PERFORMANCE EXPECTANCY AS A DETERMINANT OF ACTUAL PERFORMANCE: THE INFLUENCE OF DEMAND CHARACTERISTICS AND SUBJECT NEED-FOR-APPROVAL

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ABSTRACT

PERFORMANCE EXPECTANCY AS A DETERMINANT
OF ACTUAL PERFORMANCE:
THE INFLUENCE OF DEMAND CHARACTERISTICS
AND SUBJECT NEED-FOR-APPROVAL

By

Kay Alice Schlappe

A study by Aronson and Carlsmith (1962) confirmed the prediction of cognitive dissonance theory that people prefer to confirm a failure expectancy by failing than to disconfirm the expectancy by succeeding. Later studies have attempted to attribute these results to compliance with experimenter demands for consistency. The results of these studies have been inconclusive, because the manipulations of consistency demands have also affected pressures for achievement. The present study investigated the effects of experimenter demands for consistency in the Aronson-Carlsmith experimental situation by separating the experimenter demands for consistency from the pressures for achievement. The relationship between need-for-approval and responses to experimenter demands and achievement pressures was also examined.

Forty-six introductory psychology students served as subjects for a partial replication of the Aronson-Carlsmith low expectancy condition. For Ss in the Reliability

Condition (R), the instructions emphasized the experimenter demands for consistency, i.e. a reliable performance. To maximize achievement pressures, instructions in the Personality Evaluation Condition (PE) sensitized Ss to the personality evaluation aspect of the task. Within each of the conditions, Ss were divided into the high performance (HP) and low performance (LP) treatments of the original study. Need-for-approval was measured by the Marlowe-Crowne Social Desirability Scale.

It was hypothesized that Ss in R would strive for a consistent (poor) performance, while Ss in PE would strive for a successful (inconsistent) performance. It was also hypothesized that this differential responding would be greater for high than low n-approval Ss.

The data were analyzed with a 2 x 2 x 2 analysis of variance, unweighted means. Significant interactions were further analyzed by simple effects tests. The results showed a significant performance effect. Subjects preferred a high rather than consistent performance in both R and PE. Comparison of responses across R and PE revealed virtually no differential responding to the instructions in the HP group. In the LP group, hi-n-approval Ss showed significantly more success-seeking in PE than in R, while lo-n-approval Ss showed an opposite (non-significant) response pattern.

The over-all pattern of responding indicates that only hi-n-approval Ss complied with the experimenter demands for consistency, and then only when the possibility of a high performance seemed out of reach. It was concluded that there is no evidence that experimenter demands are responsible for consistency results in the performance expectancy studies. The conflicting results in the performance expectancy literature were discussed in terms of the effect of desires on cognitive consistency processes.

Approved J. S. Klaman

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INTRODUCTION

Consistency theories have had a major influence on research in social and personality psychology for approximately the last two decades. The basic idea central to all these theories is that a person strives to minimize inconsistency in his beliefs, attitudes, behavior, or interpersonal relationships. Of the consistency theories, the theory of cognitive dissonance (Festinger, 1957) has probably generated the most research and the most controversy. Within dissonance research, one of the most controversial areas has been that concerning disconfirmation of performance expectancies. The present research investigates a crucial issue in this controversy: whether the demand characteristics of the experimental situation may account for the results in those experiments finding dissonance effects. The effect of the subjects' need-for-approval on their responses to the demand characteristics is also examined.

Disconfirmation of performance expectancies. According to cognitive dissonance theory, dissonance is aroused whenever two cognitive elements are psychologically inconsistent, i.e. "if considering these two alone, the obverse

of one element would follow from the other (Festinger, 1957, p. 13)." The dissonance, which is assumed to be psychologically uncomfortable, will be reduced by changing one or both elements, or the relationship between them. In addition, the person will actively try to avoid information or situations which would arouse dissonance.

One important case where dissonance is predicted by the theory is the disconfirmation of an expectancy.[1] According to the theory, if a person expects X and Y occurs, dissonance should be aroused, since the cognition "X will occur" is inconsistent with the cognition "X did not occur." The dissonance prediction is not at all surprising when what is expected is inherently more desirable than what actually occurs; the same prediction would be made by any hedonic theory. However, dissonance theory predicts that the disconfirmation of an expectancy will be dissonance-arousing, and therefore uncomfortable, regardless of the pleasurableness or painfulness of the expected event. The dissonance prediction that the disconfirmation of both desirable and undesirable expectancies produces negative affect is supported in a study by Carlsmith and Aronson (1963), and partially supported in replications by Sampson and Sibley (1965) and Keisner (1969).

The issue of disconfirmed expectancies becomes especially important when the expectancy involved is an expectancy about one's behavior, a performance expectancy.

in the case of performance expectancies, dissonance theory predicts that if a person expects to achieve a certain level of performance, i.e. his self-concept includes a belief about his ability in that area, performing at a markedly different level will arouse dissonance, causing him to minimize the discrepant performance.[2] In such a case, the person's cognition of how he performed is inconsistent with his cognition of how well he should have performed. As in the case of disconfirmed expectancies in general, the crucial prediction for disconfirmed performance expectancies is the one involving a negative performance expectancy, i.e. an expectancy of a poor performance or of undesirable behavior. Dissonance theory predicts that the person who expects to do poorly and does well should experience dissonance in the same way as the person who expects to do well and does poorly.

Aronson and Carlsmith (1962) tested the dissonance predictions for disconfirmed performance expectancies by establishing in their subjects an expectancy of either success or failure on a fake social sensitivity test and then, after either confirming or disconfirming the expectancy, giving the subjects the chance to change their performances. Subjects in the Aronson and Carlsmith experiment performed so as to confirm their expectancies, i.e. subjects with disconfirmed expectancies changed significantly more responses on the repetition of the performance trial than subjects

whose expectancies were confirmed. This effect was found in both the success and failure expectancy conditions.

