindicate some implications of self-perception theory and be supportive of cognitive dissonance theory).
CHAPTER II
METHOD
Subjects

The subjects (Ss) were drawn from the twelfth grade of an urban Roman Catholic all-male high school. The original subject pool of 179 males produced a sample of 136 who were engaged in the actual experiments. This number was further reduced to 108 for final analysis due to a non-compliance problem (to be discussed later in this chapter). Except for consideration in terms of the independent variable, degree of attitude relevance (2 levels - high and low) Ss were apportioned equally and randomly to the two component experiments and their respective experimental conditions.

Experimental Conditions

For the sake of clarity further description of this study will be broken down in terms of the two component experiments, the Attitude Change Experiment and Attitude Recall Experiment.

Attitude Change Experiment

The main dependent variable here was attitude change from premanipulation measurement to postmanipulation measurement (one week interval). The independent variables were degree of "attitude relevance" and degree of "strength of commitment" to attitude. The Ss were separated into two levels of the
independent measure in each case. Before experimental manip­
ulation the $S$ s were separated on the "relevance" dimension and assigned randomly to experimental and control conditions. For data analysis, $S$ s were reseparated on the other independent variable strength of commitment. The following two matrices show the four experimental conditions and the number $S$ s per condition. Matrix (a) shows the experimental conditions with $S$ s separated on the relevance dimension. Matrix (b) depicts the experimental conditions and their respective cell frequencies when $S$ s were separated postmanipulation on the strength of commitment variable.

Change Experiment - Original Subject Pool

per Experimental Condition

<table>
<thead>
<tr>
<th></th>
<th>High Relevance</th>
<th>Low Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Control</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>High Strength of Commitment</th>
<th>Low Strength of Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Control</td>
<td>13</td>
<td>19</td>
</tr>
</tbody>
</table>

It should be remembered that the lower total subject pool represented in matrix (b) is due to the abovementioned non-compliance problem during experimental manipulation.

The treatment conditions, designated experimental and control for the Change Experiment were designed to replicable the forced compliance paradigm of cognitive dissonance pheno­

omena. Experimental $S$ s wrote counterattitudinal essays
(expressing a position counterposed to the attitude issue in question for the experiment). They were given "freedom of choice" as to the type of essay they wished to write, consistent with and replicating the "choice condition" of Bem and McConnell's (1970) study. Controls are treated in the same way as experimentals with the exception that they write counterattitudinal essays on an issue other than the issue of focus for the study.

Attitude Recall Experiment

In this case the main dependent variable was recall of premanipulation attitude level (measured one week previous to treatment, and the recall measure). The data were analyzed in terms of attitude recall error. Again, the independent variables were degree of "attitude relevance" and attitude "strength of commitment". The Ss were separated and partitioned in the same way as in the change experiment with relevance level the initial cell assignment criterion. Strength of commitment level separation was performed postmanipulation. The Ss who scored above the mean (36.3) on the strength of commitment scale were assigned to the high group. Those scoring at or below the mean were assigned to the low group. The following matrices are similar to the previous figures regarding the attitude change experiment.

1. Due to subject availability limitations, only the essential conditions of the Bem and McConnell study were replicated here. Thus, Bem and McConnell's No Choice experimental condition was not included in the two component experiments.
Recall Experiment - Original Subject Pool

per Experimental Condition

(a)                   High Relevance     Low Relevance
Experimental          18               16
Control               18               16

(b)                   High Strength       Low Strength
of Commitment        of Commitment
Experimental          13               11
Control               17               11

Treatment conditions of the Recall Experiment are the same as those of the Change Experiment. Thus, experimental S's write counterattitudinal essays relevant to the issue of focus in the study. Controls write "irrelevant" counter-attitudinal essays.

Materials

All of the scales employed to measure the three attitude dimensions and perception of "freedom of choice" in experimental treatment conditions were similar to those used by Bern and McConnell, (1970) in their study. These were 61-point horizontal scales labeled at 10-point intervals (see Appendix A for all scales).

Procedure

In the first session class-size groups of approximately 30 students participated in what was termed "a survey of student
attitudes". The questionnaire consisted of 10 issues selected for their assumed pertinence to the particular population. The purpose of the study was explained to the subjects through the following instructions:

This survey is designed to determine student attitudes at your high school on certain important current issues. Although your participation in this undertaking is entirely at your discretion, we would greatly appreciate your co-operation in the interests of much needed knowledge and understanding of opinions within your student body. All information will of course, be kept strictly confidential. We only ask that you give us the following information: date of birth, class and intended career plans. This data will be collected to facilitate pertinent correlations with the attitude information.

Spaces were provided for the identification data. It should be noted that before collection of the scored questionnaires, the experimenter emphasized that subject complete the identification data since he was to return in one week and required some means without gathering names, of identifying the students for the next session. Moreover, each subject was assigned a specific numbered card which the experimenter requested he bring to the next session for identification purposes.

The main instructions for the survey follow. Note that each scale is described carefully so that subjects had an understanding of the dimensions on which they were to rate the issues.

INSTRUCTIONS

You will notice that each attitude-issue is typed at the top of the page and followed by three scales: Attitude Position Scale, Strength of Attitude Commitment Scale, and Attitude Relevance Scale. The scales are similar in their structure and you are simply required to mark each scale by drawing a
line through the point on the scale that is most appropriate for you.

EXAMPLE:

How hungry are you?

1........1........1........1........1........1........1........1
Not at Very Somewhat Moderately Quite Very Extremely all slightly

Someone who feels just a little more than "Quite hungry" would mark the example scale as shown.

DESCRIPTION OF SCALES

ATTITUDE POSITION SCALE

This scale requires that you report your position on the issue at the top of the page. Mark the scale at the point which most accurately indicates your opinion on the issue.

STRENGTH OF ATTITUDE COMMITMENT SCALE

The second scale requires you to indicate your perception of how strong your attitude is on the issue. We are interested here in how much your position on the issue means to you. For instance, if you do not feel committed at all to your position you will mark the scale close to the "No Commitment at All" position on the scale. Individuals who are not committed to a position are those who could be easily swayed to another position. They are relatively openminded about the issue while still holding an opinion. They would not likely participate in any form of activity in support of their opinion.

At the middle range of the Strength of Attitude Commitment Scale would be individuals who would be less easily swayed from their position. They would be willing to support their position in an argument or debate perhaps.

At the other end of the scale would be individuals who feel strongly or "completely" committed to their position. Such individuals would see themselves as being very staunch in their position and not at all able to be swayed. They would be willing to support their position quite actively and if given the chance engage in a demonstration on its behalf or openly campaign for it.

ATTITUDE RELEVANCE SCALE

The third scale requires that you indicate how relevant the particular issue is for you. Here, we are interested in
how often the issue comes into your thoughts or conversation or how often it touches your life - has implications for your daily living. For instance, if this is a constant concern you would mark the scale toward the high relevance end of the scale. If you never think about it, mark the scale at the low relevance end of the scale.

After the attitude survey was completed the experimenter analyzed the attitude ratings of each issue. The issue on which there was most consensus of student attitude position and greatest variation in terms of the independent variables was selected for further use in the study: "How much control should students have over the kinds of courses offered at their school?" Ninety percent of the students at the first session held positions above the midpoint of the attitude position scale, "Some Control". The forced-compliance paradigm requires that all Ss argue counterattitudinally in their essays. Therefore, the 10 percent (10) who held positions below the midpoint of the position scale were eliminated from the experiment.

A further advantage of the use of the student control of courses issue in the experimental manipulation was that Bem and McConnell's (1970) work employed the same issue with their undergraduate university student subjects.

The resultant N of 161 was now partitioned into two levels of attitude relevance based upon scores of the relevance scales. The initial division of Ss was performed in terms of the relevance dimension rather than the strength of commitment independent variable since the former variable was more normally distributed in terms of the population and was
thus more readily divisible into high and low subgroups. The experimenter arbitrarily determined the limits of the high and low relevance groups. Subjects scoring 25 and below were assigned to the low relevance group. S's scoring 35 and above were established as the high relevance group. Thus, 25 S's who fell about the midpoint on the relevance scale were dropped from further consideration. S's divided into two levels of attitude relevance were randomly assigned to one of four treatment conditions in the component experiments. Resultant cell frequencies are depicted in the matrices of the previous section.