A great deal of controversy has followed the publication of the Aronson and Carlsmith study, since for many social psychologists the finding that subjects will attempt to confirm a failure expectancy is dissonant with their belief that people try to maximize their achievement. As a result of this controversial nature of their findings, a number of attempts to replicate the Aronson and Carlsmith study have been carried out. Of these, Ellsworth's study (1966), two studies by Brock, Edelman, Edwards, and Schuck (1965), and one group of subjects in Silverman and Marcantonio's study (1965) have shown the consistency effect obtained by Aronson and Carlsmith. Studies which have found that subjects change in the direction of maximizing achievement rather than consistency include five experiments by Brock et al. (1965), Jones (1968), two experiments by Lowin and Epstein (1965), one group of Silverman and Marcantonio's subjects (1965), and Ward and Sandvold (1963). A slight but nonsignificant tendency toward success-seeking was found by Marcantonio (1966). The findings of Cottrell (1965) are equivocal; although he found a significant performance-expectancy interaction, his low expectancy subjects showed more of a success-seeking than a consistency effect.

It is obvious from the above summary that the Aronson and Carlsmith study and the replications of that study have not settled the issue of whether a person prefers to confirm

a failure expectancy or to perform successfully. Since both consistency and achievement effects have been found using essentially the same experimental situation, it follows that there must be unintended and unidentified differences among the experiments which are significantly influencing the results. One factor which may be contributing to the confusion in this area is differential responding by the subjects to the demand characteristics of the experimental situation.

Demand characteristics. Orne (1962) has suggested that subjects in psychological experiments are concerned with making a positive contribution to the research. It is, therefore, important to the subject that he be a "good subject." For the typical subject, being a good subject means that he performs in such a way that the experiment is successful, i.e. the experimenter's hypothesis is validated. The experiment, therefore, is a problem-solving situation for the subject in which he attempts to determine the experimenter's hypothesis and respond so as to confirm the hypothesis. The cues which convey the experimenter's hypothesis to the subject, Orne refers to as "the demand characteristics of the experimental situation (Orne, 1962, p. 779)."

Aronson and Carlsmith (1962) note the possibility that their results may have been due to demand characteristics created by their stress on the reliability and validity of the test used to establish the expectancy and performance treatments. However, they dismiss this suggestion because

of their subjects' "obvious surprise" on being told the nature of the experiment. A somewhat more rigorous test of the demand characteristics explanation was made by Ward and Sandvold (1963) who attempted to minimize consistency demands by de-emphasizing the validity of the social sensitivity test. Subjects in the Ward and Sandvold study behaved as though they preferred to succeed rather than confirm a failure expectancy. Ward and Sandvold concluded that experimenter demands for consistency created by the emphasis on the reliability and validity of the test were responsible for the Aronson and Carlsmith results. However, a study by Silverman and Marcantonio (1965) does not support either a dissonance reduction or demand characteristics explanation. Silverman and Marcantonio found, by including the reliability and validity emphasis for one group and excluding it for another, that the reliability-validity emphasis increased success-seeking behavior at the expense of consistency behavior.

The research reported above does not offer clear support either for or against the demand characteristics interpretation of the results which support dissonance theory, since consistency and achievement effects have both been obtained both in the presence and absence of the reliability-validity emphasis. However, it is questionable whether emphasizing versus minimizing the reliability-validity of the test is an adequate test of the experimenter demands hypothesis. Since the demand characteristics

explanation assumes that in the absence of demands for consistency the subject will maximize his performance, the manipulation to minimize the demands for consistency should not be one which at the same time decreases the importance of a good performance. It is reasonable to assume that the subject's belief about how reliable and valid the test is will affect how important to him a positive evaluation on the test will be. Silverman and Marcantonio (1965) suggested that this is what happened in their study; the reliability-validity emphasis increased their subjects' ego-involvement in the test score. An additional problem with this approach is that, even if it were able to demonstrate that consistency effects are the result of experimenter demands for consistency, it does not explain the fact that most of the replications of Aronson and Carlsmith which obtained achievement effects also contained the reliability-validity emphasis.

Demand characteristics, according to Orne's (1962) analysis, are effective in influencing the subject's behavior because the subject is concerned with the adequacy of his performance as a subject. However, in the Aronson and Carlsmith study, the subject is faced with the problem of performing well on the test of social sensitivity, in addition to the problem of performing as a "good subject." Only in the high expectancy condition can the subject do well on both. In the low expectancy condition, which is

the crucial test of the dissonance prediction, the situation provides a conflict for the subject. If he responds to the experimenter demands, he performs poorly on the social sensitivity test; if he tries to perform well on the test, he forsakes the role of a "good subject." A study by Barthel and Crowne (1962) suggests that faced with such a conflict, subjects categorize the situation as calling for one or the other of the alternative types of behavior and respond appropriately. In the Barthel and Crowne experiment, subjects given a perceptual defense test categorized the task as either a personality test or a perceptual test. Subjects who categorized the task as a personality test were more hesitant to report taboo words.

In the Aronson and Carlsmith paradigm, the subjects may have categorized the situation as either calling for performance as "good subjects" in responding to the demand characteristics, or as calling for a successful performance on the social sensitivity test. If this analysis is correct, making the personality aspect of the Aronson and Carlsmith experimental situation especially salient should cause the subjects to strive to maximize achievement. Conversely, making the experimenter demands for consistency salient should cause the subjects to strive for consistency.

In the present investigation, the saliency of the demands for consistency and the saliency of the personality evaluation were manipulated by instructions to the subjects.

In the personality condition it was emphasized that the test was an accurate measure of social sensitivity and that the experimenter was interested in finding out what the subject's personality was like. Consistency demands were created by stressing that scores on the test were usually consistent (reliable) across testing situations and across different sections of the test and that this reliability was necessary for the experimenter's analysis to be valid.[3] Only the low expectancy conditions of the Aronson and Carlsmith experimental situation were used, since the conflict between consistency demands and pressures for a favorable test score does not occur in the high expectancy conditions. Thus the experimental manipulations created four treatment conditions: 1) personality evaluation, low expectancy - low performance; 2) personality evaluation, low expectancy - high performance; 3) consistency demands, low expectancy - low performance; 4) consistency demands, low expectancy - high performance.