At the second session, one week later, S's were again run in class-size groups of approximately 30 students. As they entered the testing room (a convenient classroom) each student was asked to present his numbered identification card, he received in the first session. If he was one of the subjects selected to participate in the second session, he was given a large (13" X 10") brown numerically identified manilla envelope with the appropriate materials for his treatment condition inside. All treatment S's were requested to leave the envelope sealed, seat themselves, and await further instructions. Students who were not selected for further participation accompanied their teacher to the gymnasium. This "role-call" procedure consumed approximately four minutes of the one hour allotted per group of students. When the S's had all been comfortably seated the S's instructed them to open their envelopes saying:
Before you open your envelopes I would like to give you some idea of their contents and some instructions as to what you are to do with what you find inside. Inside are three smaller (9" 12") envelopes of different colours, one white, one brown and one light-green. When I tell you open the large envelope and find the light-green one inside. Open this light green one and read carefully the instructions found inside. Then proceed to do as the instructions tell you. Open only the light green envelope until you receive further instructions from me. Are there any questions? You have one half-hour to complete this part of the experiment. You may now open your envelopes.

The two treatment conditions found slightly different instructions in their light-green envelopes. Experimental Ss found the following instructions:

The psychology department of the University of Windsor is continuing its research into campus issues and student opinions. It has been shown that one of the best ways to get pertinent arguments on both sides of an issue is to ask people to write essays favouring only one side. This week we are collecting such arguments for and against the various positions expressed. Each participant is being asked to write a short one page essay on one of the issues and to take a specific position in its regard. In your case you may write an essay arguing that students should have complete control over the kinds of courses offered at their school or an essay which argues that they should have little or no control, the choice is up to you. Please write your essay on the attached sheet.

Consistent with Bem and McConnell's "choice condition" an addendum sheet was inserted between the foregoing instructions and the blank essay sheet. This addendum instruction was added with the purpose of insuring counterattitudinal productions. It read:

Please Note

We now find that we have enough "pro-control" arguments and are in need of "anti-control" arguments.
Therefore, in this session we would appreciate it if as many of you as possible would write one page essays which argue for the point of view that "students should have VERY LITTLE or NO CONTROL over the kinds of courses offered by their school.

Thank you.

Control treatment Ss were given exactly the same instructions in the same way except that the issue of focus was changed to a lowering of the drinking age issue. Thus instructions varied only in terms of the underlined sections of the above instructions for the experimental treatment. These sections were changed for control treatment subjects to read:

... that the drinking age should be lowered to age 18 or that the drinking age should not be lowered to age 18 but kept at the present 21.

addendum sheet

... that the drinking age should not be lowered to age 18 but kept at the present 21.

All subjects completed their essays within 30 minutes. When all had finished writing, the E requested that they place their completed essays back in the large envelope. Next, the Ss were instructed to open the white envelopes and comply with the instructions in it. White envelopes contained instructions which varied according to the component experiment to which the subject had been assigned. Attitude Change Experiment subjects received the following instructions:

Please mark the following scale according to what best represents your present feeling toward the issue of: How much control should students have over the kinds of courses offered at their school?

Attitude Recall Experiment subjects received these instructions in their white envelopes:
In the first session one week ago, we asked your co-operation in a survey of student attitudes. One of the issues in the questionnaire concerned: How much control students should have over the kinds of courses offered at their school?

Now, we want you to try and recall your feelings expressed toward the student control issue in the first session by marking the following scale in the same place you did one week ago.

The scales used were the same as the attitude position scales of one week earlier, with slight modifications for the Recall Experiment. These scales are presented in Appendix A.

When the S's had completed scoring the scales they were instructed to place these sheets back in the white envelope and place this envelope back in the large manilla envelope. Next, S's were instructed to open the brown envelopes and comply with the instructions in it. Again the typed instructions differed according to the component experiment each S had been assigned. Change Experiment S's received the same instructions Recall Experiment S's had received in the white envelope. Thus, Change Experiment S's were now requested to recall their initial attitude position. On the other hand, Recall Experiment S's were asked to rate their present attitude position.

In addition, all experimental condition S's received a sheet with instructions and a scale designed to assess their perception of how much freedom they had in choosing which side of the student-control issue to favour in the essay. The instructions for the "freedom of choice scale" (see Appendix A) read:
You have just written an essay taking a strong position on the student control of courses issue. Please indicate on the following scale how much freedom of choice you feel that you had in choosing which side of the issue to argue for in your essay.

Experimental S's were also asked to indicate whether they had perceived any change in their attitudinal position.

Finally, all S's were requested to return the remaining materials to the large envelope and all envelopes were collected.

In order to control for any qualitative differences of the essays experimental S's wrote a "quality control" procedure involving independent judges was included. The judges were four undergraduate university students and each was asked to rate 11 essays (randomly assigned) in terms of their quality of argument and strength of persuasion. A five-point rating scale ("poor" to "excellent") was used. The results indicate no significant differences between high and low importance groups. All groups averaged three or "good" on the scale.
Chapter III

Results

Preliminary Analyses

The first result of consequence to the study concerns the outcome of the freedom of choice manipulation in the experimental treatment conditions. The expected outcome based on Bem and McConnell's (1970) results was a "minimal non-compliance problem" due to this aspect of the experimental treatment. The latter researchers report only two (of 32) Es were rendered inappropriate to analysis due to their choosing to write pro-control rather than anticontrol essays on the student control of courses issue. This study, employing a replication of Bem and McConnell's procedure found that 22 (of 66) Es chose to write pro-attitudinal essays. This represents 33.5 of all Es assigned to experimental treatment conditions. The independent variable, relevance of attitude on which Es were initially separated did not effect non-compliance frequency. The following matrices indicate original cell frequencies (the bracketed figures) and resultant "n" per cell after the non-compliance phenomenon.

- 49 -
(a) Change Experiment - Resultant Cell Frequencies due to Non-Compliance

<table>
<thead>
<tr>
<th></th>
<th>High Relevance</th>
<th>Low Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>(18) 10</td>
<td>(16) 10</td>
</tr>
<tr>
<td>Control</td>
<td>(18) 15</td>
<td>(16) 15</td>
</tr>
</tbody>
</table>

(b) Recall Experiment - Resultant Cell Frequencies due to Non-Compliance

<table>
<thead>
<tr>
<th></th>
<th>High Relevance</th>
<th>Low Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>(18) 12</td>
<td>(16) 12</td>
</tr>
<tr>
<td>Control</td>
<td>(18) 15</td>
<td>(16) 15</td>
</tr>
</tbody>
</table>

Analysis of the perception of choice data from the freedom of choice scale for S's who did comply, indicates that the choice manipulation did allow experimental S's to perceive freedom in terms of the kind of essay they wished to write. In the change experiment mean perceived freedom of choice for experimental S's was 39.4. In the recall experiment the respective mean was 38.8. These mean scores are well above the midpoint of the scale, "some freedom of choice" and are actually higher than Bern and McConnell's result (See tables 1 and 2 of Appendix B). The scores ranged from the minimum point, 1 to the maximum point, 60 on the scale. This range was greater than that of Bern and McConnell's S's. They report all S's ranged between 20 and 30 on the freedom of choice scale.

Table 1 presents the intercorrelation analysis among the three attitude dimensions. These results indicate the dimensions as measured are positively related to one another and do not represent completely separate factors of the attitude element.
Table 1. Intercorrelation Among Attitude Dimensions; Attitude Relevance, Attitude Strength of Commitment, and Initial Attitude Position by Component Experiment

<table>
<thead>
<tr>
<th>Experiment Initial Position</th>
<th>Initial Position X Relevance</th>
<th>Initial Position X Strength</th>
<th>Initial Position X Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>+.24*</td>
<td>+.61**</td>
<td>+.66**</td>
</tr>
<tr>
<td>Recall</td>
<td>+.36**</td>
<td>+.62**</td>
<td>+.29*</td>
</tr>
</tbody>
</table>

* p. < .05
** p. < .01
Product-moment correlations for the initial attitude position dimension and the two dependent variables, attitude change and recall error (presented in table 2) suggest the possible confounding effects of a covariant, initial attitude position in the change experiment where attitude change score is the dependent variable. The table shows a product-moment $r$ of -.18 when correlating initial attitude position and recall error score. This figure is far from statistical significance. The correlation of -.38 between attitude change score and initial position is statistically significant at the .01 level. $t$-tests between mean initial position scores of the four conditions in each component experiment indicates statistically significant differences between the independent variable levels. Differences in initial attitude position between experimentals versus controls were very slight and nonsignificant.

The overall data comparing the treatment groups in terms of initial attitude position suggests an analysis of covariance may be appropriate, at least as far as the Attitude Change Experiment is concerned.

Bem and McConnell (1970) test their assumption that the recall measure of their recall experiment is "phenomenologically identical" to the change measure of their change experiment, in two ways. First they invite the reader to compare the figures of the two experiments (see tables 1 and 2 of Appendix B) and suggest that "the attitude-recall figures closely parallel the attitude-change results them-

---

1. See Appendix B for further discussion of this correlational result.
Table 2. Product-moment Correlations between Initial Position and the Dependent Variables, Recall Error and Attitude Change

<table>
<thead>
<tr>
<th>Initial Position</th>
<th>Recall Error</th>
<th>Attitude Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-.18 (n.s.)</td>
<td>-.38*</td>
</tr>
</tbody>
</table>

*p. < .01
selves and display the same kinds of differences among the three conditions. The figures are so similar to those in the change experiment, that it would appear that we had asked these S's (the recall subjects) for their current attitudes rather than their initial attitudes."

Next, Bem and McConnell report "another way" of testing their prediction of phenomenological identity between the two outcome measures. In this second analysis they report an intercorrelation comparison for the data of the recall experiment. The S's in their recall experiment were also asked to report their final attitudes after they had attempted to recall their initial attitudes. The analysis consisted of comparing the correlation for recall versus initial attitude, by the correlation for recall versus final attitude, in their three treatment conditions (see table 3 of Appendix B for the reproduction of this data). Bem and McConnell suggest that this data supports their predictions, since experimental S's, those engaged in counterattitudinal behaviour, demonstrate a correlation between their recall of their initial attitudes and their final attitudes which is significantly higher than the correlation between their recall and their actual initial attitudes. Moreover, they suggest that the very high correlations between recall of initial attitudes and final attitudes for the experimental S's (as compared to controls) is supportive of their hypothesis that the data from the incoming counterattitudinal behaviour, "update the
attitudinal information for the S and destroy any earlier information to the contrary."

The validity of Bem and McConnell's conclusions regarding the foregoing analysis hinges on two factors. In the first place, a statistical comparison between two correlations for correlated (not independent) samples presents certain unavoidable difficulties arising from underlying assumptions of the product-moment correlation procedure. Hays (1966) in fact, states that such a statistical procedure is rather meaningless. An excerpt from Hays (1966) in this regard is presented in Appendix B. Ferguson (1966) outlines the statistical computations necessary to obtain a comparison between correlations for correlated samples, but qualifies his presentation by stating that conclusions drawn from this procedure must be interpreted with caution.

Moreover, the usefulness of the second outcome measure of final attitude for the recall experiment S's may be questioned. Is this second measure simply an artifactual outcome due to experimental demand for consistency between the two measures, recall and final attitude? Bem and McConnell propose that the data from their control group wherein the correlation between recall and final attitude is relatively low, "weakens" the possibility of an experimental demand effect.

In order to present comparative data the present
study analyzed the data of the two component experiments employing Ferguson (1966) procedure for comparing correlations between correlated samples. Because of the tenuous validity of this analytical procedure, and the questionable nature of the second outcome measure, experimental hypotheses related to this analysis were not included.

The resultant data are presented in tables 3 and 4. The tables indicate that regardless of whether S's are separated on the independent variables, "strength of commitment" (table 3) or "attitude relevance" (table 4) statistically significant differences are found between the two correlation coefficients for both experimental treatment condition and control condition. Moreover, the correlation coefficients for recall versus final position are very high for all conditions. In fact they appear slightly higher for control condition S's. Apparently, the assumption of the artifactual nature of the second outcome measure, due to experimental demand for consistency between the two outcome measures is a viable possibility in this study.

In this case, the conclusion must be that recall of initial attitude and final attitude are "identical" but this identity is likely due largely to the demand for consistency effect.
Table 3. Recall experiment: Product-moment Correlations between Recall of Initial Attitude Position and Initial and Final Attitude Position with Strength of Commitment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recall vs. Initial Position</th>
<th>Recall vs. Final Position</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental High Strength of Comm. (n=12)</td>
<td>+.20</td>
<td>+.85</td>
<td>3.48**</td>
</tr>
<tr>
<td>Experimental Low Strength of Comm. (n=12)</td>
<td>+.71</td>
<td>+.97</td>
<td>7.63**</td>
</tr>
<tr>
<td>Control High Strength of Comm. (n=15)</td>
<td>+.64</td>
<td>+.98</td>
<td>8.44**</td>
</tr>
<tr>
<td>Control Low Strength of Comm. (n=15)</td>
<td>+.64</td>
<td>+.92</td>
<td>2.64*</td>
</tr>
</tbody>
</table>

* p. < .05
** p. < .01
Table 4. Recall Experiment: Product-moment Correlations between Recall of Initial Attitude Position and Initial and Final Position with Attitude Relevance the Independent Variable

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recall vs. Initial Position</th>
<th>Recall vs. Final Position</th>
<th>t Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental High Relevance</td>
<td>+.37</td>
<td>+.85</td>
<td>3.01**</td>
</tr>
<tr>
<td>Experimental Low Relevance</td>
<td>+.65</td>
<td>+.89</td>
<td>2.26*</td>
</tr>
<tr>
<td>Control High Relevance</td>
<td>+.49</td>
<td>+.97</td>
<td>6.64****</td>
</tr>
<tr>
<td>Control Low Relevance</td>
<td>+.72</td>
<td>+.96</td>
<td>4.22***</td>
</tr>
</tbody>
</table>

*  p. < .10
** p. < .05
*** p. < .01
**** p. < .001

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Major Analyses

A 2 X 2 analysis of covariance (initial attitude position as the covariant), with cell frequencies adjusted to obtain equal n s, was performed on the data for both component experiments. Equal cell frequencies were obtained by randomly dropping S s from cells in which the number of cases exceeded the smallest n of the experiment. In order to minimize the possibilities of Type II error the results of simple 2 X 2 analysis of variance are presented, when they are pertinent. This will minimize inappropriate rejections of an experimental hypothesis due to the effects of the covariant. In this regard, it must be remembered that the central purpose of the present study was to assess the effects on dissonance-type phenomena (recall of attitude and change of attitude after counterattitudinal behaviour) when certain properties of the attitude are varied. Thus, statistically significant difference between treatments due to the combined effects of the covariant, initial attitude position, and an independent variable manipulation may be a viable result in terms of the studies' central problem.

Again the data will be presented in terms of the component experiments.

Attitude Change Experiment

Two 2 X 2 (two treatment conditions: experimental and control; and two levels of the independent variable attitude relevance (high vs. low) or attitude strength of commitment
high vs low) analysis of covariance were performed on attitude change scores. Change scores were calculated by subtracting each S's initial attitude from his final attitude. Thus, negative quantities indicate that the Ss became less favorable toward student control of curriculum, the position argued by compliant Ss in the essays.

Relevance of Attitude

Mean attitude change scores (both before and after adjustment with the covariant, initial position of attitude) with level of attitude relevance varied in experimental and control treatment conditions are presented in table 5. A summary of the analysis of covariance is presented in table 6. (A summary of comparable analysis of variance is presented in Appendix D.)

The analysis of covariance shows the only significant source of variance is an overall significant main effect (p. < .001) with respect to experimental treatment (Experimental versus Control Conditions). The preceding analysis of covariance provides evidence regarding the viability of two of the experimental hypothesis.

**Hypothesis 1** Experimental subjects will show significantly greater attitude change in the direction of positions argued in the essays than control subjects.

**Hypothesis 2** There will be a significant interaction effect between attitude relevance level and the treatment conditions with experimental high relevance Ss making significantly greater attitude change than experimental low relevance Ss.
Table 5. Change Experiment: Mean Adjusted $^a$ and Unadjusted Attitude Change Score in each Condition with Attitude Relevance the Independent Variable

<table>
<thead>
<tr>
<th></th>
<th>Low Relevance</th>
<th>High Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>-7.1 (-7.95)$^a$</td>
<td>-16.5 (-15.26)$^a$</td>
</tr>
<tr>
<td>Control</td>
<td>+1.3 (-0.07)$^a$</td>
<td>+1.3 (+2.28)$^a$</td>
</tr>
</tbody>
</table>

$^a$ Means are adjusted for the covariate, initial attitude position.
Table 6. Change Experiment: Summary of Analysis of Covariance with Attitude Relevance the Independent Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Treatment)</td>
<td>1</td>
<td>1250.99</td>
<td>9.58</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>B (Relevance)</td>
<td>1</td>
<td>58.96</td>
<td>.45</td>
<td>N.S.</td>
</tr>
<tr>
<td>AB (Interaction)</td>
<td>1</td>
<td>233.27</td>
<td>1.79</td>
<td>N.S.</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>130.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Raw scores are transformed by adding a constant (K=+33) in order to eliminate use of negative integers of change scores.*

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Hypothesis 1 is supported. It is evident that S's in the experimental condition who wrote counterattitudinal essays made significantly greater attitude change in the direction of the position argued in the essays, than did Control S's who did not write counterattitudinal essays on the issue in question. This result indicates the experiment successfully produced the attitude shift expected through cognitive dissonance theory.