The following hypotheses were tested:

1) When the personality evaluation is made salient, subjects maximize their performance on the social sensitivity test, i.e. low expectancy - low performance subjects change more responses on the repetition of the performance trial than low expectancy - high performance subjects.

2) When the demands for consistency are made salient, subjects strive for consistency in their performance on the social sensitivity test, i.e. low expectancy - high performance subjects change more responses on the repetition of the performance trial than low expectancy - low performance subjects.

3) Subjects in the personality evaluation condition show more achievement maximization than subjects in the consistency demands condition, i.e. low expectancy - low performance subjects in the personality condition change more responses on the repetition of the performance trial than low expectancy - low performance subjects in the consistency demands condition, and low expectancy - high performance subjects in the consistency demands condition change more responses on the repetition of the performance trial than low expectancy - high performance subjects in the personality evaluation condition.

Need-for-approval. The concept of need-for-approval is based on the assumption that people differ in how important it is to them to be favorably evaluated by other people. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) has been presented as an indirect measure of the need-for-approval. Marlowe and Crowne reasoned that socially desirable responding on a personality test may indicate a high need-for-approval, since the approval of other people is usually dependent upon behaving or presenting oneself in socially desirable ways.

The Marlowe-Crowne SD Scale, therefore, is composed of items for which the socially desirable response would be untrue of most people, e.g. "I'm always willing to admit it when I make a mistake." The person who responds so as to present himself in a favorable (socially desirable) light receives a high need-for-approval score.

A person's need-for-approval should affect how he responds both to a personality evaluation situation and to the demand characteristics of experimental situations. Since high n-approval subjects are very concerned with presenting themselves in a socially desirable manner, the high n-approval subject should be more interested than the low n-approval subject in maximizing his score on a personality test. It is, in fact, this tendency which is being measured by the M-C SD Scale. The high need-for-approval subject should also be more responsive than the low need-for-approval subject to demand characteristics of experimental situations. Being a good subject is socially desirable, and the good subject is more likely to win the experimenter's approval. Marlowe and Crowne (1961) found that high need-for-approval subjects are more responsive than low need-for-approval subjects to "perceived situational demands." Their high n-approval subjects rated the experiment, which employed a very tedious task, less unfavorably on the post-experimental questionnaire.

Since for the high n-approval subject, both personality and demand pressures are more important than for the low n-approval subject, the conflict between the two in the Aronson and Carlsmith experimental situation should be greater for the high n-approval subject. In the Barthel and Crowne (1962) perceptual defense experiment, differential responding to the experimental situation on the basis of categorizing it as a personality or perceptual test was greater for hi-n-approval than for lo-n-approval subjects. Differentiating the pressure for a positive personality evaluation and the experimenter demands for consistency in the Aronson and Carlsmith situation should result in greater differential responding to the two conditions by hi-n-approval than by lo-n-approval subjects.

In the present investigation, the following hypotheses were tested:

1) When the personality evaluation is made salient, responses of hi-n-approval subjects show more striving for achievement maximization than responses of lo-n-approval subjects: a) in a low expectancy - high performance treatment group, hi-n-approval subjects change fewer responses on the repetition of the performance trial than low n-approval subjects; and b) in a low expectancy - low performance group, hi-n-approval subjects change more responses than lo-n-approval subjects.

2) When the demands for a consistent performance are made salient, responses of hi-n-approval subjects show more consistency-striving than responses of lo-n-approval subjects: a) in a low expectancy - high performance treatment group, hi-n-approval subjects change more responses than lo-n-approval subjects; and b) in a low expectancy - low performance treatment group, hi-n-approval subjects change fewer responses than lo-n-approval subjects.

METHOD

Subjects. The subjects were 23 male and 23 female undergraduate students at Michigan State University. The subjects were enrolled in the introductory course in psychology and received research credit for participating in the experiment. Recruitment of subjects was by means of a sign-up sheet on the bulletin board announcing the study as a Personality Judgment Experiment.

Procedure. Up to four subjects were run at one time. As each subject entered the room, he was seated at one of four positions which were separated by partitions and asked to complete the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). The Scale is presented to subjects as a Personal Reaction Inventory. After all subjects in the group had completed the M-C SD Scale, the experiment was introduced as either a personality or correlational study depending upon whether the subjects were in the personality evaluation or consistency demands condition. The subjects were next asked to take a bogus test which was introduced as a test of social sensitivity. The test consisted of 100 cards on which were pasted photographs of three young men. The subjects were told that one of the photos on each card was that of a

schizophrenic or mentally ill person and that their task was to separate the schizophrenic from the two normals. They were instructed to use whatever cues they deemed relevant to the judging task. The subjects were told that some people do extremely well on the test, getting as many as 85% correct, and that some people do very poorly, getting as few as 20% correct, but that it is very difficult for people to judge their own performances. Actually there were no correct answers to the test. The photographs were taken from a 1963 Colorado State College yearbook. To the best of the experimenter's knowledge, none of the photos were of schizophrenics.

The test was administered in five sections of 20 cards each. An opaque projector was used to project the pictures onto the wall in front of the subjects. The subjects were asked to indicate their response to each card by holding the appropriate one of three response cards over their shoulders. The response cards were marked L, R, and C to stand for the left, right, or center photo. The experimenter who was standing behind the subjects operating the projector was thus able to see and record the subjects' responses. After the subjects had completed each of the first four sections of the test, the experimenter pretended to score their answers by comparing them to an answer key. Actually the responses to be scored correct were selected at random. Each subject

was given scores of 5,4,4, and 5 on the first four sections. Following the administration of the fifth section of the test, the experimenter pretended to have forgotten to time the section. Subjects were given a copy of the answer sheet and asked to score their responses while the experimenter went through her notes to see what could be done about the timing omission. It was expected that having the subjects score their own responses on this trial would help allay suspicions about their scores, especially for those whose expectancies were disconfirmed on this trial. Both the answer key and set of responses given to the subjects were false and had been arranged beforehand to give a prearranged score to each subject.