Hypothesis 2 did not receive support. Thus level of attitude relevance did not differentiate S's on the dependent variable, attitude change. However table 6 indicates the difference tended in the predicted direction.

**Attitude Strength of Commitment**

Mean covariance adjusted and unadjusted change scores with level of attitude strength of commitment varied in experimental and control treatment conditions are presented in table 7. A summary of the analysis of covariance and comparable analysis of variance is presented in tables 8a and 8b. The analysis of covariance indicates one significant source of variance. There is an overall significant main effect (p. <.001) with respect to experimental treatment. The analysis related to two of the experimental hypotheses.

**Hypothesis 1.** Experimental subjects will show significantly greater attitude change in the direction of positions argued in the essays than control subjects.
Table 7. Change Experiment: Mean Adjusted and Unadjusted Attitude Change Score in each Condition with Strength of Commitment the Independent Variable

<table>
<thead>
<tr>
<th></th>
<th>Low Strength of Comm.</th>
<th>High Strength of Comm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>-5.3 (-6.92)(^a)</td>
<td>-13.3 (-16.00)(^a)</td>
</tr>
<tr>
<td>Control</td>
<td>+3.7 (+2.17)(^a)</td>
<td>+1.00 (+1.8)(^a)</td>
</tr>
</tbody>
</table>

\(^a\)Means are adjusted for the covariate, Initial Attitude Position.
Table 8a. Change Experiment: Summary of Analysis of Covariance with Strength of Commitment the Independent Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Treatments)</td>
<td>1</td>
<td>1795.23</td>
<td>13.80</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>B (Strength of Comm.)</td>
<td>1</td>
<td>177.82</td>
<td>1.37</td>
<td>N.S.</td>
</tr>
<tr>
<td>AB (Interaction)</td>
<td>1</td>
<td>186.10</td>
<td>1.43</td>
<td>N.S.</td>
</tr>
<tr>
<td>Error</td>
<td>35</td>
<td>130.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Raw scores are transformed by adding a constant (k=+33).*
Table 8b. Change Experiment: Summary of Analysis of Variance with Strength of Commitment the Independent Variable.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Treatments)</td>
<td>1</td>
<td>2002.23</td>
<td>14.52</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>B (Strength of Comm.)</td>
<td>1</td>
<td>616.23</td>
<td>4.47</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>AB (Interaction)</td>
<td>1</td>
<td>265.23</td>
<td>1.92</td>
<td>N.S.</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>137.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*aRaw scores transformed by adding a constant (K=33)*
Hypotheses 3. There will be a significant interaction effect between strength of commitment level and the treatment conditions with high strength of commitment subjects demonstrating greater attitude change than low strength of commitment subjects.

The results in covariance analysis of strength of commitment data are similar to those when attitude relevance is varied confirming hypothesis 1 and provide the same evidence of significant dissonance effects. The predicted interaction effects are non-significant, disconfirming hypothesis 3. Again the data in terms of interaction effect tended in the predicted direction.

Moreover, the analysis of variance design which includes variance due to the initial position of attitude dimension, indicates a significant main effect (p. < .05) on the strength of commitment variable. Two F tests (Winer, 1962) were used to analyze the simple effects. The results indicate that experimental high strength of commitment S's differed significantly (F=6.13; df=1.36; p. < .01) in attitude change due to the experimental treatment. Non-significant differences were found when the respective control groups were compared. This suggests that although the strength of commitment variable itself does not produce differences in amount of attitude change due to counterattitudinal behaviour, its combined effects with initial attitude position, result in significant variance. A look at the treatment means of the respective conditions (table 7) indicates
what these differences reflect. The high strength of commitment experimental group shifts significantly more ($\bar{x}=-16.5$) than the low strength experimental group ($\bar{x}=-7.1$). Apparently, the strength of commitment dimension as measured by itself is not sensitive enough to effect differences. Hypothesis 3 in its stated form must be rejected. However, acceptance of the null hypothesis with all of its ramifications seems inappropriate. Further discussion of this issue should be reserved for the following Chapter.

**Attitude Recall Experiment**

Two $2 \times 2$ analysis of covariance were performed on attitude recall error scores. Recall error scores were computed by subtracting subject's initial attitude position from his postmanipulation recall of that original position. Thus, negative scores indicate error in the direction of the position expressed in the essays.

**Relevance of Attitude**

Mean covariance adjusted and unadjusted recall error scores are depicted in table 9. Table 10 summarizes the analysis of covariance.

The analysis of covariance results indicate all three variance scores are significant. Thus, a significant main A effect (experimental versus control), main B effect (high relevance versus low relevance) and AB interaction effect are noted.
<table>
<thead>
<tr>
<th></th>
<th>Low Relevance</th>
<th>High Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>-8.33 (-9.40)</td>
<td>-0.67 (+0.32)</td>
</tr>
<tr>
<td>Control</td>
<td>+1.0 (-0.13)</td>
<td>-0.58 (+0.62)</td>
</tr>
</tbody>
</table>

^aMeans are adjusted for the covariate, Initial Attitude Position

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Table 10. Recall Experiment: Summary of Analysis of Covariance with Attitude Relevance as the Independent Variable.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Treatments)</td>
<td>1</td>
<td>274.44</td>
<td>5.19</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>B (Relevance)</td>
<td>1</td>
<td>270.55</td>
<td>5.12</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>AB (Interaction)</td>
<td>1</td>
<td>241.81</td>
<td>4.58</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Error</td>
<td>43</td>
<td>52.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Raw Scores are transformed by adding a constant (k=+22)
Six $F$ tests were computed to test simple effects among the adjusted cell means. The results indicate that low relevance of attitude $S$ s who write counterattitudinal essays make significantly more recall of attitude error than high relevance $S$ s who write similar essays ($F = 10.63; df = 1.43; p < .01$). High relevance control $S$ s did not make significantly greater recall error than low relevance controls. Thus, the difference between means of the experimental conditions accounts for the significant main $B$ effect of analysis of covariance. Comparison between adjusted treatment means within the low relevance group indicated statistically significant differences between experimental and control low relevance $S$ s ($F = 9.68; df = 1.43; p < .01$). Comparison between adjusted means of the low relevance experimentals and high relevance controls was also significant ($F = 11.29; df = 1.43; p < .01$). Nonsignificant differences were found between experimental high relevance and control high relevance and control low relevance $S$ s.

The foregoing analyses effect the tenability of two of the experimental hypotheses.

**Hypothesis 4.** Experimental subjects will show significantly greater recall of initial attitude error in the direction of the position argued in the essays than control subjects.

**Hypothesis 5.** There will be a significant inter-
action effect between attitude relevance level and the treatment conditions with recall error as the dependent variable. Experimental high relevance subjects will make significantly greater recall error in the direction of the position argued in the essays than experimental low relevance subjects.

Hypothesis 4 received support at the .01 level of significance. Hypothesis 5 was not supported as stated. However, results do indicate a significant interaction (p. < .01) effect between the treatment conditions and levels of attitude relevance. The nature of this interaction was in a direction exactly opposite to the stated prediction. Thus experimental low relevance Ss make significantly greater recall error after manipulation than high relevance Ss. Moreover, concerning hypothesis 5, the data indicate that high relevance experimentals do not differ in amount of recall error from either control group. Therefore, the differences relevant to hypothesis 4a which predicted a Main A effect are due largely to the differences between the low relevance experimental Ss and control Ss.

Attitude Strength of Commitment

Adjusted and nonadjusted mean scores for the recall experiment with strength of attitude commitment are presented in table 11. The analysis of covariance is summarized in table 12.
Table 11. Recall Experiment: Mean Adjusted\textsuperscript{a} and Unadjusted Attitude Recall Error in each Condition with Strength of Commitment the Independent Variable.