After the subjects had finished scoring their responses, the experimenter collected the answer sheets and answer keys and informed the subjects that since she did need the time measure to complete her records, it would be necessary to have them take the fifth section of the test again. The subjects were asked to respond to the pictures as though they had never seen them before in order to make the timing accurate.

After the subjects had responded to the fifth section of the test for the second time, a post-experimental questionnaire asking for the subject's reaction to the experiment was administered. The questionnaire was designed to test for the subject's insight into the purpose

of the experiment and to determine if the instructions had successfully established differing perceptions of the nature of the experiment in the two conditions. To accomplish this, two questions were asked: "what do you think is the purpose of this experiment?" and, "in what way do you think the experimenter will use the test scores?" The subjects were then informed of the real purpose of the experiment and reassured as to the falseness of their social sensitivity scores.

Experimental conditions. Two experimental conditions were created by different instructions about the nature of the experiment. The instructions in the Personality Evaluation Condition were designed to make salient the need for a positive personality evaluation.

> I'm interested in finding out the personality characteristics of Michigan State University students. The test you have just completed is one type of personality test. Now I'd like for you to take another personality test. This test has been widely used with remarkable success by psychologists for many years. It is an excellent measure of how sensitive an individual is to other people, i.e. the people who score high on this test are the same people who, when interviewed, express a good deal of understanding and insight into other people. People who score low on this test, on the other hand, tend to express a very superficial understanding of other people when interviewed.

The instructions in the Reliability (consistency) Demands Condition were designed to make salient the consistency demands of the experimental situation by indicating that the experiment's success depended upon the test scores being reliable.

> I'm interested in correlating scores on two different types of psychological tests. You have just taken the first test. Now I'd like for you to take the test to which I wish to compare it. This next test has been used by psychologists for several years as a measure of how sensitive an individual is to other people. I decided to use this particular test of social sensitivity because of its high reliability; that is, people who take the test more than once make about the same score each time they take it, and people have been found to make just about the same scores on different parts of the test. I need a reliable test in order for the comparison with the first test to be valid. So what I want to find out then, by having you take these two tests, is whether or not people in general make the same scores on this test as they make on the first test I gave you.

Both the Personality Evaluation and Reliability Demands conditions were subdivided into low expectancy - high performance and low expectancy - low performance conditions. The scores on the first four sections of the social sensitivity test were considered to be expectancy scores. All subjects were given low expectancies by scores of 5,4,4, and 5 on the first four sections. The score on the fifth section was the performance score. Half of the subjects were given a score of 17 on the fifth section, and half of the subjects were given a score of 5. The low performance of those subjects receiving a score of five on the fifth section confirmed their low expectancy. The high performance of those subjects receiving a score of 17 on the fifth section disconfirmed their low expectancy.

Dependent variable. The dependent variable was the number of responses changed on the repeat performance of the fifth trial. The number of responses changed was taken as an indication of whether the subject was striving for a consistent performance or a high performance. Changing no responses would guarantee an identical performance, while changing a large number of responses would guarantee a low score if the previous score were high, and virtually guarantee a higher score if the previous score were very low. A large number of responses changed in the high performance conditions would indicate a striving for a consistent performance since the expectancy was low, while a small number of responses changed would indicate striving for a high performance. In the low performance condition, a large number of responses changed would indicate a striving for a high performance, while a small number of responses changed would indicate striving for a reliable performance.

Design. Each group of subjects reporting for the experiment was assigned to either the Personality Evaluation or Reliability Demands condition, with the two conditions being alternated. Within each group, half of the subjects were assigned to the high performance condition and half to the low performance condition.

Within each of the four resulting instructions-performance combinations, subjects whose scores on the Marlowe-Crowne Social Desirability Scale were above the median were classified as high need-for-approval, while those whose scores were below the median were classified as low need-for-approval.

RESULTS

Table 1 shows the mean number of responses changed according to performance trial, need-for-approval, and type of instructions. The n-approval classification was obtained by dividing the scores on the Marlowe-Crowne Social Desirability Scale at the median within each performance-instructions group. The data from five subjects are not included in the means or the subsequent analyses. Four of these subjects' responses on the post-experimental questionnaire indicated a suspicion that the experimenter was interested in how many answers they changed on the repetition of the fifth trial. The fifth subject whose data were discarded was suspicious of the false answer sheet. The data were analyzed by a three-way analysis of variance, unweighted means (Winer, 1962). The analysis of variance is summarized in Table 2. Since the second-order interaction of performance, instructions, and need-for-approval was significant, simple effects analyses were also performed. Figure 1 indicates the significance levels of the differences between means obtained by the simple effects analyses.

Table 1.--Mean Response Change on Repetition of 5th Trial.

Performance	Need-for-Approval	Instructions	
		Personality	Reliability
High	High	5.40 (n=5)*	5.00 (n=4)*
	Low	8.00 (n=5)*	8.00 (n=4)**
Low	High	13.40 (n=5)	8.00 (n=6)
	Low	9.67 (n=6)	11.67 (n=6)*

*Data from one subject not included because of insight into the purpose of the experiment.
**Data from one subject not included because of his discovery of the false answer sheet.

Table 2.--Analysis of Variance of the Response Change Data

Source	df	MS	F	p
Performance (A)	1	166.77	24.67	<.001
N-Approval (B)	1	19.17	2.84	
Instructions (C)	1	9.02	1.33	
A X B	1	20.01	2.96	<.10
A X C	1	5.62	.83	
B X C	1	38.00	5.62	<.05
A X B X C	1	30.61	4.53	<.05
Error	33	6.76		

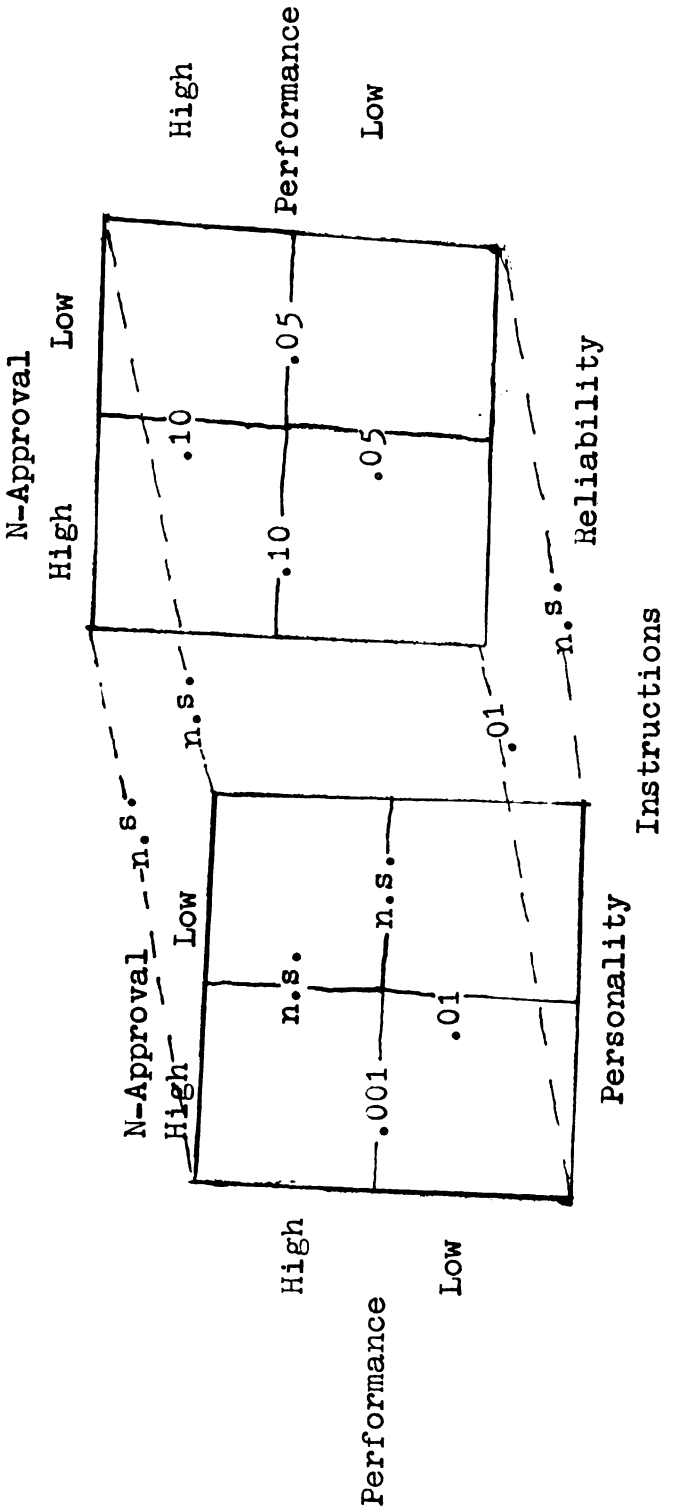

Figure 1.--Significance Levels of Differences Between Means--Simple Effects Analyses.

Performance. The main effect of performance was highly significant ($F = 24.67$, $p < .001$). In addition, the performance, n-approval interaction was marginally significant ($F = 2.96$, $p < .10$), and the second-order interaction of performance, n-approval and instructions was significant ($F = 4.53$, $p < .05$). Analysis of the simple effects revealed two to be significant and one marginally significant. The significant effects were found for the hi-n-approval subjects in the personality evaluation condition ($F = 23.66$, $p < .001$), and for lo-n-approval subjects in the reliability condition ($F = 4.98$, $p < .05$). The performance effect was marginally significant for hi-n-approval subjects in the reliability condition ($F = 3.33$, $p < .10$). In all cases, the mean number of responses changed by subjects in the low performance condition was higher than the mean for the comparable group in the high performance condition, i.e. success-seeking was more pronounced than the striving for a consistent (reliable) performance.

Need-for-Approval. Need-for-Approval was involved in a significant first-order interaction with instructions ($F = 5.62$, $p < .05$), a marginal first-order interaction with performance ($F = 2.96$, $p < .10$), and the significant second-order interaction with performance and instructions ($F = 4.53$, $p < .05$). Analysis of the simple effects revealed that hi-n-approval subjects changed significantly more responses than lo-n-approval subjects in the low performance

personality evaluation condition ($F = 10.78$, $p < .01$), and significantly fewer responses in the low performance reliability condition ($F = 4.98$, $p < .05$). Thus in the low performance condition, hi-n-approval subjects showed more performance maximization under the personality evaluation instructions and more consistency seeking under the reliability instructions than lo-n-approval subjects. In the high performance condition, hi-n-approval subjects changed fewer responses than lo-n-approval subjects in both the personality and reliability instruction conditions, but the differences were not significant. (For the personality evaluation instructions $F = 2.50$, $p < .15$. For the reliability instructions $F = 3.33$, $p < .10$).

Instructions. As noted above, the type of instruction subjects received, personality or reliability, was involved in a first-order interaction with need-for-approval ($F = 5.62$, $p < .05$), and the second-order interaction with performance and n-approval ($F = 4.53$, $p < .05$). The analysis of simple effects revealed only one significant effect. High n-approval, low performance subjects changed significantly more responses in the personality condition than in the reliability condition, i.e. success-seeking was greater for the personality condition ($F = 10.78$, $p < .01$). The effect of instructions was in the opposite direction, but not significant for the low performance, lo-n-approval subjects ($F = 1.48$, $p < .25$).

The lack of instruction effects is quite pronounced in the high performance condition for both hi-n-approval subjects ($F = .06$) and lo-n-approval subjects ($F = .00$).