<table>
<thead>
<tr>
<th></th>
<th>Low Strength of Commitment</th>
<th>High Strength of Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>-7.45 (-7.76)\textsuperscript{a}</td>
<td>-1.09 (-0.76)\textsuperscript{a}</td>
</tr>
<tr>
<td>Control</td>
<td>+3.9 (+3.46)\textsuperscript{a}</td>
<td>+0.09 (+0.52)\textsuperscript{a}</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Means are adjusted for the covariate, Initial Attitude Position.
Table 12. Recall Experiment: Summary of Analysis of Covariance with Strength of Commitment the Independent Variable.*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Treatments)</td>
<td>1</td>
<td>429.04</td>
<td>8.99</td>
<td>.01</td>
</tr>
<tr>
<td>B (Commitment)</td>
<td>1</td>
<td>23.66</td>
<td>.50</td>
<td>N.S.</td>
</tr>
<tr>
<td>AB (Interaction)</td>
<td>1</td>
<td>268.38</td>
<td>5.63</td>
<td>.05</td>
</tr>
<tr>
<td>Error</td>
<td>39</td>
<td>47.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Raw scores transformed by adding a constant (K=+22).
The covariance analysis indicates statistically significant main A effect (experimental vs. control) and an A*B interaction effect.

A simple effects analysis of the adjusted cells means employing 6 F tests was computed. These results indicate that low strength of commitment experimental S's engaging in counterattitudinal essay writing make greater post-manipulation recall of initial attitude errors than high strength of commitment experimental S's writing similar essays (F = 5.58; df = 1.39; p < .05). Low strength of commitment experimentals make greater recall error than low strength of commitment controls (F = 14.33; df = 1.39; p < .01) and high strength of commitment controls (F = 7.80; df = 1.39; p < .01). The high strength experimental group does not differ significantly in amount of recall error from either control group.

These analyses provide evidence pertinent to two of the experimental hypotheses.

Hypothesis 4. Experimental subjects will show greater error in recall of initial attitude in the direction of the positions argued in the essays than control subjects.

Hypothesis 6. There will be a significant interaction effect between level of strength of commitment and the treatment conditions with recall error as the dependent variable. Experimental high strength of commitment subjects will make significantly greater recall of attitude error than experimental low relevance subjects.
Hypothesis 4 received support at the .01 level of statistical significance. Hypothesis 6 was not supported as stated. Similar to the results of the recall experiment when relevance is the independent variable a significant (p. < .05) interaction effect was noted for the strength of commitment analysis, but the nature of the interaction was in the direction opposite to the predictions. Thus, experimental low strength Ss made significantly greater recall of initial attitude error than high strength Ss.

Again, with regards to hypothesis 4 the predicted main effect is due largely to the differences between experimental low strength of commitment Ss and the control conditions since high strength of commitment Ss behave similarly to the controls in terms of recall error.
Chapter IV

Discussion

The major objective of the study involved a partial replication of Bem and McConnell's (1970) procedure designed to assess the "salience" of premanipulation attitude to attitude ratings after the experimental manipulation of writing counterattitudinal essays. Thus the major question to be asked is: "does initial attitude effect outcome attitude after manipulation in any way?" The answer to this question has great relevance to the viability of Bem's self-perception theory of attitude phenomena and the concomitant means of testing his theory by means of the "interpersonal simulation" technique. These issues have been discussed adequately in Chapter I.

Briefly to recount the results of Bem and McConnell's (1970) work, they found that Ss in a typical forced compliance experiment are not able to recall their premanipulation attitudes correctly. Moreover, they actually perceive their postmanipulation attitudes to be identical to their premanipulation attitudes. Bem & McConnell infer from these results confirmation of the self-perception hypothesis that the participant's observation of himself
engaging voluntarily in counterattitudinal behaviour has so strong an effect on him as to virtually "wipe out" the effects of any relevant premanipulation attitude elements. Thus the participant makes the same inferences as an independent observer regarding what his attitude must be after the manipulation. Their conclusion was that premanipulation attitude is "non-salient" for the participant $s$ and thus irrelevant information for the observer. $s$ of an interpersonal simulation of a forced compliance experiment.

The present study suggests that if $s$ are partitioned into levels of "attitude relevance" and/or attitude "strength of commitment" interaction effects between these two independent variables and attitude recall error and attitude change (as dependent variables) will occur. The results of the study support this general prediction although the specific predictions as to the nature of this interaction were only supported in the Change Experiment. An interaction effect exactly reverse to the experimental prediction was observed in the Recall Experiment. However, before discussing these issues some mention should be made of the results of the freedom of choice manipulation.

As noted, Bem's (1970) "choice condition" (which was exactly replicated within the present experimental treatments) produced only 2 (of 32) noncompliant $s$. The present studies experimental treatment resulted in 22 (of 66) noncompliant $s$. Clearly differences exist between

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the 3 populations of the respective studies. These differences may be discussed in terms of the relative cognitive predispositions of the 3 s to the experiment. In the first place, Bem's university student subjects were given course credit for participation in his experiment. Subjects of this experimenter were given no such post-manipulation reward. Such incentives may have induced more complete compliance to the apparent wishes of the experimenter as presented in the "addendum sheet" for Bem's S's. Perhaps a more complete explanation of the radically different compliance results may be phrased in terms of certain social-personality aspects of the respective populations. Bem's S's as male undergraduate engineering students are undoubtedly rather homogeneous group in terms of such factors as intelligence, motivation, and social conformity. Moreover, the "political" awareness in terms of campus issues (of which the student-control issue is one) of students in the applied sciences is perhaps lower than general arts students. This is not to say that these students are not aware and involved with certain significant issues. For instance, government contract allotment cut backs as an issue, would probably induce a good deal of involvement for engineering students. However, one might postulate (admittedly on tenuous empirical grounds) that Bem's choice of S pool and his choice of issue was ideal to gain compliance and produce the "non-salience" of initial attitude results. On the other hand, a group
of high school students may be said to be more heterogeneous in terms of the various factors mentioned above. The range of scored responses on the freedom of choice scale of the S's in this study (1 to 60 as compared to Bern's S's 20-30) can be said to bear out this contention. Moreover, and perhaps of great consequence to this discussion, the high school from which these S's were drawn had only recently begun a transition from school administrative control of courses to student choice and control of their courses. The experimenter only learned this after the study had been conducted. Thus, the issue of focus in the forced compliance paradigm was relevant, in a real sense, for the S's in the present study. As a consequence, it might be assumed that some S's on all levels of the independent variables (non-significant differences in this connection) chose to argue the position they favoured lest they be lured by a perceived "teacher-type" into arguing against their interests.

Considering the high degree of noncompliance and the high mean "freedom of choice" scores for the present study, it may be concluded that the choice manipulation for experimental treatment S's was successful. S's in the present study demonstrated much greater non-compliance and greater mean "freedom of choice" scores than Ben and McConnell's population. Apparently, inherent differences between Ben and McConnell's S's and the S's of this study, caused differences in willingness to comply with regard to the type of essay to write, with the present S population being less willing to comply.
With regard to the three dimensions of attitude; relevance, strength of commitment and position, as measured by the 61-point horizontal scales, they do not represent distinct factors of the attitude element as the intercorrelation matrix presented in table 1 seems to suggest. They may in fact, in their combined effects represent a more generalized factor of attitude that might be termed its "functional importance" for the subject. "Importance" here would be defined in terms of Festinger's meaning of the term when he uses it in connection with his cognitive dissonance theory. However, the relatively high degree of interrelationship between the dimensions must not obscure the more important fact that both relevance and strength of commitment as measured, were sensitive enough to significantly differentiate S's in the crucial covariance analyses of the recall experiment.