Sex differences. Since previous investigators have found consistent sex differences in need-for-approval scores (cf. Crowne & Marlowe, 1964), the data were examined for the effects of sex differences. The results were consistent with previous studies in finding females to be higher in need-for-approval. The mean n-approval score for females was 13.80 ($n=20$), while for males the mean was 12.38 ($n = 21$). This difference, although not significant ($t = .91$, $df = 39$, $p < .15$), was large enough to require an examination of the data to determine if sex differences were confounding the effects of approval motivation. Therefore, an alternate n-approval classification was made within each of the four experimental conditions by finding the median for each sex separately and then combining the hi-n-approval females and hi-n-approval males and the lo-n-approval females and lo-n-approval males. Table 3 shows the mean score on the dependent variable for each condition when the n-approval groups are equalized by sex. Comparison of Table 1 with Table 3 shows the two to be identical except for minute differences in the high-performance reliability condition. These results clearly indicate that n-approval rather than sex differences were responsible for the results obtained in the present study.

Table 3.--Mean Response Change with N-Approval Groups Equalized by Sex

Performance	Need-for-Approval	Instructions	
		Personality	Reliability
High	High	5.40	4.75
	Low	8.00	8.25
Low	High	13.40	8.00
	Low	9.67	11.67

Success of the Instructions. The post-experimental questionnaires were examined as a check on whether the instructions did in fact establish different perceptions of the demand characteristics. Responses which indicated the subject perceived the experimenter to be interested in discovering the subject's personality characteristics or in how well he was able to judge other people were scored as acceptance of personality (success) pressures. Responses which indicated the subject thought the experimenter's primary interest was in establishing the validity of the test or in correlating the two tests were scored as acceptance of reliability (consistency) demands. Table 4 shows the number of subjects indicating each type of response in each of the two instruction conditions.

Table 4.--Perception of Experiment by Type of Instructions.

Instructions	Questionnaire Response		
	Personality	Reliability	Not Codeable
Personality	15	4	2
Reliability	3	15	2

Four responses were too general to be scored under either category, e.g. "I have no idea what the purpose was but I felt it was interesting." Thirty of the remaining subjects correctly perceived the nature of the experiment according to what the instructions were designed to convey. However, four subjects in the personality condition perceived a reliability demand and three subjects in the reliability condition perceived a personality emphasis.

DISCUSSION

Performance. According to cognitive dissonance theory, subjects in the present study should have preferred to confirm their low expectancies rather than raise their social sensitivity scores. The subjects, however, showed a definite preference for higher scores on the social sensitivity test rather than consistent scores. Although this finding is contrary to the dissonance prediction, it is in line with the majority of replications (cited in the Introduction) of the Aronson and Carlsmith study.

Demand Characteristics. No support was found for the suggestion that demand characteristics of the experimental situation were responsible for the results in those performance expectancy studies finding dissonance effects. Subjects in the present study attempted to maximize their personality scores in the reliability demands condition as well as in the personality evaluation condition. Both the present study and Silverman and Marcantonio (1965) were unable to find evidence that experimenter demands for consistency are responsible for consistency responses in the Aronson and Carlsmith paradigm. Ward and Sandvold's (1963) finding that subjects maximized achievement in the absence of the reliability-validity emphasis cannot be accepted as

support of the reliability demands hypothesis, because a number of studies have found achievement maximization with the reliability-validity emphasis included. Thus at the present time, there appears to be no good evidence that experimenter demands for consistency were responsible for the results in those studies supporting the dissonance prediction (Aronson & Carlsmith, 1962; Brock et al., 1965; Ellsworth, 1966; Silverman & Marcantonio, 1965).

Because of the strong achievement effect, the hypothesis that subjects in the personality evaluation condition would maximize their performance was supported, while the hypothesis that subjects in the reliability demands condition would strive for a consistent performance was not confirmed. The comparison across the personality and reliability conditions shows that the instructions had virtually no effect on the responses of subjects in the high performance treatment. In the low performance treatment, the hypothesis that subjects in the personality evaluation condition would show more success striving than subjects in the reliability demands condition was confirmed. However, as discussed below, this was true only for hi-n-approval subjects.

One possible reason for the reliability demands condition not producing consistency effects may have been that the reliability demands were not adequately separated from the achievement pressures. Although the instructions

were designed to convey that the experimenter was simply trying to find out what the relationship between the Marlowe-Crowne Social Desirability Scale and social sensitivity tests was, the subjects may have assumed that the experimenter expected a positive correlation. Given the socially desirable (or undesirable) nature of the questions on the M-C SD Scale, such an expectation would have increased the importance to the subject of a good score on the social sensitivity test. However, the finding that the instructions did successfully differentiate the two conditions for low performance subjects suggests another explanation.

In the high performance treatment, subjects who did not change their responses were guaranteed a high score on the repeat performance. Low performance subjects, however, could change their responses and still do quite poorly since they still had to make a choice between the other two pictures on each card. The low performance subject, therefore may have preferred the more certain route of bolstering his image as a "good subject" to the less certain chance of performing well on the social senstivity test, while the high performance subject who was in a position to perform well on either aspect chose the high score on the personality test rather than behavior as a "good subject."[4] This interpretation is supported by the results of the Sigall, Aronson, and Van Hoose study (1970). Faced with a

conflict between complying with experimenter demands and "looking good," their subjects chose the latter. In the Barthel and Crowne (1962) experiment, on the other hand, subjects were faced with a conflict between looking good on two types of personal evaluations, hence the differential responding in order to look good on one of the personal characteristics.

Need-for-Approval. The subject's need-for-approval had a significant influence on his responses to the experimental manipulations. In the low performance conditions, the hypotheses about the effects of n-approval were both confirmed, i.e. hi-n-approval subjects showed more performance maximization than lo-n-approval subjects in the personality evaluation condition and more consistency (reliability) striving in the reliability condition. Under the high performance treatment, however, hi-n-approval subjects showed a tendency (non-significant) toward more success-striving than lo-n-approval subjects in both the personality and reliability conditions. It appears that hi-n-approval subjects follow the pattern outlined above; they enhance their scores on the social sensitivity test when possible, but when the possibility of obtaining a high score is uncertain, they comply with the experimenter demands for a consistent performance. Mosher (1965) also reports that for hi-n-approval subjects (M-C SD Scale)

favorable personality test feedback is more important than gaining the approval of the researcher--more so than for lo-n-approval subjects.