Further to this issue of relation between the dimensions, it might be suggested that a positional response bias was operant to some extent since the scales were identical in their structure and the nature of their polarity. Again, this does not obscure the results of the major analysis of the experiment since such a response bias would have been operant for all S's in the same way. However, future research efforts may choose to vary the means of defining the dimensions. For example, the strength of commitment could be defined empirically as to extent of actual political activism with respect to an issue.
Now, with regard to the central problem and predictions of the present study. All of the experimental hypotheses were direct generalizations from implications of cognitive dissonance theory. That is, in the change experiment it was predicted that Ss engaging in counterattitudinal behaviour (writing essays) would demonstrate attitudinal shift of their positions when compared with control subjects who did not write relevant counterattitude essays. (hypothesis 1). Hypotheses 2 and 3 follow directly from theory and evidence that greater attitudinal shift will occur when the attitudinal element is of greater "importance" to the individual. The variables relevance of attitude (how often the S thinks about or is involved with the attitude issue as reported by him) and strength of commitment (the extent to which the individual would support his position as reported by him) were seen as indicants of the importance factor. Thus, high relevance (strength of commitment) Ss should show greater attitude change than low relevance (strength of commitment) Ss. Hypotheses 1 and 4 received support indicating that the expected results of the forced compliance paradigm were produced in the study. Hypotheses 2 and 3 did not receive support although the differences were definitely in the predicted direction. Moreover, a simple analysis of variance (thus including variance due to the covariant, initial position) computed on the data with strength of commitment as the independent variable produced a signif-
ificant main effect. This was a main effect due to comparison of the levels of strength of commitment. All high strength $S$s were significantly different from all low strength $S$s.

Simple effects analysis indicate this significant main effect was due to a significant difference in amount of attitude change between the two experimental conditions. Thus, high strength of commitment experimental $S$s made significantly greater attitude change than low strength of commitment experimental $S$s when variance due to initial attitude position is included in the statistical comparisons of unadjusted means. (An analysis of variance on the data for the change experiment with attitude relevance as the independent variable did not produce simple effects results similar to those described above).

The results of the simple $2 \times 2$ analysis of variance was included since its implications do tend to counterindicate an implication of self-perception theory. According to Bem's position (1955, 1970), "private" cognitive differences (such as subjective differences in attitude relevance, strength of commitment and initial position) between $S$s before they engage in behaviour which is counter to their attitude, should not differentiate $S$s, in terms of the amount of change that takes place after counterattitudinal behaviour. In Bem's terms such private or internal differences are "non-salient" to the behaviour. Attitudinal change on an issue should be due solely to external behavioural variables. In this case, since all experimental $S$s engaged
in the same behaviour (the essay quality analysis by independent judges, as reported in the methods section would indicate they did) the results should not be influenced by premanipulation characteristics of the attitude if Ben's assumptions are correct.

However, experimental hypotheses 2 and 3 are phrased in terms of the importance variables as operationally defined in the study. As such, they are not supported. Thus, attitude relevance and strength of commitment do not differentiate Ss in terms of attitude change, after counter-attitudinal behaviour, at statistically significant levels although the differences are in the predicted direction.

The data from the recall experiment offers some very interesting implications for discussion. Again, there were significant differences between nondifferentiated experimental treatment Ss and controls on the dependent variable (here, recall of initial attitude error). Hypothesis 4 predicted this difference and both self-perception and cognitive dissonance theory anticipate this result although the respective theories would explain it in different ways as has been discussed previously. Cognitive dissonance theory explains that engaging in counter-attitudinal behaviour (i.e., writing counterattitudinal essays) induces a psychologically uncomfortable state within the individual termed dissonance. The presence of dissonance encourages dissonance reducing behaviour. In this case, one way to reduce dissonance would be to alter
one's recall of a previously expressed position on the
issue in the direction of the position taken in the essay.
On the other hand, self-perception theory explains that
the individual produces the dissonance phenomena by
observing his counterattitudinal behaviour and the cont-
rolling circumstances of that behaviour, much as an indep-
endent observer would. The behaviourally involved S then
makes decisions about the status of his attitude based
solely on the relevant behaviour and its controlling cir-
cumstances. Thus, an error in recall would be interpreted
through the self-perception hypothesis as error based
solely on the effects of self-perceived behavioural obser-
vations without any recourse to internal cognitive circum-
stances of the S. The crucial question of this study is
which theory explains the data most adequately.

Hypotheses 4 and 5 phrased in terms of cognitive dis-
sonance theory reflect this question and the data relevant
to these respective predictions provide critical evidence
regarding the question.

Hypotheses 4 and 5 as stated are not supported. How-
ever, a statistically significant interaction between
levels of the importance variables, attitude relevance and
strength of commitment, and the treatment conditions
(experimental versus control) is evident. The prediction
that experimental treatment S's with high scores on imp-
portance variables would make significantly greater amount
of recall error than the low level S's, was derived from

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Festinger's (1957) original theoretical premises. The present data indicates an interaction effect directly opposite to the derived prediction. Thus, experimental Ss with low scores on the importance variables make significantly greater recall error than high importance level Ss and controls. This result does not support the derivation of cognitive dissonance theory presented in hypotheses 5 and 6, nor does it support self-perception theory which would predict no differences in recall error between the high and low importance groups.

Bem and McConnell (1970) employed the recall of initial attitude measure as an indicator of the "salience" of premanipulation attitude. In their terms, if premanipulation attitude was salient Ss would be able to remember their previously expressed position on the relevant issue after they had engaged in counterattitudinal behavior. Their Ss who wrote counterattitudinal essays in the "choice condition" (here the experimental treatment) could not correctly recall their initial position when compared to control Ss, who did not write essays. They interpret this data as an indication that premanipulation attitude is effectively "wiped out" as an influence in postmanipulation measurements of new position on the issue. It is "wiped out" by the very salient effects of writing counterattitudinal essays.

Bem & McConnell also suggest that recalling one's previously expressed position after manipulation is
"phenomenologically identical" to expressing a new position. Both measures are effected in the same way by observing counterattitudinal behaviour.

The present data seems to call into question their assumptions. The low importance experimental groups (low relevance and low strength of commitment) seem to behave as Bem and McConnell's (1970) choice treatment condition S's did. That is, they forgot their initial attitude after counterattitudinal behaviour and made recall distortions in the direction of positions argued in the essays. However, the high importance experimental groups in the present recall experiment did not forget their original positions when compared to low importance groups and controls.

The implication is that when an attitude is important to a person he will not forget what his position was on the issue even after engaging in counterattitudinal behaviour. In other words, premanipulation attitude is "salient" when high importance S's are engaging in counterattitudinal behaviour in that they are apparently aware of it. Moreover, for high importance S's the recall measure and the new position (change) measure are not "phenomenologically identical" in that they are apparently effected by counterattitudinal manipulation in different ways as evidenced by the data for high importance experimental S's in the change experiment in which high importance S's did tend to produce greater change than low importance experimental S's.
A comparison drawn between the data of the two component experiments helps to explain the salience of premanipulation attitude issue in the context of the usual forced-compliance experiment where change of attitude (rather than recall of initial position) is the outcome variable.

Apparenty $S$'s for whom the issue is an important one (it is quite relevant for them and they express strong commitment to it) are aware of their premanipulation position throughout the forced compliance experiment. In other words, their attitude is salient to the experiment throughout. Moreover, because it is salient to them this salience may be said to induce greater dissonance and concomitantly greater (but nonsignificantly greater in this experiment) amounts of attitude change when they are compared to controls and low importance experimental in a "forced compliance" (change) experiment. On the other hand, low importance $S$'s are not particularly concerned about their original position. It is less salient for them and engaging in counterattitudinal behaviour is a strong enough influence to cause them to forget their original position and produce attitude change effects. Because original attitude is less salient for them, dissonance is less severe and attitude changes less than the high importance experimentals for whom original attitude is quite salient.

If these contentions are viable, Bem's self-perception hypothesis and his interpersonal-simulation technique for testing his theory are challenged to some extent by the
results of the present experiments. Self-perception theory is capable of explaining the data of the low importance groups in both component experiments. However, Bem's premise that internal cognitive components are not salient to the forced-compliance paradigm for all $S$s is not supported by the results of these experiments. Apparently, for certain individuals for whom a given issue is highly relevant and to which they are strongly committed internal variables (such as premanipulation attitude position) do play a certain role in determining self-perceived attitude judgements.
SUMMARY

The purpose of this study was to provide further evidence relevant to a controversy that has arisen over a major postulate of Bem's self-perception theory and the "interpersonal simulations" used by Bem to test his theory. Briefly, Bem's theory, designed as an alternative explanation of cognitive dissonance phenomena, states that people make judgements about their own behaviour in the same manner as they make judgements about another's behaviour. In a "forced-compliance" paradigm experiment where Ss are made to engage in counterattitudinal behaviour, Bem's theory explains the usual dissonance effects (as indicated by postmanipulation attitude change) as due to the Ss observation of his behaviour and its controlling conditions within the experiment. The theory holds that these behavioural observations and subsequent judgements made on the basis of them, are phenomenologically the same processes that occur if an independent person were to observe the Ss behaviour and make subsequent judgements as to its implications. The "interpersonal simulation" technique was designed by Bem to test his theory. In an "interpersonal simulation", independent "observer subjects" are provided with a description of a cognitive dissonance experiment (e.g. forced-compliance paradigm) and are requested to make an estimate of the original "participating-subjects" attitude ratings, on scales provided.
A controversy has developed concerning the information that should be provided to the "observer-subjects" in an "interpersonal simulation". Bem's critics have stated that if the original experiment is to be truly simulated or replicated in an interpersonal context, "observer-subjects" must be provided with the "participating-subjects" premanipulation attitude. Bem, through his theory, maintains that premanipulation attitude of the "participating-subject" is "non-salient" to postmanipulation phenomenology and thus irrelevant information as far as an "observer-subject" is concerned.