The low performance treatment which is the one in which the instructions produced differences in responding, shows an interesting difference in the responses of high- and lo-n-approval subjects. The hi-n-approval subjects showed the expected reaction to the instructions, i.e. hi-n-approval subjects changed significantly more responses in the personality evaluation condition than in the reliability demands condition. However, lo-n-approval subjects showed a tendency to respond in a direction opposite to what was predicted; they changed more responses in the reliability demands condition than in the personality evaluation condition. The difference was not significant, but the pattern of responding suggests that the lo-n-approval subjects may have been actively resisting the experimenter's attempted influence. The findings indicating that the subject's need-for-approval affects his responsiveness to the experimental manipulations has important implications for experimental social psychology in view of the finding that volunteer subjects tend to be higher in n-approval than non-volunteers (Leipold & James, 1962).

Another look at the dissonance predictions. In view of the conflicting results in the performance expectancy literature (see Introduction), and the failure of attempts,

such as the present study, to explain the conflict on the basis of artifacts in the experimental situation, e.g. demand characteristics, it appears that an adequate explanation of reactions to disconfirmed expectancies must provide for both consistency and achievement effects. The following discussion attempts to integrate both consistency and achievement effects into the dissonance framework.

The dissonance predictions made by Aronson and Carlsmith are made on the basis of the relationship between the performance expectancy and knowledge of the event that either confirms or disconfirms the expectancy. However, Ossorio and Davis (1968) suggest that the problem of consistency of cognitions relevant to the self involves not only consistency with what the person knows himself to be, but also consistency with what the person wants. According to Festinger (1957) a want or desire is one type of cognitive element. It appears safe to assume that most people consider it desirable to be socially sensitive; therefore, a low performance on the social sensitivity test in the Aronson and Carlsmith experimental situation would be dissonant with the person's desires, while a high performance would be consonant.

According to this analysis, the three important considerations in predicting the response to a disconfirmed (or confirmed) performance expectancy include:

1) How the person expects to perform;

2) How the person wants to perform;

3) The person's knowledge of his actual performance. When the person expects to perform well, his expectancy and desire will each be consonant with the knowledge of a high performance, while each will be dissonant with the knowledge of a low performance. With low expectancies, confirmation of the expectancy is consonant with the expectancy but dissonant with the desire, while disconfirmation is dissonant with the expectancy but consonant with the desire.

According to cognitive dissonance theory, the magnitude of dissonance is a function of the number and importance of dissonant elements relative to consonant elements (Festinger, 1957). If expectancy and desire are considered as the cognitions relevant to the performance cognition, the number of elements dissonant with performance for each of the Aronson and Carlsmith treatment conditions can be obtained from Table 5. The high expectancy - high performance group should experience the least dissonance since both the expectancy and desire are consonant with the performance. The high expectancy - low performance group should experience the most dissonance since both the expectancy and desire are dissonant with the performance. The low expectancy groups should fall somewhere between the high expectancy groups in amount of dissonance, since for each of them, one of the two cognitive elements is consistent

Table 5.--Relationship of Expectancy and Desire to Performance in the Aronson-Carlsmith Paradigm.

Performance	Expectancy	
	High	Low
High	Expectancy + Desire + (4)	Expectancy - Desire + (3)*
Low	Expectancy - Desire - (1)	Expectancy + Desire - (2)*

(Numbers in parentheses indicate the rank ordering according to amount of dissonance.)

*Ordering is reversible with changes in the relative importance of the expectancy and desire cognitions.

with the performance and the other is dissonant. The ordering of the two low expectancy groups relative to each other should depend on the relative importance of the desire and the expectancy.

The results of the performance expectancy studies are on the whole consistent with the analysis presented above. Of those studies employing all four of the Aronson - Carlsmith treatment conditions, only two (Brock et al., 1965, experiments 5 & 6) did not find the predicted ordering. However, the performance expectancy interaction was significant in less than half of the studies (see Bramel, 1968, for a study by study breakdown). Marcantonio (1966) found that subjects higher in intolerance of inconsistency, for whom the expectancy, therefore, should be more important than the desire, showed more performance expectancy consistency than subjects with a higher tolerance for inconsistency.

This analysis of disconfirmed performance expectancies in terms of the relationship to performance of both expectancy and desire provides a way of reconciling the conflicting results in the performance expectancy literature. It also illustrates a basic weakness of cognitive dissonance theory--that of determining which, or how many, cognitive relationships are crucial for any given behavior.

Suggestions for future research. One problem with the Aronson-Carlsmith paradigm is the tremendous amount of deception involved. Apart from ethical considerations, there is the problem of whether the experimenter can succeed in giving a convincing presentation to subjects. Watts (1968) has suggested, not entirely in jest, that future experimenters be members of the Actors' Guild. A modification of the Aronson-Carlsmith paradigm that appears to be somewhat more convincing has been proposed by Silverman (1968). Other alternatives need to be explored as well. Also, the possibility of using a meaningful task as Zajonc and Brickman (1969) have done needs to be investigated further.

In the theoretical analysis presented above, desires were treated as cognitive elements involved in consonant or dissonant relationships with other cognitive elements. Although Festinger (1957) listed desires as an example of cognitive elements, later dissonance writings have restricted the definition of dissonance to the disconfirmation of expectancies (Aronson, 1968; Bramel, 1968; Brehm & Cohen, 1962; Lawrence & Festinger, 1962). Research is needed to determine whether desires operate according to the same consistency processes as other cognitive elements, or whether they should be treated as separate phenomena which interfere with consistency striving.

According to the analysis presented earlier, whether the person strives for performance expectancy consistency or for performance desire consistency should be determined by the relative importance of the expectancy or desire. An important problem, therefore, is determining what factors influence this weighting. Brehm and Cohen (1962) suggest that the amount of commitment to the expectancy may be an important factor. Another factor which should affect the importance of the expectancy is whether or not the expectancy serves as a clear basis for action. Closely related to the preceding factor is the question of whether the importance of the expectancy is increased by the anticipation of additional situations of confirmation or disconfirmation of the expectancy in the future. All of these factors could be investigated within the basic Aronson-Carlsmith paradigm or a modification of the paradigm as suggested above.

FOOTNOTES

1. Later dissonance writings have suggested that all cases of dissonance involve the disconfirmation of an expectancy (Aronson, 1968; Bramel, 1968). Attempts to clarify the term "follows from" in Festinger's original definition of dissonance have suggested that one cognitive element follows from another if accepting the first element leads the person to expect that the second is also true (Brehm & Cohen, 1962; Lawrence & Festinger, 1962).

2. Although theoretically this is not the only means of reducing the dissonance, the high centrality of the self-concept in the person's cognitive system makes it more probable that the single performance cognition will be the one to be changed (cf. Smith, 1968).

3. Since a valid test is necessarily reliable, and since (as pointed out earlier) the reliability of the test probably affects the importance of the test score for the subject, these two emphases cannot be entirely separated. However, the emphasized factor should still be the more salient for the subject, and, in addition, the information concerning the use the experimenter will make of the test scores should effectively differentiate the two conditions.

4. Differential recall of previous responses (cf. Waterman & Ford, 1965; Hendrick, 1966) cannot account for these results since all subjects had the same low expectancy, and since the answer sheets subjects scored were not their actual responses but were fake answer sheets prepared ahead of time to give them pre-arranged scores.

REFERENCES

REFERENCES

Aronson, E. Dissonance theory: Progress and problems. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968. Pp. 5-27.

Aronson, E., & Carlsmith, J. M. Performance expectancy as a determinant of actual performance. Journal of Abnormal and Social Psychology, 1962, 65, 178-182.

Bramel, D. Dissonance, expectation, and the self. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968. Pp. 355-365.

Brehm, J. W., & Cohen, A. R. Explorations in cognitive dissonance. New York: Wiley, 1962.

Brock, T. C., Edelman, S. K., Edwards, D. C., & Schuck, J. R. Seven studies of performance expectancy as a determinant of actual performance. Journal of Experimental Social Psychology, 1965, 1, 295-310.

Carlsmith, J. M., & Aronson, E. Some hedonic consequences of the confirmation and disconfirmation of expectancies. Journal of Abnormal and Social Psychology, 1963, 66, 151-156.

Cottrell, N. B. Performance expectancy as a determinant of actual performance: A replication with a new design. Journal of Personality and Social Psychology, 1965, 2, 685-691.

Crowne, D. P., & Marlowe, D. The approval motive: Studies in evaluative dependence. New York: Wiley, 1964.

Ellsworth, P. C. Dissonance reduction from the subject's point of view. American Psychologist, 1966, 21, 694. (Abstract)

Festinger, L. A theory of cognitive dissonance. Evanston, Ill.: Row, Peterson, 1957.

Hendrick, C. Comment on Waterman and Ford's dissonance reduction or differential recall. Journal of Personality and Social Psychology, 1966, 3, 706-707.

Jones, S. C. Expectation, performance, and the anticipation of self-revealing events. Journal of Social Psychology, 1968, 74, 189-197.

Keisner, R. H. Affective reactions to expectancy disconfirmation under public and private conditions. Journal of Personality and Social Psychology, 1969, 11, 17-24.

Lawrence, D. H., & Festinger, L. Deterrents and reinforcements: The psychology of insufficient reward. Stanford: Stanford University Press, 1962.

Leipold, W. D., & James, R. L. Characteristics of shows and no-shows in a psychological experiment. Psychological Reports, 1962, 11, 171-174.

Lowin, A., & Epstein, G. J. Does expectancy determine performance? Journal of Experimental Social Psychology, 1965, 1, 248-255.

Marcantonio, C. Performance expectancy as a determinant of actual performance: With particular reference to individual difference variables. (Doctoral dissertation, State University of New York at Buffalo) Ann Arbor, Mich: University Microfilm, 1966. No. 67-10,146.

Marlowe, D., & Crowne, D. P. Social desirability and response to perceived situation demands. Journal of Consulting Psychology, 1961, 25, 109-115.

Mosher, D. L. Approval motive and acceptance of "fake" personality test interpretations which differ in favorability. Psychological Reports, 1965, 17, 395-402.

Orne, M. T. On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. American Psychologist, 1962, 17, 776-783.

Ossorio, P. G., & Davis, K. W. The self, intentionality and reactions to evaluations of the self. In C. Gordon & K. J. Gergen (Eds.), The self in social interaction. Vol. 1. New York: Wiley, 1968. Pp. 355-369.

Sampson, E. E., & Sibley, L. B. A further examination of the confirmation or disconfirmation of expectancies and desires. Journal of Personality and Social Psychology, 1965, 2, 133-137.

Sigall, H., Aronson, E., & Van Hoose, T. The cooperative subject: Myth or reality? Journal of Experimental Social Psychology, 1970, 6, 1-10.

Silverman, I. Expectancy disconfirmation and the choice of negative alternatives: Dissonance avoidance or situation demands? In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968, Pp. 479-484.

Silverman, I., & Marcantonio, C. Demand characteristics versus dissonance reduction as determinants of failure-seeking behavior. Journal of Personality and Social Psychology, 1965, 2, 882-884.

Smith, M. B. The self and cognitive consistency. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968. Pp. 366-372.

Ward, W. D., & Sandvold, K. D. Performance expectancy as a determinant of actual performance: A partial replication. Journal of Abnormal and Social Psychology, 1963, 67, 293-295.

Waterman, A. S., & Ford, L. H., Jr. Performance expectancy as a determinant of actual performance: Dissonance reduction or differential recall? Journal of Personality and Social Psychology, 1965, 2, 464-467.

Watts, W. A. Predictability and pleasure: Reactions to the disconfirmation of expectancies. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), Theories of cognitive consistency: A sourcebook. Chicago: Rand McNally, 1968..Pp. 469-478.

Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.