The present study employs a partial replication of Bem and McConnell's (1970) experiments and tests the "salience" of premanipulation attitude by asking Ss to recall their initial attitude position (expressed one week previously) after they have engaged in counterattitudinal behaviour of a "forced-compliance" experiment. Following Bem and McConnell (1970), recall of initial attitude error was taken as an indication of the degree of salience of premanipulation attitude to the experiment.

The major thesis of the study was that recall error would vary as the degree of "importance" of the manipulated attitude varied for the S. "Importance" was operationally defined in two ways: the relevance of the attitude for the S and the S's strength of commitment to the attitude. The results demonstrate that Ss for whom the attitude-issue was highly important made significantly less recall error than low importance subjects.
or controls. This suggests that when a premanipulation attitude is important to a S, this attitude then remains a salient factor in a forced-compliance experiment. Furthermore, high importance Ss engaging in a separate forced-compliance experiment with the typical attitude change measure as the outcome variable show greater (though nonsignificant) attitude change than low importance Ss and controls. The difference were nonsignificant when the major analytical design was applied to the data; a 2 2 analysis of covariance. However, a simple analysis of variance (thus including variance due to the covariant initial attitude position) computed on the data with strength of commitment as the independent variable produced a significant main effect. This was a main effect due to comparison of the levels of strength of commitment. Simple effects analysis indicate this main effect was due to a significant difference in amount of attitude change between the two experimental treatment conditions. Thus, high strength of commitment experimental Ss made significantly greater attitude change than low strength of commitment experimentals, when variance due to difference in initial attitude position was included in the statistical comparison of unadjusted means.

From this one might infer that the high salience level of initial attitude for the high importance group, tends to increase dissonance and encourage stronger dissonance reducing behaviour.

These results are non-supportive of Bem's position and suggest that premanipulation attitude is a salient feature of
a forced-compliance experiment's phenomenology for some individuals - namely, those for whom the particular attitude is important. Within the cognitive dissonance framework the results suggest that those Ss for whom the attitude is important do not reduce the dissonance by shifting their attitude and then simply forgetting their premanipulation attitude.

Apparently they both shift their attitude after the experimental manipulation and yet can still recall their premanipulation attitude.
APPENDIX A-1

Scales of First Session Designed to
Assess Initial Attitude Position and the Levels of
the Independent Variables

Issue #1

How much control should students have over
the kinds of courses offered at their school?

ATTITUDE POSITION SCALE

(What is your position on the above issue?)

1........1........1........1........1........1........1........1

No Very Little Some Much Very Complete
Control Little Control Control Control Much Control

STRENGTH OF ATTITUDE COMMITMENT SCALE

(How strong do you feel your commitment to your position on
this issue is?)

1........1........1........1........1........1........1........1

No Very Weak Moderate Strong Very Complete
Comit- Weak Comit- Comit- Comit- Strong Comit-
ment Comit- ment Comit- ment Comit- ment
At All ment

ATTITUDE RELEVANCE SCALE

(How often do you give consideration or think about this issue
in your day to day life?)

1........1........1........1........1........1........1........1

Never Very Seldom Sometimes Often Very Almost
Think Seldom Think Think Think Often Always
About Think About About About Think Think
It About About About About About
It It It It It

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APPENDIX A-2

Change Experiment - Scale to Assess Attitude Change

Please mark the following scales according to what best represents your present feelings toward the issue of: How much control should students have over the kinds of courses offered at their school?

ATTITUDE POSITION SCALE

(What is your position on the above issue?)

1........1........1........1........1........1........1........1
No Very Little Some Much Very Complete
Control Little Control Control Control Control Much Control
Control
APPENDIX A-3

Recall Experiment - Scale to Assess Attitude Recall

In the first session, one week ago we asked your cooperation in a survey of student attitudes. One of the issues in the questionnaire concerned: How much control students should have over the kinds of courses offered at their school?

Now we want you to try and recall your feelings expressed on the three scales toward the student control issue in the first session, by marking the following scales in the same places you did one week ago.

ATTITUDE POSITION SCALE

(What was your position expressed one week ago on the above issue?)

1........1........1........1........1........1........1........1

No Very Little Some Much Very Complete

Control Little Control Control Control Much Control

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APPENDIX A-4

"Freedom of Choice" Scale for all Experimental Subjects

You have just written an essay taking a strong position on the student control of courses issue.

Please indicate on the following scale how much freedom of choice you feel that you had in choosing which side of the issue to argue for in your essay.

1........1.........1........1........1........1........1
No  Very  Little  Some  Much  Very  Complete
Freedom  Little  Freedom  Freedom  Freedom  Much  Freedom
Of    Of    Freedom  Of    Of    Freedom  Of
Choice Of    Choice  Choice  Choice  Of    Choice
Choice  Choice  Choice  Choice  Choice  Choice
Table 1

Attitude Change produced by Forced-Compliance as a Function of Freedom of Choice to Comply

<table>
<thead>
<tr>
<th>Treatment Description</th>
<th>Perception of Choice</th>
<th>Initial Attitude</th>
<th>Attitude Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice (N=16) (A)</td>
<td>26.3</td>
<td>37.0</td>
<td>-9.3</td>
</tr>
<tr>
<td>No Choice (N=16) (B)</td>
<td>3.4</td>
<td>36.1</td>
<td>-2.8</td>
</tr>
<tr>
<td>Control (N=16) (C)</td>
<td>--</td>
<td>38.6</td>
<td>0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>t</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>A versus B</td>
<td>3.70</td>
<td>1.00</td>
<td>1.98*</td>
</tr>
<tr>
<td>A versus C</td>
<td>--</td>
<td>1.00</td>
<td>2.89**</td>
</tr>
<tr>
<td>B versus C</td>
<td>--</td>
<td>1.00</td>
<td>1.38</td>
</tr>
</tbody>
</table>

*p < .06

**p < .01

***p < .001

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Table 2

Attitude Recall Error produced by Forced-Compliance as a Function of Freedom of Choice to Comply

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Perception of Choice</th>
<th>Initial Attitude</th>
<th>Attitude Recall Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice (N=15) (A)</td>
<td>33.0</td>
<td>39.1</td>
<td>-9.7</td>
</tr>
<tr>
<td>No Choice (N=15) (B)</td>
<td>2.1</td>
<td>38.0</td>
<td>-3.2</td>
</tr>
<tr>
<td>Control (N=15) (C)</td>
<td>--</td>
<td>39.0</td>
<td>-1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>t</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>A versus B</td>
<td>5.84***</td>
<td>1.00</td>
<td>1.73*</td>
</tr>
<tr>
<td>A versus C</td>
<td>--</td>
<td>1.00</td>
<td>2.54**</td>
</tr>
<tr>
<td>B versus C</td>
<td>--</td>
<td>1.00</td>
<td>0.99</td>
</tr>
</tbody>
</table>

*p < .10

**p < .02

***p < .001
Table 3

Product-moment Correlations between Recall of Initial Attitudes and Initial and Final Attitudes

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Recall versus Initial Attitudes</th>
<th>Recall versus Final Attitudes</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice (N=15)</td>
<td>+.26</td>
<td>+.98</td>
<td>10.05*</td>
</tr>
<tr>
<td>No Choice (N=15)</td>
<td>+.71</td>
<td>+.96</td>
<td>4.32*</td>
</tr>
<tr>
<td>Control (N=15)</td>
<td>+.75</td>
<td>+.57</td>
<td>-1.33</td>
</tr>
</tbody>
</table>

*p < .001

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Testing Significance for Intercorrelations

Before we leave the topic of correlation, a word must be said about significance tests for intercorrelations. It is quite common to find research in psychology where a number of different variables are studied in the same sample, and all sample intercorrelations are found among these variables. For example, a study may concern three variables, $X_1$, $X_2$, and $X_3$, and values are found for $r_{12}$, $r_{13}$, and $r_{23}$. This in itself is fine as a description of linear relations in the data, and is the first step in virtually any multivariate analysis, such as finding a multiple-regression equation or carrying out a factor analysis.

However, one often finds the experimenter testing the significance of each one of these $\binom{K}{2}$ intercorrelations by the method of Section 15.26, as though each one were based on a different sample. The resulting significance levels are largely meaningless, for reasons much like those making $t$ tests for all differences among a set of means a dubious procedure. In the first place, even for independent tests of significance, when so many tests are carried out the probability that some Type I errors are being made may be very high. Even worse, the $t$ tests for correlations are quite redundant and are not statistically independent when carried out on a table of intercorrelations. Consequently, the set of results can be grossly misleading. In particular, one should ordinarily expect more than $\binom{K}{2}$ such tests to show significance by chance alone.

It is simple to illustrate that restrictions exist in a table of intercorrelations. Consider a sample of $N$ cases, each of which gives three scores, $X_1$, $X_2$, and $X_3$. Imagine that $r_{12}$ turns out to be $-0.80$ and $r_{13}$ is also $-0.80$. What is the smallest value that $r_{23}$ can be? In this instance, it is not
possible for $r_{23}$ to be $-1.00$, or $-0.8$, or $-0.5$, or indeed, any negative value at all. The very smallest value that $r_{23}$ can show for these data is $0.10$. Fixing the value of two of the correlations determines the necessary lower limit for the third. The values of intercorrelations are dependent upon each other in a given sample.

In general, for $K$ variables, the average of the $\binom{K}{2}$ intercorrelations among these variables must be greater than (or equal to) $-1/(K - 1)$. It follows that given the values of some of the intercorrelations, the average lower limit for all the other correlations is not $-1$, but some number greater than $-1$. The larger $K$ is, the closer this lower limit comes to 0. Hence, it is somewhat pointless to treat each of the correlations in turn as though the sampling distribution of values could extend from $-1$ through $+1$, when with each successive value of $r$ known from the sample the possible lower limit to the next set of values is raised. One should either not test for significance in the ordinary way in dealing with intercorrelations found for a single sample, or he should interpret the significance levels with considerable latitude.

It is rather hard to see why anyone would want to know if all the true intercorrelations among a set of variables are zero anyway. If these variables are to be used to predict some other variable, then a test of significance for $R^2$ is much more meaningful. If some other regression method is contemplated, appropriate tests may also exist for the results of applying this method. Tracing relationships among variables is the legitimate business of the scientist, but simply asking if anything relates linearly to anything else in a large set of variables is a pretty crude way to do business.
APPENDIX C

RAW DATA BY EXPERIMENTAL CONDITION
APPENDIX C - RAW DATA BY EXPERIMENTAL CONDITION

Change Experiment - Subjects Divided on Attitude Relevance

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Control Condition

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## Recall Experiment - Subjects Divided on Attitude Relevance

### Experimental Condition

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### Control Condition

| Subject Relevance | Recall Freedom | Strength of |
| Error of Choice | Commitment |
| 25. 10 | -5 | 25 |
| 26. 19 | +4 | 35 |
| 27. 18 | +2 | 36 |
| 28. 5 | -10 | 42 |
| 29. 24 | -7 | 39 |
| 30. 24 | -4 | 42 |
| 31. 22 | +7 | 42 |
| 32. 11 | -1 | 47 |
| 33. 12 | +1 | 36 |
| 34. 11 | +6 | 49 |
| 35. 11 | +4 | 21 |
| 36. 10 | +7 | 11 |
| 37. 11 | +4 | 41 |
| 38. 23 | -1 | 43 |
| 39. 11 | -1 | 22 |
APPENDIX D

ADDITIONAL ANALYSES
APPENDIX D-1

Further Analysis and Discussion of the Correlation Between Initial Position and Attitude Change

The possibility that the significant correlation (-.38 p.<.01) between initial attitude position and attitude change resulted from a "ceiling effect" was considered. Thus, it is possible that Ss who scored at the high end of the initial position scale were prevented from changing in an even more extreme positive direction because of a lack of room on the scale in the positive direction (towards 60). Of the entire change experiment S sample (50) 16 Ss ranked their initial position above 45. Of these 16, 12 Ss changed their final attitude position by moving down on the scale, rather than remaining at the same position or moving up (towards 60). Only two Ss (1 experimental, 1 control) had scored so high (60 and 59 respectively) that they could not effectively change in a positive direction. Both of these Ss changed by moving down on the scale (towards 0) — or in other words, in a dissonance reducing direction.

If these data are broken down into experimental Ss versus control Ss it is found that 7 (of 20) experimental treatment Ss ranked their initial attitude position above 45 on the scale. Only 1 of the seven changed in a positive direction (45 to 50) and 1 remained the same. All others changed in the negative direction after counterattitudinal manipulation. In the control S sample
9 Ss ranked themselves initially above 45 on the attitude position scale. Of these 9 Ss, 2 changed in a positive direction and 1 S remained the same. Thus, 6 control Ss above the 45 position changed in a downward direction.

Since only 2 Ss were actually in a situation where they could not score higher on the scale in the final attitude position assessment and neither of these Ss remained the same but instead showed a dissonance effect, a "ceiling effect" bias is not a viable explanation of the significant correlation between initial attitude position and attitude change. Moreover, there were significant differences in attitude change when experimentals were compared to controls (the dissonance effect). Thus, no general tendency for high scoring Ss to change in a negative direction appears to have brought about the dissonance phenomena.

In summary, it seems that virtually all Ss were effectively able to change in either direction or remain the same at the second assessment of attitude position and in fact they all with 14 exceptions changed in a dissonance reducing direction. The ramifications of the correlation between attitude position and attitude change are real -- that is, the negative correlation tends to counter Bea's assumption regarding the non-salience of premanipulation attitudes.

One other issue with regard to this significant correlation remains to be considered. It seems that Ss
with extreme positions (above 45) on the initial position scale tended to change in a negative direction on the final position assessment in both the experimental and control conditions. This shift then, could have been an artifact of a "regression towards the mean" phenomenon for extreme initial position Ss. To establish if the greater change for the experimental Ss with extreme initial positions was really due to dissonance effects and not a result of regression to the mean effect a t test was computed comparing the 5 experimental Ss with extreme initial positions who changed in a negative direction, to the 6 controls with extreme initial positions who changed in a negative direction. The result indicates a statistically significant difference ($t=2.32 \ p<.05$) in the mean change scores for the two extreme initial position groups. This result effectively eliminates a regression to the mean phenomena as a factor in producing the dissonance results evident when comparing extreme initial position Ss of the two treatment conditions.
### APPENDIX D-2

Change Experiment: Summary of Analysis of Variance with Attitude Relevance the Independent Variables

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
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<tr>
<td>A (Treatments)</td>
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<td>15.8725</td>
<td>.001</td>
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*A simple 2 x 2 analysis of variance design which includes variance due to the covariant initial position was computed. This computation did not change the nature of the results as analyzed with a 2 x 2 analysis of covariance.*
REFERENCES


Brehm, J.W. Comment on "Counter-norm attitudes induced by consonant vs. dissonant conditions of role-playing". Journal of Experimental Research in Personality, 1965, 1, 61-64.


Hovland, C.I., Harvey, O.J., and Sherif, M., Assimilation and contrast effects in reactions to communication and attitude change. *Journal of Abnormal and Social Psychology*, 1957, 55, 244-252.


Likert, R. A technique for the measurement of attitudes. *Arch. Psychol.*, 1932, No. 140.


The author, Stephen A. Chris, was born in Kitchener, Ontario, on February 15, 1945. He graduated from St. Jerome's High School in Kitchener, Ontario, in May, 1965. He attended the University of Western Ontario during the 1965-1966 school year. He entered the University of Waterloo in 1966 and received a Bachelor of Arts degree in 1968. During 1968-1969, while completing requirements for the Ontario Secondary School Teacher's Certificate, he was on the teaching staff of St. Jerome's High School in Kitchener. In September, 1969 he entered the University of Windsor, Windsor, Ontario to begin graduate studies in Psychology. While at the University of Windsor, he served as a teaching and research assistant. He served an internship at Cedar Springs Hospital-School, Cedar Springs, Ontario. While completing the requirements for his Master of Arts degree in Psychology, he received financial assistance through a Province of Ontario Graduate Fellowship.